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# **Causes and remedy of ethnic militancy and agitation for resource control in the Nigerian Niger Delta**

**Ola Abegunde<sup>1</sup>**

## **Abstract:**

Nigeria is a deeply divided country which the yardstick for measuring its division varies from ethnic, religion, culture, and language. The reason for this is that, the geographical entity now known as a nation state was a conglomeration of over 400 autonomous ethnic groups peacefully co-existing before her colonial occupation which led to the amalgamation of the various autonomous groups. The amalgamation was the 1914 unholy marriage conducted by the nation's colonial masters without considering the interest of the units presently in the polity. This marriage continued through independence and after without any effort by the units to agree on their mode of interactions. In addition, the intervention of military in the nation's politics further worsen the interaction between the central and the units, when the central government became powerful than the units through her unitary style of operation, and therefore making the units to leave at the mercy of the central government. This however led to forceful pursuit of self-determination and resource control among the oil-bearing units of the federation that are the least developed region in the federation. This development resulted into formation of ethnic militias by the aggrieved youths in the region to take their destiny in their own hands. Since the inception of Fourth Republic that ushered in democratic system of government that allows for self-expression on May 29, 1999, the nation has been witnessing a major wave of ethnic violent conflicts. The nation's federalism is such that its various institutions are not alert to their responsibilities; hence the country is gradually heading toward the status of a failed state. The focus of the study is the Nigeria Niger Delta region which is currently the nerve center of the nation's economy with oil production that places the nation as the highest producer of oil in the continent, and seventh in the world. It is interesting to note here that oil is not the only natural resource in Nigeria, but owing to lack of long term projection, the leadership attention has always been on the oil since its discovery in commercial quantity in 1958. This study examines the origin of oil in Niger Delta; interrogates impact of oil exploration on the oil-bearing communities; investigate the formula for sharing the nation's resources; the study also probes the causes of the unabated violent conflict championed by ethnic militia in the region. Finally, the study suggests that the only way forward to the Niger Delta crisis is the immediate introduction and implementation of a federal system of government with all its features that will allow all the federating units to have meaningful input in issues that affects them as a people within the Nigerian nation through a genuine constitutional review.

## **Keywords:**

Niger Delta, federalism, ethnicity, ethnic-militia, self-determination, democracy, resource conflict

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## **Background**

The oil revenue from Niger Delta region had made Nigerian government abandon agriculture which was the main source of revenue for the country before the discovery of oil in commercial quantity in the region in the 1950s. This development made the region the economic bedrock of the nation, and elevates Nigeria to seventh and first oil producing country in the World and Africa respectively. Emmanuel (2009: 225) equally submits that “in term of economic potentiality of the Niger Delta region to the Nigerian Economy, the region is said to have been the economic bedrock of Nigeria’s Gross Domestic Product since the time of oil was first found, and exported into the metropolitan countries”. In addition to this, Nigeria has also been elevated to an economically buoyant country, but the challenge of weak political system, weak administrative structure and lack of leadership has given rise to corruption in all sectors of the country, hence causing neglect of the economic nerve center of the country (Niger Delta).

The paradoxical development in the region has prompted a protracted conflict for over five decades without meaningful and sustainable solution yet on sight. The conflict has manifested in violence and militarization of the people in the region, resulting to militant violent attacks on the multinational corporations, theft of oil by syndicates; destruction of oil installations on one hand, intra and inter-ethnic conflict, community and militia conflict, militants and government agents conflicts on the other hand. Hence, oil exploitation in the region has become a curse rather than blessing to the people in the region, since individuals and communities that have been peacefully co-existing suddenly began to suspect one another and further engage in violent conflict because of the oil wealth in the region.

The first discovery of oil in commercial quantity was on 3rd of August, 1956 in tertiary deposits at 12,000 feet below, in Oloibiri a creek town near Yanogoa, the present Bayelsa State. On February 17th, 1958, the first batch of Nigeria Crude left the borders of the country for commercial purpose to Europe for the international oil market. Hence, with this development Nigeria became part of oil producing countries and a factor in the global oil market. In addition to this, it was also discovered that Nigeria has the largest gas reserve in Africa about 176 trillion cubic feet (Paul, 2010).

The Niger Delta now covers an area of 70,000 kilometer square that make up 7.5% of Nigeria’s land mass. Historically, the Niger Delta region consists of the present Bayelsa, Delta and River states, but in 2000 the Chief Olusegun Obasanjo regime included six other oil producing states to the region. The states are: Abia, Akwa-Ibom, Cross River, Edo, Imo and Ondo states, hence the total oil producing states in the country rise to nine.

## **History of oil in Nigeria**

The major event in the history of Nigeria oil and gas that is scarcely referenced was in 1908 when Nigerian Bitumen Co. & British Colonial Petroleum commenced operations around Okitipupa in the present Ondo state in the southwest of the country (Nigerian National Petroleum Corporation, 2010). This was followed by the 1938 oil exploration license granted to Shell D’Arcy to operate in any part of the country; and in 1955 Mobil oil Corporation was granted license and subsequently operations. In 1956 Shell D’Arcy recorded the first successfully drilled well at Oloibiri in the present Bayelsa state, thus this led to the 1958 celebrated first shipment of oil from Nigeria which launched the country into the committee of oil producing nations in the world (Nigerian National Petroleum Corporation: 2010).

Following the effective commencement and stability of oil and gas operations, Shell D’Arcy Petroleum began the pioneer commercial production in 1958 from the company’s oil filed in

Oloibiri in the eastern part of the Niger Delta region, the act which is now mostly referred to as the cradle of oil exploration in the country. Other oil companying's that engaged in oil exploration include, Mobil Oil, Elf, Agip among others. According to Paul, (2010) he submits that:

- many multinational and national organizations are involved in the exploration and production of crude in Nigeria and this has placed Nigeria on the map of the important nations in the world. The oil fields located in the Niger Delta are 606 (355 onshore and 261 offshore) in 1500 host communities. Over 6000 oil wells have been sunk, 7000 kilometers of pipeline laid, 275 flow stations, 10 gas plants, 14 export terminals, 4 refineries and a liquefied natural gas complex.

Following the discovery of oil in commercial quantity and its exploration at profitable value, petroleum assumed a dominant role in Nigeria's economy by accounting for about 90% of her gross earnings. Hence, Shell maintained a dominant role in Nigerian oil industry for 1938 until Nigeria became a member of Organization of Petroleum Exporting Countries (OPEC) in 1971, after which the country began to take a firm control of its oil and gas resources in line with the practice of the other members of OPEC. The Nigerian Government agreement with oil multinationals are: the first and second agreements of participation were in 1973 and 1974 when the Federal Government acquires 35% and 55% shares in the oil companies respectively. (Nigerian National Petroleum Corporation: 2010). In 1977, the Nigerian government established Nigerian National Petroleum Corporation (NNPC) by Decree 33, and the subsequent agreements third which increased Federal Government equity to 60% and in the fourth agreement Shell-British Petroleum's shareholding nationalized, leaving NNPC with 80% equity and Shell with 20% in the joint venture in 1979. In 1989, the fifth participation agreement was NNPC 60%, Shell 30%, Elf 5%, Agip 5% and the sixth participation agreement of 1993, NNPC 55%, Shell 30%, Elf 10%, Agip 5% (Nigerian National Petroleum Corporation: 2010).

## Theoretical explanations

The importance of oil in Nigeria as the nation's main revenue for social, economic and infrastructural development creates the condition which has made oil rent a major issue for both policy makers and the governed in the process of economic and political development. Therefore, the unit that controls political power concurrently controls the oil rents and determines its allocations. These have made it difficult for a shared political culture and common interest that will bring about agreed revenue sharing formula that will facilitate socio-political development and peaceful co-existence of the nation.

The preferred framework of analysis for this study is "frustration aggression hypothesis". Dollard et al. (1939) posited "that the occurrence of aggressive behavior always presupposes the existence of frustration and, contrariwise, that the existence of frustration always leads to some form of aggression". Nicky (1998:50-53) alluding to Dollard et al. when submits that frustration implies 'encountering an obstacle to some desired goal' while aggression means behavior intended to injure the person at whom it is directed'. The opinion of Gurr as cited by Dowse and Hughes (1983:411) states that, "individuals and groups have goals of some sort, that much of their goal is purposive in the sense of goal-seeking and that if this behavior is not prevented in some ways the groups or individuals are likely to behave quite rationally"

Frustration, in this context, was specified as the thwarting of a goal response, and a goal response, in turn, was taken to mean the reinforcing final operation in an ongoing behavior sequence. At times, however, the term 'frustration' is used to refer not only to the process of blocking a person's attainment, but also to the reaction to such blocking. The main trust of this hypothesis is that frustration leads to aggression, and that any hostile or aggressive behavior

that occurs is caused by frustration. Therefore, the violent conflict in the Niger Delta region is a product of Government deprivation of oil bearing community from their land and natural resources, poverty and neglect by the Federal Government that is using the region's resources to develop other regions. While the failure of government to implement a peaceful resolution in managing the resource conflict in the region caused their aggressive, hostile, antagonistic and violent behavior.

### **Revenue sharing formula**

Resource sharing or revenue allocation is the fiscal responsibilities among the tiers of government. It is appropriate at this juncture, to examine the underpinnings crisis from the method of revenue sharing. In spite of the several measures introduced to revenue sharing in Nigeria, its challenges are many and poverty remains widespread and prevalent, mainly in the rural and oil producing areas. Hence, resource sharing is still widely recognized as a potent tool for enhancing growth, redistribution of income and reducing poverty in the country.

The federal constitution gave the federal government exclusive power to collect 63.5% of the various levies in the country like, VAT, tax, mining rents, royalties and duties. In addition to these provisions, all revenues are paid into the federation account for further disbursement among the three tiers of government. In 1954, regional governments have rights to 100% of mining rents and royalties in their various regions, but with production and exportation of oil in commercial quantity in 1958, and subsequent Raisman Commission's recommendations in 1959, revenues were to be distributed as follows: mineral region (50%), Federal (20%) and Distributable Pool Account, DPA, (30%). Also, sales tax, to which states (or regions) hitherto had 100% right, was replaced by VAT in 1994 (Jimoh, 2003, cited in Salami, 2011).

Revenue allocation, in Nigeria started under the Richard Constitution of 1946 it was referred to as Phillipson commission; it placed emphasis on three principles for revenue sharing- derivation, population and progress, followed by the Hicks-Phillipson Commission (1951) that also recommended three principles- derivation, needs and national interest. Chick's Commission of (1953) emphasized the derivation principle as the basis of allocation of revenue to the Regions. The Raisman Commission of 1958 reduced considerably, the importance of principle of derivation, and retained the principle of fiscal autonomy for the Regions; it emphasized an approximate index of fiscal needs and the basic responsibilities of the regional governments and the need for even-development of the country which it called "unified national policy". This Commission recommended further that the North which had over half of the country's population was to receive 40 percent; Western Region was to receive 37 percent, Eastern Region 18 percent and Southern Cameroon 5 percent; while the Northern Region in addition received 1.5 million naira as compensation because the principle of derivation worked against it in the past (Ojo, 2011:21).

Binns Commission of (1964) was as a result of boundary readjustment and laid emphasis on the use of principle of needs, hence it recommend a change on the formula for sharing the Distributive Pool Account (DPA). Northern Region had 42 percent; Eastern Region 30 percent, Western Region 20 percent and the Mid-western Region 8 percent. The creation of the twelve state structures in 1967 brought about a revision in the revenue sharing formula, with the retention of the basic principle of allocation as recommended by the Commission (*ibid*). Dina Commission (1968) retained the recommendations of the previous Commissions, introduced minimum responsibility of government as revenue sharing criterion and recommended the establishment of a permanent revenue planning and fiscal commission (Adesina, 1998 and Omitola in Ojo, 2011:21).

Aboyade Technical Committee (1972) recommended 25% for Development Opportunities, 22% for National Integration, 20% for Absorptive Capacity, 18% for Independent Revenue Effort,

15% for Fiscal Efficiency; others are 57% to Federal Government, 30% to State Governments, 10% to Local Governments and 3% to Special Fund. Okigbo Commission (1980) recommended 53% for Federal Government, 30% for State Government, 10% for Local Governments, 15% for Social Development, 7% for Special Fund, 5% for Internal Revenue Effort, 4% for Population, and another 4% for equality. While Danjuma Commission of 1988 recommended the following percentages- 50% Federal Government, 30% State Governments, 15% Local Governments and 5% for special Fund. Beside all the various Commissions' recommendations, Decrees 15 of 1967, 13 of 1970, 9 of 1971, 6 & 7 of 1975 were promulgated for revenue allocation. As at moment the current revenue sharing formula from the Federation Account is as follows:

**Table1: Revenue Sharing Formula**

|   |              |
|---|--------------|
| Federal Governement   | 50 %         |
| State Government  | 24 %         |
| Local Government  | 20 %         |
| Special Funds   | 6 %          |
| <b>Total</b>  | <b>100 %</b> |
| <b>The Valued Added Tax (VAT) is also distributed as follows:</b> |              |
| Federal Government  | 15 %         |
| State Government  | 50 %         |
| Local Government  | 35 %         |

Source: Federal Office of Statistics, Benin City, as cited in (Uhunmwangho and Ekpu 2011)

The various commissions' recommendations were guided by the constitution based on the need to have equitable and balanced allocation that will allow for peaceful co-existence and development of all the tiers of government. Based on the difficulties of revenue sharing, National Revenue Mobilization, Allocation and Fiscal Commission was established in 1989, to disburse revenue among states/local governments.

### **Causes of Agitation**

The cause of conflict in Niger Delta is examined from two perspectives - the immediate and remote. The first land ownership: consequence on the global value for land, ethnic groups tends to acquire and control more lands in order to have more revenue from the acquired land.

Second, jurisdiction of traditional rulers and chiefs: there is always crisis when king of one ethnic group claims rulership over people belonging to another ethnic group. An example is the Olu (traditional ruler) of Itsekiri ethnic group called Olu of Warri, a community that is jointly inhabited by Ijaw, Itsekiri and Urhobo ethnic groups.

Third, structural deficiency of Nigeria federation: the Niger Delta crisis is a product of the structural injustices which led to the marginalization of the region, and the British colonial government exploited this situation by ruling through the existing aristocracy, thereby reinforcing the historical imbalance already present.

Fourth, deprivation of the means of livelihood: the government has deprived the region their means of livelihood for the past 60 years of oil production. Therefore, poverty is conspicuously displayed despite leaving on a richly endowed land that is distressed by deprivation, political marginalization and economic strangulation.

Fifth, environmental degradation: the social, cultural and environmental damage caused by oil production in the region have been enormous. These include destruction of wildlife and

biodiversity, loss of fertile soil, pollution of air and drinking water and damage to aquatic ecosystems, all of which have caused serious health problems for the inhabitants of areas surrounding oil production. As a result of environmental damage brought by the activities of the oil companies, environmental problems like erosion; flooding; land degradation; destruction of natural ecosystem; fisheries depletion caused by dredging ; toxic waste into the rivers are common occurrence in the region. The local people can no longer take to farming and fishing which are their major and traditional occupations.

The last but not the least is human rights violations, violations of the human rights of the local populace can be mentioned as one of the factors responsible for the militancy in the region, because the multinational corporations like Agip, Chevron, Mobil, Shell and others have been cruel to the region. In 1966, in attempt to suppress the Isaac Boro rebellion, the Nigerian troops terrorized an entire community and in the process engaged in raping of innocent women. In 1987, the Iko Community in Akwa Ibom State was extensively brutalized by a team of Nigerian Mobile Police Force, at the request of Shell. In 1992, at the insistence of Shell, some youth were killed in Bonny during a peaceful demonstration against the activities of the oil company. In January 1993, the Ogoni protested against Shell Oil and it resulted in arrests, and killing of Ogonis by the Federal Government troops. On January 11, 1999, Ijaw women who were peacefully demonstrating in Port Harcourt were violently tear-gassed, beaten, stripped, and detained by a combined team of policemen and soldiers. Also, the Warri war of 2003 was allegedly instigated by the activities of some oil companies and Nigerian Naval officers.

The immediate cause of the conflict in the oil region is the militarization of the Niger Delta youth by the Federal Government through poor handling of the crisis; the mobilization of youths as political thugs during the 1999 elections and followed by the Kaiama Declaration. In his view, Olorode, (1998:2) submits that, the Ogoni situation of land alienation, environmental degradation and government neglect of popular right to education, health services, roads, portable water and electricity is replicated in all the oil producing areas of Nigeria. Also Ikelegbe (2005, cited in Ebienfa 2012), submits that the Kaiama Declaration was named after the historic town of Kaiama (the home town of Isaac Adaka Boro and the revolutionary headquarters of the Ijaw nation) where the All Ijaw Youths Conference was held on the 11 December 1998. He further submit that the day the Niger Delta changed, over 5000 Ijaw youths, drawn from over 5000 communities of about 40 clans that make up the Ijaw nation, met in Kaiama to deliberate on ways of finding solutions to the problems associated with ‘the enslavement in the fraudulent contraption called Nigeria’.

### **Dimensions of agitation**

The Niger Delta violent conflict started after the declaration of Niger Delta republic in 1966 by Jasper Isaac Adaka Boro, an Ijaw nationalist who led an armed campaign for autonomy, resource control and self-determination for the inhabitant of the region. While justifying his action, Boro maintains that “most of the youths were so frustrated with the general neglect that they were ready for any action led by an outstanding leader to gain liberty... we were clenched in tyrannical chains and led through a dark alley of perpetual political and social deprivation” (Nairaland Forum, 2012:1). This conviction led him with the assistance of Samuel Owonaru and comrade Nottingham Private to recruiting of young men to their cause under the umbrella of Niger Delta Volunteer Force (NDVF) which eventually led to establishment of a military camp at Taylor Creek. (Nairaland Forum, 2012:2). In a related view, Sampson (2009: 31) argues that, “as early as 1966, Isaac Jasper Adaka Boro, a former police officer from the Delta, led a rebellion against the Nigerian state with the aim of achieving liberation for the Niger Delta people”.

On 23 February 1966, NDVF under the leadership of Boro, Onwonaru and Privates attacked a police station in Yenagoa, raided the armory and kidnapped some officers in the police station; they blew pipelines, engaged the police in a gunfight and announced the independent of Niger Delta republic, but in a swift response their action was suppressed by the federal troop. Through this action the deed had been done by instilling the consciousness into mind of the Niger Delta people that the region was marginalized, oppressed, victimized, and deprived of the control of their natural resources.

The Niger Delta crisis was internationalized by Ken Saro-Wiwa through his publicities and murder of Ogoni four that led to the hanging of Ogoni nine and execution of Ken Saro-Wiwa in October 1995. Saro-Wiwa not only succeeded in directing the attention of the international community to the plight of the people in the Niger Delta but also – through his advocacy – paved the way for robust international / civil society such as Amnesty International, Green Peace Movement, Rainforest Action Group, the Commonwealth of Nations and the United Nations to engage in the issues at the core of the crisis in the region (Ojakorotu, 2009:3).

The 1998 Kaiama Declaration after the resolution of a meeting of the Ijaw Youths Conference (IYC) held in Kaiama, Bayelsa State, ordered all the oil producing companies to vacate the region latest December 1998. This was an attempt by the Ijaw Youth Council (IYC) to reassert their rights over their land and resources. The Kaiama Declaration was signed by several thousands of Ijaw youths and marked the starting point of every radical demands and subsequent military operations against youth protests that followed (Ibaba and Ikelegbe, 2010: 226)

In 2003 there was a rivalry clash between the gangs and cults loyal to Asari-Dokubo of the Niger Delta People's Volunteer Force (NDPVF), Niger Delta Peoples Salvation Front (NDPSF) and Ateke Tom of the Niger Delta Vigilante Group (NDVG).

The involvement of Movement for Emancipation of Niger Delta (MEND), added a new dimension which include, illegal bunkering, cultism, militancy, sea piracy, hijacking of vessels, hostage taking and kidnapping. In a similar view, Ojakorotu (2009:3) remarks that “the crisis has taken a new turn with increasing criminalization of the conflict, leading to questions as to why the problem is seemingly spiraling out of control”. The crisis has created a weird booming business of hostage taking for money and storming of banks (Dike, 2001:3), in a related submission, Isele (22 Feb 2006), submits that “hostage taking has become a lucrative business providing a means of spending money without proper accountability”.

This can as well be summarized thus: between 1950 and 1965 there was civil agitation for special development attention; militant insurgency of Adaka Boro in 23 February to 6 March 1966. In 1970 to 1982 there were agitations by the oil-bearing communities against transnational corporations; between 1983 and 1990 the agitations of oil-bearing communities degenerated to violent conflict over non-payment of adequate compensation for damages and non-implementation of development projects. After the violent conflict, in 1990 through 1996 there were peaceful demonstrations, but when the demonstrations were not yielding the expected results ethnic militants were established between 1997 and 2009 that engaged both the government and the oil corporation in violent confrontations.

### **Conflict prevention/ resolution**

Conflict is an unavoidable phenomenon in any human society that strives for development, because development itself is a process that is conflict oriented. Hence, development is always confronted with challenges which mostly results into conflict because of human nature that naturally restricts change.

A key element of conflict prevention in the region is to ensure that the wealth generated through resource extraction is utilized to improve living conditions of natural resource

communities. In Stiftung (2012: 3) this necessitates transparent and equitable distribution of revenues from the resource sector. Despite the afflictions highlighted in the region, all hope is not lost for its prevention and resolution in a country that peacefully co-existed before the Western invasion and subsequent exploration of its natural resources.

The first step is the establishment of agreements, and efforts at cooperation, co-management, and conservation of the natural resources. This implies that all the stakeholders – government, resource bearing community, and multinational corporations have to be in agreement over the terms of their interactions in natural resource exploration such that they will all benefit in a way that will guard against preventable natural resource conflict. In doing this, the stakeholders are to be adequately represented in all decision-making process that affects their lives.

Secondly, there is need to ensure that the wealth generated through natural resource extraction is utilized to improve the living conditions of communities that are endowed with the oil resources. This can include the following but not limited to provision of portable water, good road, electricity, hospital among others. If these are provided for the natural resource endowed communities it will prevent undue tension, frustration, agitation/ aggressions.

Third is the need for democratic peace building institution. The purpose of this institute is to investigate issues that normally propel conflict in the affected communities; formulate policies on how to resolve and prevent such from future occurrence; and recommend practicable policies for revenue sharing formula that will be embraced and acceptable to the stakeholders.

Fourth is the need for transparency and accountability. The leadership failure in the country has made resource utilization and management the most contentious issues in the country.

Fifth is the diversification of the economy in a way that the country will stop relying on only one source of revenue for its economic development. The revenue generated from the oil is to be re-invested in other sectors of the economy. Hence, this will create more employment, reduce unnecessary tension and conflict on oil revenue, encourage peaceful co-existence among the natural resource stakeholders, and stable government.

## **Conclusions:**

Conclusively, this study suggests that the only way forward to the Niger Delta crisis is the immediate introduction and implementation of a federal system of government with all its features that will allow practicability of above recommendations through a genuine constitutional review.

## **Literature:**

- Adesina, O. C. (1998): "Revenue Allocation Commissions and the Contradictions in Nigeria's Federalism", in Kunle Amuwo et. Al., (eds), *Federalism and Political Restructuring in Nigeria*. Ibadan Nigeria; Spectrum Books Limited and IFRA.
- Ebienfa, K.I. (2011): "Militancy in the Niger Delta and the Emergent Categories" in *Review of Africa Political Economy*, 38:130, 637-643, available on: <http://kimiebi.blogspot.com> (accessed 23/08/2012).
- Dike, V.E. (2001): Niger Delta Crisis and the Nigeria Economy. Available on: <http://www.mhtml:file:///H:\NIGERDELTAFILE\niger.org> (accessed, 12/11/2012).
- Dollard, J. Doob, L. Miller, N. Mowrer, O. Sears, R. (1939): "Frustration and Aggression." New Haven, CT, Yale University Press.
- Dowse, R.E. and Hughes I (1983): *Political Sociology*. Norwich; Page Bros Ltd.

- Emmanuel, A.O. et al (2009): Poverty, Oil Exploration and Niger Delta Crisis: The Resources of the Youth. In African Journal of Political Science and International Relations. Vol. 3 (5), Available on: <http://www.academicjournals.org/AJPSIR> (accessed 06/08/2012).
- Ibaba, I.S. and Ikelegbe, A. (2010): "Militias, Pirates and Oil in the Niger Delta" in Okumu, W. and Ikelegbe, A (eds) *Militias, Rebels and Islamist Militants Human Insecurity and State Crises in Africa*. South Africa; Institute of Security Studies.
- Isele, P. (2006): "Militants Blow Up Another Oil Boat" in The Punch. Lagos; Punch Nigeria Limited.
- Jimoh, A. (2003): Fiscal Federalism The Nigerian Experience. Paper delivered at the meeting on Fiscal Policy and Growth in Africa, Fiscal Federalism, Decentralization and the Incidence of Taxation, Ad-Hoc Expert Group Meeting 7-9 October 2003, UNCC, Addis Ababa, Ethiopia, Economic Commission for Africa.
- Nairaland Forum (2012): Isaac Adaka Boro and Niger Delta Militancy – Politics – Nairaland. <mhtml:file:///H:\NIGERDELTAFILE> (accessed, 01/11/2012).
- Nicky, C.T. (1998): Ethno-Religions Violence; its Management: Hong Kong; Longman Group Ltd.
- Nigeria National Petroleum Corporation (2010): History of the Nigerian Petroleum Industry, available on: <http://www.nnpcgroup.com> (accessed 20/10/2012).
- Ojakorotu, V. (2009): "Introduction" in Ojakorotu, V (ed), Fresh Dimentions on the Niger Delta Crisis of Nigeria: Part of the Conflict and Development Series. South Africa; JAPSS Press, Inc.
- Ojo, E.O. (2011): The Politics of Revenue Allocation and Resource Control in Nigeria: Implications for Federal Stability. Federal Governance a graduate journal, available on: <http://federalgovernance.co> (accessed 23/08/2012).
- Olorode, O. (1998): "Imperialism, Neocolonialism and the Extractive Industries in Nigeria" in Olorode, O et al. (eds) Ken Saro-Wiwa and the Crises of the Nigeria State. Lagos Nigeria; Committee for the Defence of Human Rights (cdhr)
- Paul, G. A. (2010): The History of the Niger Delta Militants. Witinut, available on: <http://nut.bz/hxpjx7ef/> (23/08/2012).
- Salami, A. (2011): Taxation, Revenue Allocation and Fiscal Federalism in Nigeria: Issues, Challenges and policy Options. Economic Annals; Volume LVI, No189, Scientific Papers.
- Sampson, I.T. (2009): "Niger Delta Militancy and the Challenge of Criminalising Terrorism in Nigeria" in African Security Review Vol 18 No2 June 2009. South Africa; Institute of Security Studies.
- Stiftung, H.B (2012): Natural Resource and Conflict. Germany; The Green Political Foundation.
- Uhunmwangho, S. and Ekpu, C. E. (2011) "Federalism: Problems and Prospects of Power Distribution in Nigeria" in Journal of Sustainable Development in Africa (Volume 13, No.5). Pennsylvania, Clarion University of Pennsylvania., available on: <http://www.jsd-africa.com> (accessed 12/10/2012).
- UNDP (1999): Human Development Report, USA, United Nations Development Programme.

# The effects of foreign exchange regimes on industrial growth in Nigeria

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## Abstract

The study empirically examines the Effect of Foreign Exchange Regimes on Industrial Growth in Nigeria, in line with the objectives of this study, secondary data were obtained from Central Bank of Nigeria Statistical Bulletin covering the period of 1985 to 2005.

In concluding the analysis, multiple regressions were employed to analyze data on such variables as Gross Domestic Product, World Price Index, Per Capita Income, and Net Export. Exchange rate (broadly define, narrowly define and quasi money) were all found to have significant effects on the Economics Growth with the Adjusted R<sup>2</sup> of 69%.

Following the outcome of this study, it is therefore concluded that the effect of using Foreign exchange, World Price Index, Per Capita Income, and Net Export as an inducement for greater performance for stable economic growth and are capable of giving stability in prices for manufactured goods.

**Key words:** Foreign Exchange; Real Growth; Nigeria Economy.

## Background to the study

There is scarcely any country that lives in absolute autarky in this globalised world. The economies of all the countries of the world are linked directly or indirectly through asset or/and goods in the markets. This linkage is made possible through trade and foreign exchange. The price of foreign currencies in terms of a local currency (i.e. foreign exchange) is therefore important to the understanding of the growth trajectory of all countries of the world.

The consequences of substantial misalignments of exchange rates can lead to output contraction and extensive economic hardship. Moreover, there is reasonably strong evidence that the alignment of exchange rates has a critical influence on the rate of growth of per capital output in low income countries (Isard, 2007).

Nigeria, like many other low income open economies of the world, has adopted the two main exchange rate regimes for the purpose of gaining internal and external balance. The augments and conditions for and against each of the regime is clear given that they all aimed at maintaining stability in exchange rates. Direct administrative control exchange rate policy was used to manage Nigeria's foreign exchange from independence in 1960. The country changed to a market regulated regime in 1986 for obvious reasons.

The fundamental objectives of exchange rate policy in Nigeria are to preserve the value of the domestic currency, maintain a favorable external reserve position and ensure external balance without compromising the need for internal balance and the overall goal of macro-economic stability. In an attempt to achieve optimal level of foreign exchange efficiency, several policy guidelines and requirements were introduced to manage the nation foreign exchange market. Remarkable among the prominent policies emerged in 1986

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upward when Nigeria shift to market oriented economy with view to promote productive sector and enhance the facilitation of foreign direct investment (FDI) influx into the country.

What is however yet to be clear is the relative advantage of the various organized market arrangement for selling and buying the foreign exchange under the dirty float regime that the country now operates. The country has and is still experiencing with various market arrangements. First in 1986, it chose to operate the Second Tier Foreign Exchange Market (SFEM) on an auction basis. More than two decades now after the introduction of the flexible exchange regime, Nigeria has operated several variants of the auction system (Auction System, Dutch Auction System, Wholesale Dutch Auction System, and Retail Dutch Auction System) towards determining the exchange rate of the naira to US dollar.

Thus, Nigeria economy had experienced financial and economic reform through the adoption of structural adjustment programme (SAP) with deregulation and liberalization of foreign exchange market, Naira exchange rate was deregulated on Sept. 29, 1986, whereby deregulation of exchange rate system was hinged on the belief that during fixed exchange rate regime, naira was overvalued implying that tradable were priced lowly in the domestic economy which indicate a disincentive to export production. The expectation was that naira deregulation will generate a realistic exchange rate that would accelerate the rate of economic growth through the attraction of foreign capital, investment and discouragement of capital flight. The institutional framework of the market has witnessed metamorphosis from second tier foreign exchange market established in 1986 to foreign exchange market (FEM), Inter-bank foreign market (IFEM), Autonomous foreign exchange market (AFEM) and now back to IFEM-all reflecting a high degree of deregulation.

This research is important now more than ever because the naira is facing a lot of challenges as the world faces financial meltdown.

## **STATEMENT OF THE RESEARCH PROBLEM**

Many economies of the world are experiencing foreign exchange rate instability which affects economic performances of their economies as a result of inability to achieve expected realistic exchange rate and price stability.

Theory has also shown that for standard of living to be improved or the economy to grow and expand developmentally such economy has to be opened, that is, presence of external economy. The presence of external factors in the economy generates an influence which is hard to manage and control. Prior to the introduction of Structural Adjustment Program (SAP) in 1986, Naira (Nigerian Currency) enjoyed appreciable value against US dollar a factor that creates opportunity for rapid economics growth and stability. With introduction of new economic program, the country began to suffer unstable exchange rate that cause a high degree of uncertainty in the Nigeria business environment.

Domestic investors face enormous risk as no one, no matter how intelligent could predict the likelihood of the foreign exchange market performance. The situation must equally have an effect on importation level of the country. Nigeria is a developing country striving to develop its industrial needs to harness its foreign exchange market to enable domestic investors import relevant machineries, equipments and raw materials for the industrial consumption.

## **OBJECTIVES OF THE STUDY**

The broad objective of this study is to identify, evaluate and address the effect of foreign exchange regimes industrial growth in Nigeria. The objectives are broken down into the following specifics:

- (i) To evaluate the effect of foreign exchange on an economy.
- (ii) To examine the relationship between real growth and foreign exchange.
- (iii) To asses foreign exchange effects on Nigeria economy either positively or negatively.

## LITERATURE REVIEW

### FOREIGN EXCHANGE IN NIGERIA

Foreign Exchange refers to as the financial transaction where currency value of one country is traded into another country's currency. The whole process gets done by a network of various financial institutions like bank, investors and government. Our major discussion is based on the government i. e. Nigeria.

Conceptually, an exchange rate constitutes the price of one currency in terms of another. Nationally, in the Nigeria situation, it is the units of naira needed to purchase one unit of another country's currency (e. g. the United States dollar). That is, the value of the naira in terms of the dollar or pounds sterling in the case of the United States (U. S.) or United Kingdom (U. K) respectively.

The evolution of the foreign exchange market in Nigeria up to its present state was influenced by a number of factors such as the changing pattern of international trade, institutional changes in the economy and structural shifts in production.

Before the establishment of the Central Bank of Nigeria (CBN) in 1958 and the enactment of the Exchange Control Act of 1962, foreign exchange was earned by the private sector and held in balances abroad by commercial banks which acted as agents for local exporters. During this period, agricultural exports contributed the bulk of foreign exchange receipts. The fact that the Nigerian pound was tied to the British pound sterling at par, with easy convertibility, delayed the development of an active foreign exchange market. However, with the establishment of the CBN and the subsequent centralization of foreign exchange authority in the Bank, the need to develop a local foreign exchange market became paramount.

The increased export of crude oil in the early 1970s, following the sharp rise in its prices, enhanced official foreign exchange receipts. The foreign exchange market experienced a boom during this period and the management of foreign exchange resources became necessary to ensure that shortages did not arise.

However, it was not until 1982 that comprehensive exchange controls were applied as a result of the foreign exchange crisis that set in that year. The increasing demand, for foreign exchange at a time when the supply was shrinking encouraged the development of a flourishing parallel market for foreign exchange.

The exchange control system was unable to evolve an appropriate mechanism for foreign exchange allocation in consonance with the goal of internal balance.

This led to the introduction of the Second – tier Foreign Exchange Market (SFEM) in September, 1986. Under SFEM, the determination of the Naira exchange rate and allocation of foreign exchange were based on market forces. To enlarge the scope of the Foreign Exchange Market Bureau de Change were introduced in 1989 for dealing in privately sourced foreign exchange. As a result of volatility in rates, further reforms were introduced in the Foreign Exchange Market in 1994. These included the formal pegging of the naira exchange rate, the centralization of foreign exchange in the CBN, the restriction of Bureau de Change to buy foreign exchange as agents of the CBN, the reaffirmation of the illegality of the parallel market and the discontinuation of open accounts and bills for collection as means of payments sectors. The Foreign Exchange Market was liberalized in 1995 with the introduction of an Autonomous Foreign Exchange Market (AFEM) for the sale of foreign exchange to end – users by the CBN through selected authorized dealers at market determined exchange rate. In addition, Bureau de Change was once more accorded the status of authorized buyers and sellers of foreign exchange. The Foreign Exchange Market was further liberalized in October, 1999 with the introduction of an Inter – bank Foreign Exchange Market (IFEM).

### WHAT IS ECONOMIC GROWTH?

Economic Growth is defined as the increasing capacity of the economy to satisfy the wants of goods and services of the members of society. Economic growth is enabled by increases in productivity, which lowers the inputs (labor, capital, material, energy, etc.) for a given amount of output. Lowered costs increases demand for goods and services. Economic

growth is also the result of population growth and of the introduction of new products and services. There are various theories in economic growth in which we will consider just few.

## **REAL GROWTH IN MANUFACTURING COMPANIES IN NIGERIA**

Basically the growth of a manufacturing company depends on the stability of foreign exchange of the country. Growth is a positive increment in doings and can only be achieved if the value of the currency used in transactions does not depreciate.

Following the fluctuation of the Naira in 1986, a policy induced by the Structural Adjustment Programme (SAP), the subject of exchange rate fluctuations has become a topical issue in Nigeria. This is because it is the goal of every economy to have a stable rate of exchange with its trading partners. In Nigeria, this goal was not realized in spite of the fact that the country embarked on devaluation to promote export and stabilize the rate of exchange. The failure to realize this goal subjected the Nigerian manufacturing sector to the challenge of a constantly fluctuating exchange rate. This was not only necessitated by the devaluation of the naira but the weak and narrow productive base of the sector and the rising import bills also strengthened it. In order to stem this development and ensure a stable exchange rate, the monetary authority put in place a number of exchange rate policies. However, very little achievement was made in stabilizing the rate of exchange. As consequences, the problem of exchange rate fluctuations persisted throughout the study period.

The manufacturing sector plays catalytic role in a modern economy and has many dynamic benefits that are crucial for economic transformation. In advanced countries, the manufacturing sector is a leading sector in many respects. It is an avenue for increasing productivity in relation to import substitution and export expansion, creating foreign exchange earning capacity, raising employment, promoting the growth of investment at a faster rate than any other sector of the economy, as well as wider and more efficient linkage among different sectors (Fakiyesi, 2005). But the Nigerian economy is under – industrialized and its capacity utilization is also low. This is in spite of the fact that manufacturing is the fastest growing sector since 1973/74 (Obadan, 1994). The sector has become increasingly dependent on the external sector for import of non – labour input (Okigbo, 1993). Inability to import therefore, can impact negatively on manufacturing production.

## **STRUCTURE OF NIGERIA'S FOREIGN EXCHANGE MARKET**

The Nigeria foreign exchange market has witnessed tremendous changes. The Second – tier Foreign Exchange Market (SFEM) was introduced in September, 1986, the unified official market in 1987, the Autonomous Foreign Exchange Market (AFEM) in 1995, and the Inter – bank Foreign Exchange Market (IFEM) in 1999. Bureau de Change are licensed in 1989 to accord access to small users foreign exchange and enlarges the officially recognized foreign exchange.

Exchange rates in the Bureau de Change are market determined. A parallel market for foreign exchange has been in existence since the exchange control era.

## **GROWTH OF THE MARKET EXCHANGE IN NIGERIA**

The parallel market for foreign exchange emerged in Nigeria during the World War II. Then, the returning veterans that brought home foreign currencies exchanged them in the market. For a very long time afterwards, activities in the parallel market for foreign exchange were on a very moderate scale. The market received a boost shortly after independence between 1963 and 1966 as politicians exchanged their estacodes then in the market. At this time there was a one – to- one relationship between the Nigerian pound and the British pound sterling in the official market. Administrative measures were used to sustain the parity with the anchor currency. This fixed parity lasted until the British pound was devalued in 1967. Rather than devalue the Nigerian pound, the monetary authorities decided to peg the Nigerian currency to the US dollar at par. This was done to make imports cheaper for the import substituting industries that still relied heavily on foreign inputs.

The parallel market further expanded following the outbreak of civil war in Nigeria in 1967. At that time, uncertainties regarding the outcome of the war led to capital flight. This necessitated the imposition of severe import restrictions and strict administrative controls on foreign remittances. In addition, the boom witnessed in the parallel market at that time reflected over-invoicing of imports which was very rampant then. Furthermore, government officials in the military regime then were reported to be transferring funds abroad through the parallel market. By this time, Lagos had become a major center of parallel foreign exchange operations. However, the change of the Nigerian currency early in the civil war in January 1968 made things pretty difficult for the parallel market operators; participants had to go as far as Abidjan for transactions. Nonetheless, the market reappeared, though on a very limited scale by May 1968. As the civil war ended in 1970 and the air of uncertainty and insecurity was over, activities and the exchange rate of the Nigerian pound in the parallel market plummeted. Consequently, the anchor currency was traded at a discount in the parallel market for foreign exchange. It is clear that up to this time parallel premium was not an important feature of the Nigerian economy, partly because the extent of rationing was limited and excess demand was very low.

The collapse of the Bretton Woods System and the subsequent 10% devaluation of the US dollar in 1971 slightly increased the rate of activities in the parallel market. This was because the Nigerian authorities refrained from devaluing the Nigerian pound then. The fear was that devaluation would engender high cost of imports of capital goods and raw materials needed to implement the national development plan. Thus, parity with the US dollar was discontinued and the Nigerian pound was once again fixed at par with the British pound. In 1972, when the British pound sterling was floated, the parity relationship between the pound sterling and the Nigerian pound was abandoned. In January 1973, the Nigerian pound was replaced with naira, a decimal-based currency, and pegged to the US dollar. In spite of the terrific inflow of foreign exchange from crude oil sales at that time, capital flight intensified. This may have been a direct result of the indigenization programme introduced by the Nigerian government in 1972 to check the increasing dominance of major sectors of the economy by foreign firms. The resulting excess demand for foreign currency and pervasive rationing (together with other factors) made the naira very weak in the market. From that time onward, the US dollar was sold at a premium in the parallel market.

However, this policy did not last long. Soon after, the US dollar was devalued. In sympathy, the naira was devalued too even though macroeconomic fundamentals dictated otherwise. This led to higher premium in the parallel market for foreign exchange. The shortcoming of Nigeria's post-independence exchange rate policy of pegging the national currency to a single currency became apparent at this time. It was expected that the devaluation exercise would ensure stability of the local currency value of exports and protect local industries from excessive competition. The measure rather worsened Nigeria's inflationary situation. Thus, the need to manage the naira exchange rate became very clear.

Accordingly, the country decided to implement an adjustable exchange rate system in 1974. This entailed pegging the naira to the US dollar or the British pound sterling, whichever of them was stronger in the foreign exchange market. In effect, the Nigerian monetary authorities implemented an independent exchange rate management policy between April 1974 and late 1976. The basic policy objective then was to influence real economic variables in the economy and lower the inflation rate. The decision to manage the naira led to its gradual appreciation. The policy of allowing the naira to appreciate as an overvalued currency was deemed necessary for the import substitution industrialization programme that was being implemented then. This was possible because of the large inflows of foreign exchange from crude oil sales during the oil boom era. The naira became so strong that it was openly traded in the London foreign exchange market. This marked the beginning of a very active parallel market for foreign exchange in Nigeria. The independent exchange rate policy continued until 1976 when Nigeria's economic fortunes began to decline.

Between 1976 and 1985, the policy of pegging the naira to an import weighted basket of currencies was experimented. A basket of seven currencies of Nigeria's major

trading partners was adopted. The currencies were US dollar, the British pound sterling, the German mark, the French franc, the Dutch guilder, the Swiss franc, and the Japanese yen. This policy was abandoned in 1985; the naira has since then been quoted against the US dollar. Following the economic crisis that started in January 1981, which worsened afterwards, the naira, became grossly overvalued against the US dollar. This was in spite of the fact that the currency was deliberately depreciated during the period. As the economic crisis deepened, the government introduced a market-determined exchange rate policy as part of its structural adjustment policies (SAP) in September 1986. This stance of policy has continued since then to date in various forms.

In sum, the deliberate overvaluation of the exchange rate during the 'oil boom' years, and the resultant lower import prices altered the structure of incentives in favor of imports and import-competing sectors and against agriculture and export production. Furthermore, the policy greatly eroded the competitiveness of the economy. This stifled the growth of the private sector and non-oil export earnings, and entrenched the reliance on the public sector oil export earnings as the main source of foreign currency in the economy. Also, the policy resulted in massive capital outflows and serve reserve shortages. In the early days of the boom, foreign exchange was not a constraint; consequently, imports increased markedly. The quantitative policies implemented at the onset of the oil crisis in the late 1970s (and repeated in 1982 and 1984) provided the impetus for the growth of the parallel market. The market emerged to satisfy the demand that could not be met at the official market. As a result of the rationing of foreign exchange, the parallel market became a major source of foreign exchange to a wide variety of economic agents. Absence of documentation requirements and the ease of import duty evasion join to make the market to thrive.

Exchange rate has a more homogenous behaviour during this period than the official rate. The growth in the latter was quite small relative to the parallel rate before 1986. Between 1986 and 1993 however, the two rates exhibited closer profiles. This reflects effort of the Central Bank of Nigeria (CBN) geared market towards exchange rate convergence across the segment of the foreign exchange market. In spite of the foreign exchange reform of 1986, multiple exchange regimes prevailed in the Nigerian economy. Furthermore, the foreign exchange market was characterized by the continuous decline in the value of the naira and lack of tendency towards exchange rate convergence.

To achieve stability and convergence of the multiple exchange rates, the CBN 'deregulated' the foreign exchange market on 5 March 1992. Equating the realistic exchange rate to the parallel market rate, the CBN merged the official rate with the former. Temporary convergence was achieved through the equalization policy on 5 March 1992. However, the forced convergence was not sustained. The CBN was to induce stability of the exchange rate by increasing the supply of foreign exchange demand through fiscal and monetary restraints. Contrary to expectations, CBN's supply of foreign exchange through the end of 1992 was erratic; foreign exchange sales were suspended three times. Also, federal deficit in 1992 was 1097% greater than it was at the inception of adjustment policies in 1986. not only did the foreign exchange market rate divergences continue afterwards, the naira continued to depreciate against the dollar in the market.

## **RESEARCH METHODOLOGY**

This chapter describes the methodology employed in this study. Methodology consists of the procedures to be used for collecting data, summarizing and analyzing the data gathered in order to answer the research questions. It is intended to applying the chosen methods in the research to minimize the costs of obtaining the data and analyzing them while maximizing the expected values of resultant information as well as association level of accuracy. For this purpose, issues addressed include; research design, study population sample and sampling technique, data collection and research instrument validation.

This research shall be based on a cross-sectional survey between the periods from 1985 to 2005 financial years. The research shall be designed to capture how selected respondents perceive the independence of auditors in Nigeria. A pilot study shall be conducted using eighty-four samples of questionnaires. This was to ensure the relevancy of the data gathering instrument.

## METHOD OF DATA COLLECTION

Method employed in Carrying out this research work was by secondary data. Secondary data is the name given to data that has been used for some purpose other than that for which they were originally collected. Secondary data generally used when the term manpower resource necessary for survey are not available and of course the relevant secondary data exist in a usable form or it already exists and provide most, if not all information required. My secondary data were gotten from different sources e.g. CBN Statistical Bulletin 2005 and Nigeria Bureau of Statistics.

## SAMPLE SIZE

The duration of my research was basically from 1985-2005 which is in the range of 20yrs. This duration was used because it is detailed enough to give a good result and analysis.

## DATA ANALYSIS TECHNIQUES

My analysis was carried out in two forms and they are regression analysis and correlation. Regression analysis includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables.

Regression models involve the following variables:

The unknown parameters denoted as  $\beta$ : this may be a scalar or a vector.

The independent variable X

The dependent variable Y

In various fields of application, different terminologies are used in place of dependent and independent variables.

A regression model relates Y to a function of X and  $\beta$

$Y = f(X, \beta)$

## MODEL SPECIFICATION

Nigeria economy is measured using GDP

GDP of WPI, PCI, EXR, NEX + Error term

## MODEL A

GDP = (WPI, PCI, EXR, NEX)

$GDP = \alpha_0 + \alpha_1 \log WPI + \alpha_2 \log PCI + \alpha_3 \log EXR + \alpha_4 \log NEX + U_t$

Where:  $\alpha$  = alpha

$U_t$  = error term

GDP = Gross Domestic Product a proxy for economic growth

WPI = World Price Index

PCI = Per Capita Income: GDP/POPULATION

EXR = Exchange Rate: (NAIRA TO US DOLLAR)

NEX = Net Export: (CURRENT EXPORT – CURRENT IMPORT)

## MODEL B

Real growth on manufacturing sector and manufactured products

$RG = \beta_0 + \beta_1 \log CPI + \beta_2 \log EXR + \beta_3 \log GDP + \beta_4 \log NEX + U_t$

Where:  $\beta$  = beta

$U_t$  Error term

$RG = (\beta_0 - \beta_4) =$  Real Growth (total investment on manufactured product)

CPI Consumer Price Index a proxy for inflation.

NEX = Net Export

EXR = Exchange Rate  
 GDP = Gross Domestic Product

## **PRESENTATION AND ANALYSIS OF DATA**

This chapter will be used in analyzing and presentation of data collected from different reliable sources like CBN Statistical Bulletin 1999, 2005. Nigeria Bureau of Statistics. This was done so as to determine the effect of foreign exchange on industrial growth in Nigeria from the period of 1985 to 2005.

According to the research question, to what extent does foreign exchange and real growth and after getting the results or answers to these questions, we can now decide if this research has affected Nigeria economy positively or negatively during the periods in which the data are used for the research.

The following tables below are actually gotten from different sources but they are answers to these research questions.

## **RESULT PRESENTATION AND DISCUSSION**

The estimated model used observations for the periods 1985 – 2005 (21 years).

Table 1: Effect of Foreign Exchange, World Price Index, per Capital Income, Net Export on GDP as proxy for Nigeria economy.

| Variable | Coefficient | t-statistics | Significant | Alpha coefficient | R <sup>2</sup> =0.682 |
|----------|-------------|--------------|-------------|-------------------|-----------------------|
| Constant | 43884.261   | 0.342        | 0.732       |                   | Adj                   |
| EXR      | 658.085     | 0.794        | 0.439       | 0.222             | R <sup>2</sup> =0.682 |
| PCI      | 128925.53   | 1.514        | 0.150       | 0.245             | S.E= 83465            |
| WPI      | 22.209      | 2.065        | 0.055       | 0.569             | F.Stat=8.59           |
| NEX      | 0.46        | 0.484        | 0.635       | 0.074             | 7                     |

Dv = 215408.856

## **DATA ANALYSIS: FEBRUARY 2012**

**Table 1** shows the result of the effect of EXR, PCI, WPI and NEX on Nigeria economy. It could be seen that there is a positive relationship between all the variable rates and the Gross Domestic Product (GDP) which means as all the rate increases, there is also an increase in the economic growth. As the countries Exchange rate(EXR) increases by 658.085 there is also an increase in the economic growth. The coefficient growth rate which means for every ₦1 increase in exchange rate there is almost 6% increase in Gross Domestic Product. The t-statistics indicates that Exchange Rate is 0.439 significant levels to the model. The coefficient of 128925.53 for Per Capita Income (PCI) rate shows that an increase in causes increase Per Capita Income in economic growth rate (PCI) rate shows that an increase in causes increase Per Capital Income in economic growth rate (GDP). This signifies for every N1 increase in Per Capital Income, there would be almost 12.8% increase in Gross Domestic Product. The t-statistics shows that Per Capital Income is 0.150 significant levels to the model. Increase in World Price Index (WPI) causes increase in economic growth (GDP). From the diagram, World Price Index rate coefficient of 22.209 shows an increase in economics growth. This implies that every N1 increase in World Price index rate causes increase in Gross Domestic Product by approximately 2% the model is 0.055 significant levels to the economic growth. The coefficient indicates that the explanatory variables that were used in this model accounted for 20.8% changes in the Gross Domestic Product of the country. This means that though the selected explanatory variables are relevant, there are still other variables that would account for changes in the economic growth that are not considered in the model. The standard error of the model is high in relative terms While the validity test, F-statistics indicates that the model is statistically significant to the study and that there is relatively little auto-correction in the model. The coefficient of determination, R<sup>2</sup>, indicates that the explanatory variables that were used in this model accounted for 68% changes in the Gross Domestic Product of the country. This

means that the selected explanatory variables in the model are relevant for the stability in the economic growth.

**Table 2:** Effect of Consumer Price Index, Exchange Rate, Net Export, Gross Domestic Product on Real Growth

| Variable | Coefficient | t-statistics | Significant | Alpha coefficient | R <sup>2</sup> =0.759 |
|----------|-------------|--------------|-------------|-------------------|-----------------------|
| Constant | 1090.076    | 1.650        | 0.119       |                   | Adj                   |
| EXR      | 0.085       | 0.300        | 0.768       | 0.084             | R <sup>2</sup> =0.698 |
| PCI      | 22.806      | 2.465        | 0.025       | 0.624             | S.E= 897.31           |
| WPI      | 0.00        | -0.265       | 0.794       | 0.037             | 524                   |
| NEX      | 0.003       | 1.041        | 0.313       | 0.218             | F.Stat=12.5<br>69     |

Dv = 215408.856

**Table 2** shows the effect and relationship between CPI, EXR, NEX and GDP on real Growth. Consumer Price Index has an increasing relationship with Real Growth. CPI has the coefficient value of 0.085, which stands for every N1 increase in Consumer Price index there is 0.08% increase on Real Growth. The t-statistics indicates that 0.768 significant level to the model. The coefficient of 22.806 for Exchange rate signifies for every N1 increase in Exchange Rate there would be 2% increase o Real Growth. The t-statistics shows 0.025 significant to the model. The coefficient of 0.00 shows that Net Export is has no relationship or effects on the real growth during these periods. From the diagram, Gross Domestic Product coefficient of 0.003 shows a slight increase in Real Growth. This implies that every N1 increase in Gross Domestic Product causes increase on Real Growth by 0.3%, F-statistics indicates that the model is statistically significant to the study and that there is a feasible relationship with the selected variables and Real Growth.

## SUMMARY AND CONCLUSION

This study has reviewed the Effects of Foreign Exchange on Industrial Growth in Nigeria economy. The links between real growth and exchange rate has been assessed. The real exchange rate has a positive impact on growth after a considerable lag. The outcome implies that revaluation or appreciation of real exchange rate might be growth enhancing provided that a realistic exchange rate policy can be ensured. In together negatively related to output growth in Nigerian economy, and all the variables are statistically significant.

The question is that what are the policy implications of these outcomes for the Nigerian economy?

The outcomes showed that output growth would be promoted if real exchange rate is allowed to appreciate so far it operates through aggregate supply channel and not aggregate demand channel. This will make the cost of imported capital goods and raw materials to be very cheap and cost of production to be low which can boost output growth, by and large reduce the inflation rate. It implies that fiscal, monetary and exchange rate policies have to be designed in order to ensure sustainable and suitable macroeconomic stability. By stimulating real appreciation in order to enhance economic growth, care needs to be exercised to ensure real appreciation does not exceed the equilibrium point so as not to derail domestic industries at the advantage of massive importation of goods.

## POLICY RECOMMENDATIONS

Based on the results of this research and the realization of effect of Foreign Exchange on the Real Growth in Nigeria Economy, the following recommendations are made;

- Positive exchange rate stock should be monitored regularly, so as not to allow those that find exchange rate as an avenue of investment like banks and public carry out their business, which is more devastating to the economy.
- Government should stimulate export diversification in the area of agriculture, agro-investment, and agro-allied industries, oil allied industries such will improve Foreign Exchange Earnings on Real growth in Nigeria Economy.

## **REFERENCES**

- Aguirre, A and Calderon, C. (2005): Real Exchange rate Misalignments and Economic Performance, Working paper No. 315, Banco Central de Chile.
- Akinlo and Odusola (2003): "Assessing the impact of Nigeria's naira depreciation on output and inflation, Applied Economics, Vol. 35, Pp 691-703. Nigeria: Policy Implication", West African Journal of Monetary and Economic Integration Vol. 6 No. 1.
- Aron J. and Elbadawi A. b. (1994b) "Foreign exchange action market in Sub-Saharan Africa: Dynamic Models for the Auction Exchange rate" The World Bank policy Research Working Paper No. 1395.
- Central bank of Nigeria (2006), CBN Annual Report and Statistical of Account December.
- Central Bank of Nigeria (2006), CBN Statistical bulletin, Vol. 8 No. 2, December.
- Dollar D. (1992): "Outward-oriented Developing Economies Really Do Grow More rapidly: evidence from 95 LDCs, 1976 – 85", Economic Development and Cultural Change, 40 (3) pp. 523 - 44.
- Dominick, S. and Derrick, R. (2002): Theory and Problems of Statistics and Econometrics, McGraw-Hill, Second Edition 7. Engle, R. and Granger, C. (1987): "Co-integration and Error Corrections, Representation, Estimation and testing". Econometrica, 55, Mord.
- Ekanem (1997). "Corporate Strategy in the Manufacturing Sector. A Survey of Selected Companies in Nigeria" Unpublished Ph.D Thesis, River State university of Science and Technology, Port Harcourt.
- Fakiyesi O, Akan' O. (2005). "Issues in Money, Finance and Economic Management" University Press Lagos.
- Frankel, J. and A. K. Rose (2002): "An estimate of the effect of Common Currencies on Trade and Income", The Quarterly Journal of Economics, May.
- Gujarati D. N. (2005). Basic Economics, McGraw-Hill, India, 5<sup>th</sup> Edition.
- Gylfason, T. (2002): "The Real Exchange Rate Always Floats", Australian Economic papers, Vol. 41, pp. 369-381, April.
- Hendricks K and Porter R. (1988): "An Empirical Study of an Auction with Asymmetric Information" The American Economic Review, 78,865-883.
- Isard P. "Equilibrium Exchange Rates: Assessment Methodologies" IMF Working paper. WP/07/296.
- Kiguel M. A. (1992): "Exchange Rate Policy, the Real Exchange Rate, and Inflation lesson from Latin American", Working Papers Series 880, The World bank, April 12. Nnana O. J. (2003): Monetary and Exchange Rate Stability in Nigeria, Nigerian Economic Society (NES), University of Ibadan.
- Nnana O. J. (2002) "Towards exchange Rate stability in Nigeria" in Monetary Policy and Exchange Rate Stability, NES Proceedings of a One day Seminar Held on 23 May 2002 Federal Palace Hotel Lagos.
- Obadan I. O. (1994): Real Exchange Rates in Nigeria, National Centre for Economic Management and Administration (NCEMA) Mimeo, Ibadan, Nigeria.
- Obadan I. O. (2003): Towards Exchange Rate Stability in Nigeria, Nigerian Economic Society (NES), University of Ibadan, Nigeria.
- Obadan M. I. 91994). "Nigeria's Exchange Rate Policy and Management" National Centre for Economic Management and Administration (NCEMA) Monographs Series. No. 5, NCEMA Publication, Ibadan.

- Obaseki P. J. (1997) "The Need for Exchange Rates Convergence in Nigeria" Central Bank Economic Review Vol. 35 No. 3.
- Obaseki P. J. (2001) "Issues in Exchange rate design and Management" Central Bank Economic and Financial review Vol. 39 No. 2.
- Ojo M. O. (1990). The Management of Foreign Exchange Resources in Nigeria CBN Economic and Financial Review, Vol. 28, No. 3.
- Opaluwa D. (2008). "The Effect of Exchange rate Fluctuations on the Nigerian Manufacturing Sector 1986 – 2005". An M.Sc thesis Presented to the Department of Economics, Benue State University, Makurdi.
- Oyejide T. A., Ogun O. (1995). "Structural Adjustment Programme and Exchange rate Policy" in Macroeconomic Policy Issues in an open Developing Economy: A case study of Nigeria. NCEMA publications, Ibadan.
- Papazoglou C. E. (1999): "The Real Exchange Rate and Economic Activity", Economic Bulletin, Bank.
- Soludo C. (1998) Macroeconomic Policy Modeling of African Economies. Enugu: Cottani J., D. Cavallo, and M. S. Khan (1990): "Real Exchange rate Behaviour and Economic Performance in LDCs", Economic Development and Cultural Change, Vol. 39, pp. 61-76.
- Umubanmwen A. (1995). Impact of SAP on Nigeria's Industrial Sector, The Nigeria Economics and Financial Review, Vol. 1, No. 2.

# **Transatlantic economy – prospects for a new trade agreement**

**Jarolím Antal<sup>1</sup>**

## **Abstract:**

The transatlantic economic relations are operating with relatively good working institutional bodies on all levels and in past few years a lot of work on has been done to resolve issues affecting the transatlantic economy. Although, main issues still lie in regulations and these are becoming more and more urgent to solve than tariff barriers, which are already on very low level (2-5%). Last step – an establishment of the High Level Working Group on Jobs and Growth in fall 2011 also underlines efforts to find a way for stimulation of the transatlantic economy. Attitude on both sides never been so enthusiastic, but it is necessary to add, that regulatory issues are most complicated for start of any negotiation process.

The paper draws issues of the non-tariff barriers (NTBs) as the core of the upcoming free trade talks between the US and the EU, which are supposed to start this summer and explains what impact might the removal of the NTBs have on the transatlantic space.

## **Key words:**

Transatlantic economy, non-tariff barriers, comprehensive free trade, agreement, EU-US economic relations

## **Introduction**

In regard to the unstable development of the US economy and persisting economic and debt crisis in Europe, the transatlantic space seems to be a good example where liberalization of tariff and non-tariff barriers might improve economic prospects of both. It would also be a “deficit free stimulus”, as both struggle to stabilize their budget deficits. (Allcaro, Alessandri 2013, p.7)

But not only the current unstable economic development is a driver for this assumption. Voices of the business community which deals with obstacles on both sides of Atlantic on every day basis, significantly contributed to a debate on removing of trade barriers between the EU and the US.

With a growing trade and investment volumes, European companies doing business in the US and vice versa have been experiencing problems in exporting goods due to regulations and specific law, which often doesn't allow to import various products to Europe or to the US. Not the tariff barriers, but the regulatory divergences have been becoming more serious issue, which is affecting the transatlantic economy in last couple of years.

However, this type of barriers is often described as the toughest chapter in any reconsideration of free trade. As this paper will demonstrate, the NTBs will play a crucial role in the negotiations on the new (comprehensive) trade agreement in talks, which are expected to be launched in the summer of this year. The agreement is supposed to be a very specific type of a deal, where partly removal of the NTBs is supposed to bring desired stimulus for the EU and the US. Looking for a compromise, as this paper will show won't be easy from various reasons. The paper is divided as follows.

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To understand the background of the transatlantic economic relations it is necessary to explain how the partnership works. It has been not only above-mentioned global economic crunch and claims of the business community, but in case of the EU-US cooperation a long term attempt to remove barriers and in order to maintain already strong economic ties in world and to allow the transatlantic space to grow and benefit from vital economic cooperation within the Atlantic. The second part will draw the core problem of the NTB's, which has to do with divergences in regulations.

Here, also potential gains and obstacles, which will occur in the talks about the agreement, will be outlined. Although, the paper doesn't have an attempt to forecast content and sectors that might be potentially included in the talks between the EU and the US.

## **Background of the EU-US economic relations**

The EU and the US are biggest trade partners in the world. The transatlantic economic space has a crucial impact not only each other's economy but on the global economy too. It generates about half of the world GDP, the commercial sales a year reaches almost 5 trillion dollars, creates about 15 jobs in the US and in the EU. Both the US and the EU is the largest trade or investment partner for almost all other countries in the world. Considering the the volume of trade, investment historical and cultural ties, the transatlantic market belongs to the most integrated in the globe.

The relations have their roots in the cooperation of single European countries with the US. As the idea of the united Europe has evolved, the transatlantic partnership started to gain a different relevancy. A crucial step for the EU-US cooperation has been adoption of the common trade policy in Europe under which the economic relations with third countries are negotiated on the European level. The exclusivity of the regulations is partly in hands of the single EU-members, but the competence on economic relations and liberalization is exclusively competence of the European Commission (after the EC gains approval from the EU members).

In the 90's the EU and the US adopted several documents<sup>2</sup> what institutionalized the relations, created transatlantic bodies and also allowed to include various stakeholders into the decision process in order to better reflect needs of the transatlantic community. With rising volumes of trade, investment and services in the transatlantic space, the EU and the US have had to deal with issues of mutual recognition and divergences in regulations. At the same time, in areas where no crucial obstacles appeared, the tariff barriers has been set on relatively low level. However, for such volumes of trade also total removal of tariffs might have a significant impact on economies on both sides of the Atlantic. This is a subject of the following chapter, where estimates for both the tariff and non-tariff barriers are discussed.

Both sides of Atlantic have been dealing with regulatory issues and representations of both decided to focus more on this area. In 2007, Transatlantic Economic Council (TEC), a high-level political body has been launched to oversee and prevent mainly regulatory divergences. Council operates mainly as a technocratic body, where it sets a platform for agencies on both sides cooperate on solving issues and inform each other about developments and decision processes. Since the highest representatives of both sides lead the TEC, it has a high priority. This allows providing a highest political support, which is often necessary for solving issues.

On one hand the TEC is seen very positively in terms of strengthening of the transatlantic relations and assistance for issues solving. This platform with its focus and competencies contributed to move up with of some tough issues. Also stakeholders involved in the TEC agenda and meetings consider the Council an important actor for reaching resolutions in the transatlantic economic issues.

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<sup>2</sup> See: Transatlantic Declaration 1990, New Transatlantic Agenda 1998, Transatlantic Economic Partnership 1998

Here, it is inevitable to add that the regulatory issues within the transatlantic cooperation are highly complex and at the same time very complicated. In numerous cases, the main role plays national interest (of the member states on the side of the EU), legislation exclusivity in hand of US federal states and EU members and decision making process (on both sides of the Atlantic) which does not allow to get a resolution too quickly.

The advantage of the TEC lies also in its structure, where as a loose player works more with technical issues and also often gives a final kick for resolution after political decision is made. Also, the Council has a great potential in creating of specialized working groups in order to catalyze and assist by issues identification and road maps preparations. In regard to the political power, which the TEC is able to provide, this seems to be an essential engine of this body.

On the other it has been often accused of suffering to achieve tangible results. The tackling of the TEC just after it has been launched on issues, which its sensitivity and complexity has been overshadowed by the political interest and protectionism, has harmed its reputation.

Since the establishment of the TEC, this platform has dealt with various, particularly regulatory issues. The agenda has changed radically, after the first issue over poultry has shown how hard is to resolve one of the most sensitive areas within the EU-US relations. Therefore the TEC agenda deals now more with potential issues, where early warnings and information might help to conflict prevention.

Except of the TEC, with the regulatory divergence issues is directly connected the EU-US High Level Regulatory Forum, which has been established in 2005. Its tasks are related to identification of problematic areas, and seeking for resolutions directly in specialized agencies of both the US and the EU administrations. The Forum is cochaired by the Director-General of the Directorate General for Enterprise and Industry of the European Commission and the Administrator of the Office of Information and Regulatory Affairs in the Office of Management and Budget at the White House. It cooperates with the TEC and contributes to fulfill its tasks and goals.

### **Free trade talks on its way – what to expect?**

Current development of the global economy and still not stable European economy very likely tended in hand with above mentioned interest to further remove barriers in the transatlantic space to creation of the High Level Working Group for Jobs and Growth (HLWG). The working group, established under the TEC has had a task to prepare a complex overview of areas, where a possible removal of barriers and regulations could be reachable and the same time could bring gains to both economies. Final results of the Working Group have been presented in early February and have confirmed an attempt to start the trade talks on removing of the (non) tariff barriers between the EU and the US and also recommended to start free trade talks. The report (EU-U.S. High Level Working Group on Jobs and Growth 2013) presented by the HLWG identifies the three main areas, where gains for both partners could have a positive impact on the transatlantic economy:

- Tariffs – elimination of all existing tariff barriers, however “both sides should consider options for the treatment of the most sensitive products”
- Services – to bind the highest level of liberalization that each side has achieved in trade agreements to date, while seeking to achieve new market access by addressing remaining long-standing market access barriers, recognizing the sensitive nature of certain sectors.
- Investment – inclusion of investment liberalization, with focus on the protection of investment on both sides
- Procurement – in order to stimulate the business improve “an access to government procurement opportunities at all levels of government on the basis of national treatment”

An effort to achieve a new trade agreement between the giants of the global economy would undoubtedly bring new rules in the international economic relations. A comprehensive agreement as an outcome of the free trade talks will promote high standards not only between the EU and the US; this could have a positive impact on “strengthening of the rules-based multilateral trading system and enhance the market access and regulatory commitments of a transatlantic agreement”.

The most important area for the trade talks will be the non-tariff barriers, where the EU-US face most serious issues. The HLWG therefore reminds that in the agreement “a key shared objective should be to identify new ways to prevent nontariff barriers from limiting the capacity of U.S. and EU firms to innovate and compete in global markets.” The core of the cooperation in this area is the contribution of the business community, which already has presented some proposals for long-term resolutions.

Nevertheless, in case of tariffs, which will be a part of the talks already exist some projections have been presented. They illustrate prospective gains for the EU-US. Erixon, Bauer from 2010 have focused on the prospect of the dynamic gains, which might have affect on the transatlantic economy in long-term. Dynamic perspective is much more important in respect with the intra industry trade in the transatlantic space. Dynamic gains are generally linked to capital accumulation, expansions of the FDI and also to the productivity effects. Liberalization of trade (and investment) not only triggers a reorganization of the allocation of labor and capital, it also changes investment and the returns to factors of production. Changes in the returns to labor and capital affect their supply, and thus the productive capacity of the economy. (Erixon, Bauer 2010, p.9)

The results of the barriers removal simulations conclude that while under full elimination of the tariffs on goods the gains for both sides of Atlantic would be insignificant (0,01 % for the EU and 0,15%), however the dynamic scenarios<sup>3</sup> would bring gains between 0,32-0,47% for the EU and 0,99-1,33 for the US. The fact that the intra-firm trade<sup>4</sup> characterizes the EU-US trade plays in the dynamic projection a crucial role. In terms of value the gains from tariff liberalization would bring 46 to 69 billion dollars for the EU and about 135 respectively 181 billion dollars for the US.

### **NTBs as awakening of the sleeping giant in the transatlantic economy?**

Before starting an analysis of EU-US prospect trade agreement, it is inevitable to define the role of the already mentioned non-tariff barriers<sup>5</sup> as a complex issue, which is through last years gaining more and more attention. Particularly the business community sees the NTBs as a biggest obstacle, which might boost the transatlantic economy.

When talking about this type of barriers, some aspects related to the regulatory divergence need to be stressed out. Due to different law making, process of their removal and complexity, the NTBs are very time consuming. At the same time even if the current

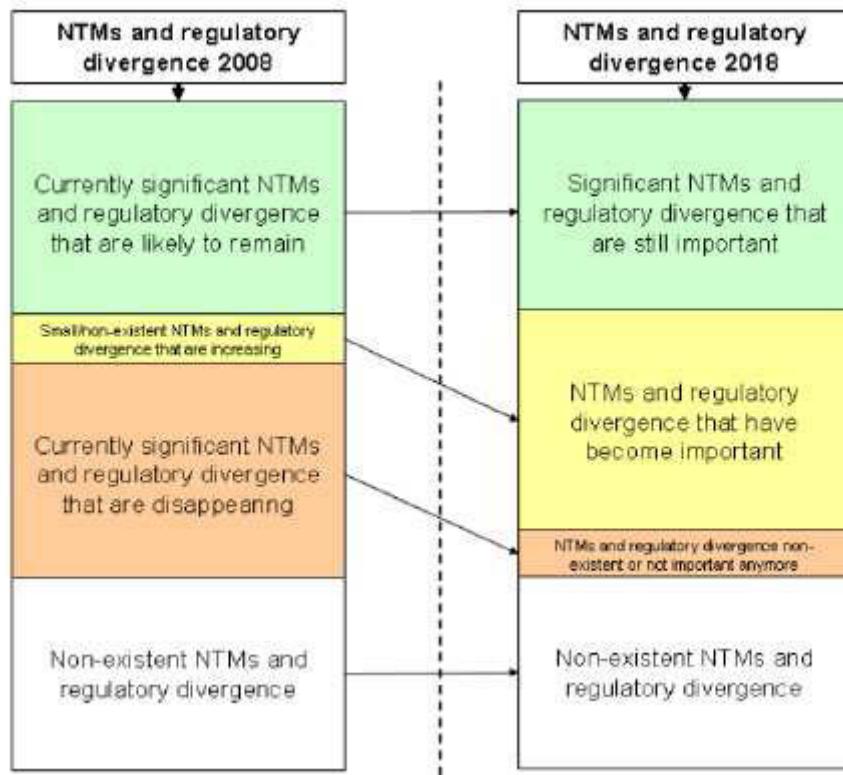
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3 Full elimination of tariffs on goods, reduction of trade facilitation costs by an amount equivalent to 3% of the value of the trade in non-commodity goods sectors and increase in labor productivity by 2 percent in goods sectors, respectively 3,5 percent with high levels of intra-industry trade, increase in labor productivity by 2 percent in all other goods sectors

4 ‘International flows of goods and services between parent companies and their affiliates or among these affiliates’, results from the development of global value chains. It is generated by the relocation of subsidiaries abroad for the production of inputs (off-shoring), and thus implies vertical foreign direct investment. (Lanz, R., Miroudot, S., 2011)

5 The ECORYS Study defined the non-tariff barriers as ‘all non-price and non-quantity restrictions on trade in goods, services and investment, at federal and state level. This includes border measures (customs procedures, etc.) as well as behind-the border measures flowing from domestic laws, regulations and practices.’ (ECORYS 2009, XIII)

regulatory divergences and NTMs disappear, in the future new divergences may arise due to unexpected crisis situations (see figure below, ECORYS 2009, 7)



**Pic. 1 NTBs in 2008-2018**

Source: ECORYS 2009, p.32

Note: The source uses the NTM, non-tariff measurements as definition for non-tariff barriers.

This indicates, that the removal of all NTBs in the transatlantic space will remain almost a dream. The last study presented by ECORYS stresses a few factors, which play a crucial role in talks on the NTB. Its removal will be difficult politically, e.g.:

- because there is a lack of sufficient economic benefit to support the effort,
- because the set of regulations is too broad,
- because of consumer preferences, language and geography due to other political sensitivities.

In terms of sectors, the highest non-tariff barriers are on food and beverages products (facing 56.8% for imports from the US and 73.3% on EU exports to the US), in services; the financial services are facing the highest extra costs. Among services, financial services are one of the sectors with the highest estimated NTBs. In this sector, EU barriers against US exports amount to 11.3 per cent, while US barriers against EU exports are estimated to be about 31.7 per cent. Barriers in the services sectors are higher on the EU side for the business and ICT sector, communications sector, construction, and personal, cultural, other services. On the other hand the US barriers for EU exporters in the services sectors are higher than in the EU in the finance and insurance sectors. (CEPR 2013, p.19)

### What will come on the table?

As mentioned above, to deal with the regulatory issues in the transatlantic area nothing but easy. High standards of products, different approach to consumer protection, different system of quality control is very sophisticated, but still remains different.

One of areas, where the EU and the US are deal with long term disputes is undoubtedly the agricultural sector, where both partners are struggling to achieve a consensus on imports/exports of various products. Disputes over beef or poultry and many others demonstrate this.

The agricultural sector within both regions might be negatively affected by importing of cheaper products – in terms of damaging of the competitiveness of producers, who are often heavily subsidized. This is the case of the poultry where, the US is one of world leaders in exporting. Dispute over imports of the poultry products from the US to the EU has its roots in late 90's when the EU banned imports from the US. Even if this dispute has been put on table in on the agenda of the TEC in 2008, as a litmus test for in that time brand new platform, protectionism, fear of the European farmers and mainly fragmentized support of single EU members haven't achieved a desired result.

A very similar it has been in negotiations about the ban of imports for beef to the EU. Only recently the EU has announced that, some quotas will be introduced in order to allow importing a high quality beef from the US.

Also controversial is the debate on genetically modified organisms, where the American side stands for this type of products, whereas the attitude of the European countries is much more skeptical and the general public denies selling the genetically modified product on the European market.

Some concerns on the free trade talks have already appeared in the EU. France has expressed their interest to protect some areas in the talks and exclude them from the agenda. F. Hollande has stressed the cultural exception, which allows treating the culture-based sector differently than the commercial products. This is often used to protect audiovisual market in France, where some quotas for foreign production apply. Nevertheless, French president has in his speech also mentioned issues like GMO's and food safety, which France will not support for inclusion in the trade talks with the US. (Simon, 2013)

Despite the fact that the NTBs seems to be "a nightmare" for the transatlantic talks on new trade agreement, the economic meaning of the partial removal of the NTBs in would definitely have a positive impact on both sides of the Atlantic. The ECORYS study (2009) says that the gain for both would be significant. Only in scenario, that deals with an option, under which the EU and the US will be able to negotiate 50% NTB removal, the gains would bring about 0,3% of GDP growth for the EU and 0,7% for the US.

## **Conclusions:**

The transatlantic economic partnership, which is still one of the cornerstones of the global economy, has still a great potential, which has not been fully used.

As the paper tried to draw, the bottom line for reaching a new trade agreement will be "a finest selection of areas", which need to be addressed with a great compromises of both sides of the Atlantic. This will be tough, considering the engagement of business community and national interest in Europe and in the US. In such sensitive sectors as for instance the agriculture, the US already expressed its interest to include agriculture products in the talks. On the other side of the Atlantic, France claims the EC to be careful when considering property rights and deal on farmer's products. Therefore, tensions need to be taken into account. This also begs a question whether an agreement could be achieved in a short-term period. As the history has shown, trade talks are run on longer distances, particularly in cases, where such issues as the regulatory divergence will be on the agenda.

However, if the EU and the US will focus on sectors, where resolutions are possible, the free trade talks might bring tangible results.

## **Literature:**

- Alcarro R., Alessandri A. (2013). A deeper and wider Atlantic, resented at the international conference on "Europe and the Americas. Deepening and Widening the Atlantic" Rome, 5 February 2013. From: <http://www.iai.it/pdf/DocIAI/iai1301.pdf>
- ECORYS (2009).Non-Tariff Measures in EU-US Trade and Investment: An Economic Analysis. From: [http://trade.ec.europa.eu/doclib/docs/2009/december/tradoc\\_145613.pdf](http://trade.ec.europa.eu/doclib/docs/2009/december/tradoc_145613.pdf)
- Erixon F., Bauer M. (2010). A Transatlantic Zero Agreement: Estimating the Gains from Transatlantic Free Trade in Goods. ECIPE Occasional Paper No. 04/2010. From [http://www.ecipe.org/media/publication\\_pdfs/a-transatlanticzero-agreement-estimating-the-gains-from-transatlantic-free-trade-in-goods.pdf](http://www.ecipe.org/media/publication_pdfs/a-transatlanticzero-agreement-estimating-the-gains-from-transatlantic-free-trade-in-goods.pdf)
- EU-U.S. High Level Working Group on Jobs and Growth (2013). February 11 2013, Final Report to Leaders from Co-Chairs. From: [http://trade.ec.europa.eu/doclib/docs/2013/february/tradoc\\_150519.pdf](http://trade.ec.europa.eu/doclib/docs/2013/february/tradoc_150519.pdf)
- Centre for Economic Policy Research, London (2013). Reducing Transatlantic Barriers to Trade and Investment An Economic Assessment. From: <http://trade.ec.europa.eu/doclib/html/150737.htm>
- Lanz, R. and Miroudot S. (2011). Intra-Firm Trade: Patterns, Determinants and Policy Implications, OECD Trade Policy Working Papers, No. 114, OECD Publishing. From: <http://dx.doi.org/10.1787/5kg9p39lwnn-en>
- Simon, F. (2013, March 20). France draws red lines for EU-US free trade negotiations. Euractiv. From: <http://www.euractiv.com/global-europe/france-drawsred-lines-eu-us-free-news-518616>

# **Approach to Implementation of IFRS for SMEs over the world**

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## **Abstract:**

Small and medium sized companies have an important position in the economy, mainly in the area of employment. They represent a heterogeneous group, possessing different size, sector, or location.

The International Accounting Standards Board (IASB) published an International Financial Reporting Standard (IFRS) designed for the use by small and medium-sized entities on July, the 9th 2009. The aim of development of a special standard for SME (IFRS for SME) is to meet the financial reporting needs of entities that do not have public accountability and publish general purpose financial statements for external users. This standard could be a suitable instrument for a SME financial reporting harmonization. The IFRS for SME is aimed at millions of companies, which represent over 99% of all companies all over the world. More than 80 jurisdictions have already the IFRS for SME adopted or stated a plan to adopt.

The aim of the paper is to evaluate the current approach to the IFRS for SME adoption and implementation over the world, and to develop a model based on indicators describing individual countries concerning adoption of IFRS for SMEs. The statistical methods are used for the comparison of countries which have already adopted the IFRS for SMEs with those which have not adopted it yet. The level of economic development of the particular country and other characteristics are used for comparison. The test has revealed whether the values of the indicators differ in case of countries, which have already adopted IFRS for SME and countries, which do not intend to adopt it.

The values of selected indicators are based on The Global Competitiveness Reports 2012 - 2013. Based on the above mentioned the average values of indicators and the confidence intervals for selected indicators characterising the countries are determined.

## **Key words:**

SME, IFRS for SME, harmonization, adoption of IFRS for SME

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## **Introduction**

Small and medium sized companies have an important position in the economy, mainly in the area of employment. SMEs are crucial to most developed and developing economies. In the European Union, SMEs contribute to over 99% of all enterprises and 100 million jobs, representing 67.1% of private sector employment (IFAC, 2010). SMEs are a heterogeneous group, possessing different size, sector, or location. The European Commission has identified national financial reporting and tax systems as the most important obstacles in their foreign activities (EC, 2003). According to ACCA (2000) SMEs worldwide engage in similar activities.

The International Financial Reporting Standards as a tool of financial reporting harmonization are required only for limited number of listed companies while many unlisted companies (SMEs) mostly follow. It does not provide a satisfactory level of international comparability of SMEs financial statements.

An IFRS for SMEs can be considered as the possible tool of harmonization of SMEs financial reporting. The IASB published the International Financial Reporting Standard (IFRS) designed for use by small and medium-sized entities on July, the 9th 2009. The IFRS for SME is designed to meet the financial reporting needs of entities that (a) do not have public accountability and (b) publish general purpose financial statements for external users. The IFRS for SMEs is a self-contained standard of about 230 pages tailored for the needs and capabilities of smaller businesses. The IFRS for SMEs is quite separate from full IFRSs and is therefore available for any jurisdiction to adopt whether or not it has adopted the full IFRSs. It is also up to each jurisdiction to determine which entities should use the standard. The IFRS for SME is aimed at millions of companies, which represent over 99% of all companies all over the world. More than 60 jurisdictions have already the IFRS for SME adopted or stated a plan to adopt (FASB, 2010).

In the PricewaterhouseCoopers study concerning the development of the IFRS for SMEs (2006) is stated that the adoption of IFRSs would provide a lot of benefits to SMEs. The adoption will improve the comparability of financial information of SMEs at either national or international levels will make easier to implement planned cross-border acquisitions and to initiate proposed partnerships or cooperation agreements with foreign entities. It can help SMEs to reach international markets. It can have a positive effect on the credit rating scores of enterprises, this can strength SMEs' relationships with credit institutions. The adoption of IFRSs will enhance the financial health of the SMEs, as well.

## **Methodology**

The aim of the paper is to evaluate an approach to the IFRS for SME adoption and process of implementation over the world.

In the frame of methodology the secondary research was used. The survey of the current stage of implementation process in approximately 80 countries across the world was made. The information of IASB and other resources were used for evaluation of the IFRS for SME implementation process in the world.

The statistical methods were used for comparison of countries which have already adopted IFRS for SMEs with those which have not adopted it yet. The level of economic development of the particular country and other characteristics were used for comparison.

Countries, which adopted IFRS for SME, consider adopting it or decline adopting it, differ in selected indicators of economic development- f.e. GDP per capita, level of financial reporting and other indicators were selected as appropriate indicators. The values of selected indicators are based on The Global Competitiveness Report 2012 – 2013. The data used in this Report represent the best available estimates at the time the Report was prepared. The strength of auditing is weighted average (1 = extremely weak; 7 = extremely strong). The hypothesis that selected indicator describing countries that have adopted IFRS for SMEs significantly differ from those describing countries that refuse adoption was verified. The mutual confidence of high values of selected indicators for these countries in the group was tested. In case the hypothesis should be demonstrated significant difference in the average values of indicators.

To verify the inequality hypothesis, t-test was used. T-test is a method of mathematical statistics, which allows verifying the hypothesis of equality in mean values Null hypothesis —  $H_0 : \mu_1 - \mu_2 = 0$  and alternative hypothesis —  $H_1 : \mu_1 - \mu_2 \neq 0$  (means are different).

In addition to t-test the confidence intervals is also constructed. The main objective is to determine the interval in which is the probability of  $(1 - \alpha)$  be the value of the parameter. According to Hindls (2003) one-sided confidence intervals are calculated only in case of indicators specified by t-test as significant.

On the basis of these confidence intervals the adoption of IFRS for SME may be recommended. The model was verified on the 2011 data published in the Global Competitiveness Report (2012-2013).

## **Theoretical background**

Since 1970's International accounting standards Committee (IASC) has played very important role in the area of accounting harmonization. IASC was followed in 2001 by International Accounting Standards Board (IASB) which was asked to create unified

International Accounting Standards (IAS), later International Financial Reporting Standards (IFRS).

In 2001 IASB was authorized to develop internationally acceptable accounting standards for companies, which are not the subjects of public interest – SMEs. The project was supported by 29 organizations, European Commission and EU member states as well. The objective of the project was to develop an IFRS expressly designed to meet the financial reporting needs of entities that (a) do not have public accountability and (b) publish general purpose financial statements for external users such as owners who are not involved in managing the business, existing and potential creditors, and credit rating agencies. The sphere covers wide range of companies – from micro companies to large companies. From that reason it is very difficult to create the rules and methodical procedures (standards) which would fully correspond to the needs of these enterprises and which would not cause excessive burden to them.

In 2007 the Exposure Draft of IFRS for SMEs was issued. It was derived from full IFRSs with appropriate modifications based on the needs of users of SME financial statements and cost-benefit considerations. The Board re-deliberated of the proposals in the Exposure Draft (ED) of an International Financial Reporting Standards for Small and Medium-sized Entities (IFRS for SMEs) that was issued in February 2007. The comment period for the ED ended 30 November 2007. The Board received 162 letters of comment on the ED. The ED was tested in 116 SMEs from 20 countries in 2007as well. In the ‘field testing’ most recent SME’s annual financial statements were restated following the proposals in the ED and any problems encountered were reported. The project was finished by publishing the final version of IFRS for SMEs on July the 9<sup>th</sup> 2009.

The *IFRS for SMEs* is a self-contained standard of about 230 pages tailored for the needs and capabilities of smaller businesses. The *IFRS for SMEs* is separate from full IFRSs and is therefore available for any jurisdiction to adopt whether or not it has adopted the full IFRSs. It is also for each jurisdiction to determine which entities should use the standard. It is built on an IFRS foundation. Many of the principles in full IFRSs for recognizing and measuring assets, liabilities, income and expenses have been simplified, topics not relevant to SMEs have been omitted, some accounting policies options in full IFRSs are not allowed because a more simplified method is available to SMEs and the number of required disclosures has been significantly reduced. The IFRS for SMEs does not address following topics covered in full IFRS:

- Earnings per share,
- Interim financial reporting,
- Segment reporting,
- Special accounting for assets held for sale.

In the IFRS for SMEs are not allowed optional accounting policies for example:

- Financial instrument options, including available for-sale, held-to-maturity and fair value options.
- The revaluation model for property, plant and equipment, and for intangible assets.
- Proportionate consolidation for investment in jointly-controlled entities.

For investment property, measurement is driven by circumstances rather than allowing an accounting policy choice between the costs and fair value model. Various options for government grants.

According to IFAC (2010) in comparison to the full IFRS, the IFRS for SME is aimed at millions of companies, which represent over 99% of all companies all over the world. There are over 25 million private sector enterprises in Europe, over 20 million in the USA. There are many definitions of SMEs over the world - the EC definition, the World bank's definition, and many national definitions of SME. Almost all of them classify SME into three groups – middle, small and micro. However, there is not any common globally accepted classification into appropriate categories. Despite this fact, also research made by Baker, Noonan (1995) and Demartini (2005) concluded, that SMEs are not a homogenous group. Each group of SMEs category differs in many ways.

On the other side, there is the IASB definition of SMEs, which does not include quantified size criteria for SMEs determination, because this standard could be used in over 100 countries. The decision to which entities should be required or permitted to use the IFRS for SMEs is up to individual country, jurisdiction may prescribe quantified size criteria in each particular country. Despite this fact, the IASB approach focuses on "the typical SME" with about 50 employees. It is not only a quantified size test for defining SME but, it rather should help to decide which kind of transactions, events and conditions are be explicitly addressed in the IFRS for SMEs. There could arise any problem, because IFRS for SMEs could not be suitable for all kinds of entities in the SMEs spectrum, especially for very small entities (micro entities). This kind of entities prepares financial statements especially for taxation purposes.

## Results

The attention of financial reporting international harmonization has been paid especially to the adoption of full IFRS in the world. In this context, many surveys and studies concerning the adoption of full IFRS in the world were carried out (Daske, Hail, Leuze, Verdi, 2007, Epstein, 2009, Callao, Jarne, Lainez, 2007, Zeghal, Mhehdbi, 2006).

According to the study of Zeghal, Mhehdbi (2006) the main attention was paid to the adoption of full IFRS by large industrialized countries, such as the United States, Canada, and members of the European Union. Much less discussion has focused on developing

countries' opportunities to adopt full IFRS. According to Richter Quinn (2004), accounting and financial information originating from developing countries is still difficult to trust, despite the urgent need for these countries to attract foreign investment and foreign capital, and despite the pressing demands from individual and institutional investors, lending institutions, and multinational agencies. There is a study of Gyasi (2009) on adoption of IFRS in Ghana. Furthermore, there are studies on adoptions in Zimbabwe (Chamisa, 2000), Egypt (Hassan, 2008), Kazakhstan (Tyrrall, Woodward, Rakimbekova, 2007), Bangladesh (Mir, Rahaman, 2004).

The study of Zeghal, Mhedbhi (2006) concerning on adoption of full IFRS over the world identified two schools of approach to full IFRS adoption. The first one supports the adoption of IFRS. It stressed that harmonization in a form of IFRS adoption enhances the quality of financial information and improves international comparability of financial statements. According to Peavy and Webster (1990) it contributes especially for developing countries to strengthening integration and competitiveness in financial markets. Wolk, Francis, and Tearney (1989) considered international accounting harmonization as beneficial for developing countries because it provides them with high-quality standards as well as the best quality accounting framework and principles.

According to Zeghal a Mhedbhi (2006) the second school of approach to adoption of full IFRS (Perera 1989, Hove 1986) is against the adoption of IFRS. They insist that consideration of each country's specific environmental factors is necessary when establishing a national accounting system. Full IFRS adoption in these countries may result in entirely inadequate results. Opinions on the use of full IFRS in developing countries even resulted in a two-tier application design model "which takes into account the differences between developed and developing countries. IFRS for SMEs may thus represent for these countries a background (Deloitte, 2009).

Adoption is recommended especially to countries that have not developed their own high-quality financial reporting system. This is true for most developing countries, where there is not historically developed national accounting and financial reporting regulation. They are often recommended to use the full IFRS (Sacho, Obelhoster, 2008). These include the following countries: Armenia, Bahrain, Chile, Costa Rica, Dominican Republic, Ecuador, Fiji, Ghana, Guatemala, Guyana, Haiti, Honduras, Jamaica, Kenya, Kuwait, Kyrgyzstan, Mongolia, Nepal, Nicaragua, Oman, Panama, Sierra Leone, Tajikistan, Trinidad and Tobago, Ukraine and Venezuela. Similar conclusions reached Deaconu (2006) that assume different approach to the adoption of a harmonized system of financial reporting on the part of countries that have historically developed system of financial reporting quality, and on the above mentioned countries. Moreover, according Mage (2010) and a study made by the IASB in more than 31 thousand SMEs in 68 developing countries and emerging markets has

shown that companies with greater transparency of financial reporting have significantly less difficulty in attracting external funding sources and get them for a lower cost than other companies whose financial reporting system is not sufficiently transparent.

In connection with the potential adoption of IFRS for SMEs within the EU, the European Commission (EC) considered it appropriate to become familiar with the views of users of financial statements, in the EU the potential adoption of IFRS for SMEs. The EC in November 2009 issued a document "EU Consultation on IFRS for SMEs" for this reason. The response to this document showed that the attitude of the country is largely influenced by the relationship between the financial reporting and tax system in each country. Among the strong opponents of adoption includes countries in which is the close link between the financial reporting and tax. For these countries, the adoption of IFRS for SMEs would be a significant obstacle for companies and could lead to preparation two sets of reports, one for tax purposes and one for external users purposes, unless the relation between taxation and financial reporting is defined by law. Typical representatives are Germany and France. The EC has not taken a clear position in relation to the adoption of IFRS for SMEs in the EU so far.

In connection with the adoption of IFRS for SMEs in the world only a limited research was made. The most of results concern to South Africa. South Africa adopted the IFRS for SMEs (IASB 2007) in its draft form as a transitional standard for limited interest companies without public accountability in 2007. It became the first country in the world to use the exposure draft as a standard. Research concerning the implementation of the ED of IFRS for SMEs in South Africa was realized by Stainbank, Wells (2007), Stainbank (2008), Shutte, Buys (2011), Van Wyk, Rossouw (2009). The main objective of their research was to identify whether accounting practitioners believe that the proposed IFRS for SMEs would reduce the burden of financial reporting of the SMEs. The results of the empirical research revealed scepticism among accounting practitioners whether this standard indeed reduce the burden of financial reporting for SMEs in South Africa. Shutte, Byus (2011) concluded that, the adoption of the IFRS for SMEs is complicated by the dissonance between a global/international focus and limited involvement in international business by South African SMEs. On the other hand, their further study concerning the evaluation of South African SME financial statements against the IFRS requirements revealed that the IFRS for SMEs' illustrative financial statements could be adopted without much difficulty, but even though the IFRS for SMEs was officially adopted in South Africa, the accounting framework was not adopted by all South African SMEs.

According to Mage (2010), study on adoption willingness in Kenya revealed the existing bottlenecks to implementation which range from lack of information on existence and importance of the IFRS for SMEs, cost constraints, poor and inadequate professional and

legal regulations and the government taxation policies.

In Arso's and Sipahi's study concerning the adoption of IFRS for SMEs in Turkey (2009), the adoption of IFRS for SMEs is vitally important for the financial reporting environment in Turkey. They summarized perceptions of Turkish SMEs and provided an analysis of the Strengths-Weaknesses-Opportunities and Threats (SWOT) in the adoption of IFRS for SMEs in Turkey.

Aboagye-Otchere, Agbeibor (2012) provide empirical evidence on the final version of the IFRS for SMEs in Africa (Ghana). They concluded that small businesses in Ghana have limited international structures and activities which do not result in a need for internationally comparable financial reporting information; IFRS for SMEs is found to be irrelevant to small businesses in Ghana.

Despite the fact that there are not many studies on the implementation of IFRS for SMEs in developing countries the main conclusions of these studies are similar. The implementation is considered to be difficult, cost demanding, and many of SMEs are not willing to implement the IFRS for SMEs. There is very low knowledge on this system in these countries. On the other hand, the IFRS for SMEs application could bring many benefits especially for middle enterprises. Internationally comparable, accurate and transparent financial reporting is considered as the most significant benefit from the IFRS for SMEs application. Due to the increase of comparability a transparency of financial statements of SMEs could increase borrowing opportunities of SMEs and SMEs could be able to reach cross border markets. Internationally comparable and transparent financial statements would be better information source for business combination or cooperation with foreign enterprises.

**Tab.1: Groups for testing**

|         |  |
|---------|--|
| Group 1 | Argentina, Azerbaijan, Barbados, Belize, Botswana, Brazil, Cambodia, Costa Rica, Dominican Republic, Egypt, El Salvador, Ethiopia, Ghana, Guatemala, Guyana, Honduras, Hong Kong, Chile, Jamaica, Jordan, Kenya, Kyrgyzstan, Lebanon, Lesotho, Malawi, Malaysia, Mauritius, Moldova, Namibia, Nepal, Nicaragua, Nigeria, Panama, Peru, Philippines, Qatar, Singapore, South Africa, Sri Lanka, Suriname, Swaziland, Tanzania, Trinidad and Tobago, Turkey, Uganda, Venezuela, Zambia, Zimbabwe |
| Group 2 | Austria, Belgium, Canada, France, Germany, Italy, Japan, Malta, Mexico, Netherlands, Poland, Slovak Republic, Slovenia, Switzerland, Denmark, Ireland, Latvia, United Kingdom, United States   |

Source: authors' work based on IASB information

Based on information on the position of selected countries to adoption of IFRS for SMEs acquired through secondary research countries were divided into groups according to their approach to the potential adoption of IFRS for SMEs. The Group 1 included countries that have already adopted the IFRS for SMEs. The Group 2 includes countries that have not

adopted the IFRS for SME. The survey of researched countries in is the subject of the Tab. 1. The difference among groups in the level of indicators of economic development was examined by the t-test.

Due to different parallel t-test of mean values equality the testing of homogeneity of variance based on the F-test was performed. According to the results of F-test the variant of test for homogeneous or inhomogeneous variances was chosen. T-test results are shown in Table 2. In researched data, hypothesis of variance equality was rejected.

**Tab 2: T-test for indicators of economic development**

| indicator   | t-stat      | indicator             | t-stat     |
|---|-------------|-----------------------|------------|
| GDP per capita                                      | -6.7584 *** | Informal economy      | -5.2658*** |
| Strength of auditing and reporting standards        | -2.9879***  | Legal right index     | -1.2927    |
| Goverment sevices for improved business performance | -1.05802    | Domestics market size | -4.7516*** |
| Strength of investor protection                     | -1.0946     | Foreign market size   | -5.772***  |
| Willingness to delegate authority                   | -3.6199***  | Soundness of banks    | 1.2503     |
| Ease to access of loans                             | -0.9897     |                       |            |

Source: authors' work \* p-value <0.05; \*\* p-value <0.01; \*\*\* p-value <0.001

The table 2 shows that the average values are between countries that have adopted IFRS for SMEs and those that do not differ significantly. The results of the t-tests concluded that countries which have a higher GDP per capita, are not considering adoption of the IFRS for SME. The economically stronger countries have higher indicator of willingness to delegate authority, foreign market size, domestic market size, and informal economy, strength of auditing and reporting standards to adopt the IFRS for SME.

The most significant difference in the indicator values is in case of GDP per capita. The values if this indicator is not within an interval. Other indicators are scaled in the range of 1 to 7. Indicators are lower (t-statistic came out negative) in case of countries that the adoption of IFRS for SMEs accessing positive. The main motivation for the adoption of IFRS for SMEs is the improvement of financial reporting quality. It is an essential prerequisite for easier access to capital at lower borrowing costs. Moreover, final conclusions of the EC (2003) consider the

harmonized system of financial reporting as a prerequisite for greater involvement in international trade and easier options for business combinations.

The conclusions of the statistical analysis can be used to predict the approach of other countries to the adoption of IFRS for SMEs.

For the recommendation of IFRS for SMEs adoption purposes a model is possible to create a model. The model is intended for countries that did not take a clear position on adoption at the time the study was carried out. The model is based on indicators, which have been proven a significant difference and it represents a one-sided 95% confidence intervals for mean values (Table 3).

**Tab.3: One-sided confidence intervals mean values of indicators**

| Indicator                 | GDP pc  | Strength of auditing | Domestic market size | Foreign market size | Willingness to delegate authority | Informal economy |
|---------------------------|---------|----------------------|----------------------|---------------------|-----------------------------------|------------------|
| Adopted IFRS for SMEs     | <12.538 | <4.856               | <3.51                | <4.186              | <3.882                            | <4.264           |
| Non adopted IFRS for SMEs | >31.771 | >5.003               | >4.186               | >5.123              | >4.167                            | >4.939           |

Source: authors' work

Based on the created model it can be concluded a clear position regarding the potential adoption of IFRS for SMEs for countries that adoption of IFRS for SMEs considering but at the time of the study have not adopted. The adoption of IFRS for SMEs can be clearly recommend especially for countries which have values of GDP per capita lower than 12,538, an indicator of the quality of reporting is lower than 4.856, willingness to delegate authority is lower than 3882, and the foreign market index reaches a maximum value of 4186.

As research follows the already prepared a study on the adoption of IFRS for SMEs (Bohušová, Blašková, 2012), which also dealt with the relationship between selected economic indicators and access selected countries to adoption of IFRS for SMEs and the used data related to the year 2010. The results are shown in Table 4. Based on the comparison of the confidence intervals of these two studies concluded that the willingness to adopt IFRS for SMEs continuously remains on the side of the less developed countries. When comparing the data for 2010 and 2011 it shows that the differences in confidence intervals decrease. The conclusions valid for both the examined period can be concluded that this adoption would be beneficial and should lead to an increase in researched indicators. A large part of the countries included in the study adopted the IFRS for SMEs standard with effect from January 1st, 2011, or from 1.1.2012. For this reason it is not

currently possible to evaluate the effects of adoption in these countries. It can be assumed that the adoption of IFRS for SMEs will affect the values of indicators with some delay. It will be possible to quantify the effect associated with the adoption of IFRS for SMEs for the period 2013 but rather for the period year 2014 and subsequent periods. This evaluation should be subject of the expected follow-up research.

**Tab.4: One-sided confidence intervals for the data from**

| Indicator                 | Strength of auditing | GDP pc    | Willingness to delegate authority | Foreign market size |
|---------------------------|----------------------|-----------|-----------------------------------|---------------------|
| Adopted IFRS for SMEs     | < 4.8314             | < 6.18    | < 3.6415                          | < 3.935             |
| Non adopted IFRS for SMEs | > 5.4955             | > 40.9025 | > 4.5177                          | > 5.903             |

Source: authors' work

After the study was carried out, Bangladesh adopted the IFRS for SMEs (Deloitte, 2012). The financial reporting system of Bangladesh was significantly influenced by the Anglo-Saxon system of financial reporting and the IFRS for SMEs is considered as a national GAAP (BFRs for SMEs) with effect from 2013. Values of indicators are in the following Table 5.

**Tab.5: Values of indicators for countries that have IFRS for SMEs adopted after study completion**

| Indicator  | GDP pc | Strength of auditing | Domestic market size | Foreign market size | Willingness to delegate authority | Informal economy |
|------------|--------|----------------------|----------------------|---------------------|-----------------------------------|------------------|
| Bangladesh | 0.678  | 3.7                  | 4.3                  | 4.5                 | 2.8                               |                  |
| Bolivia    | 2.315  | 3.7                  | 3.1                  | 3.8                 | 3.7                               |                  |
| Ecuador    | 4.424  | 4                    | 3.7                  | 4.4                 | 3.5                               | 3.76             |

Source: authors' work

Bolivia is a country that fully meets all of the model parameters. It confirms that the selected indicators are suitable for IFRS for SME adoption recommendation. In the case of Bangladesh indicator as GDP p.c., strength of auditing and willingness to delegate authority clearly show Bangladesh as a suitable candidate for the adoption of IFRS for SMEs. Indicators relating to domestic and foreign market are slightly above the confidence interval, but due to a combination of 5 factors it can be clearly said that adoption of this standard appropriate. Ecuador is the only country for which the indicator of value informal economy is available. It clearly shows the country as a suitable candidate for adoption of IFRS for SMEs. Examples of these countries have confirmed that the combination of the proposed indicators

is suitable for recommendations of adoption of IFRS for the countries which have not taken a position in this field.

It should be emphasized that the study based on the above mentioned characteristics does not provide comprehensive data. In assessing the approach to the adoption of IFRS for SMEs, it is necessary to take into account the characteristics and facts that are not quantifiable. Fundamental qualitative characteristics, which also must be considered are the used national financial reporting system (national GAAP) and its similarity with full IFRS or IFRS for SMEs, the relationship of financial reporting and tax legislation in the respective countries, cultural and religious practices (EC 2003).

## **Conclusion**

Currently there is only a limited research concerning the implementation of IFRS for SMEs in the world. The research concerning especially adoption in developing countries. These countries, as is evident from the analysis are the main candidates for the adoption of IFRS for SMEs. The findings of studies carried out show that the implementation in individual countries is considered to be difficult, requiring high costs and the number of entities that are not willing to implement the IFRS for SMEs.

On the other hand, especially middle entities expect that the implementation of IFRS for SMEs can mean a number of advantages for them. International comparability, accuracy and transparency can be considered as the greatest advantage. Increasing international comparability and transparency would extend opportunities for access to borrowing capital and also the possibility of access to foreign markets. Financial statements prepared according the IFRS for SMEs would also be better quality source of information in case of business combinations or for the purposes of cooperation with foreign companies.

The analysis showed that the developed countries take a rather reserved position, while developing countries with lower quality financial reporting access to the adoption with much greater willingness and expect the higher benefit. The results of the analysis show, that a greater willingness to adoption of IFRS for SMEs could be expected from less developed countries with lower quality financial reporting in a near future. The cases of Bangladesh, Ecuador and Bolivia confirm that the values of indicators for these countries correspond with the conclusions of a statistical analysis. Based on the conclusions of the analysis, the adoption of IFRS for SMEs could be expected in Mozambique, Angola, Algeria, Armenia, Benin, Haiti.

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## References

- Aboagye-Otchere, F., Agbeibor, J. (2012). The International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs): Suitability for small businesses in Ghana. *Journal of Financial Reporting and Accounting*, Vol. 10 Iss: 2, pp.190 - 214
- ACCA, 2000: *The economic environment and the SME*. Date of access 15 July 2011 from <http://www.accaglobal.com/pdfs/smallbusiness/EESME.doc>
- Arsoy, A. P., Sipahi, B. (2008) International financial reporting standards for small and medium sized entities and the Turkish case, *Ankara Universitesi SBF Dergisi* 62 – 4.
- Barker, P., Noonan, C. (1995) Small company compliance with accounting standards: The Irish situation, *The Institute of Chartered Accountants in Ireland*
- Bohušová, H., Blašková, V. (2012) In what ways are countries which have already adopted IFRS for SMEs different. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, LX, 2
- Callao S., Jarne, J.I. , Lainez, J.A. (2007) *Adoption of IFRS in Spain: Effect on the comparability and relevance of financial reporting*
- Daske, H., Hail, L., Leuz, C., Verdi, R. S., (2007a). *Adopting a label: Heterogeneity in the economic consequences of IFRS adoption*, from <http://ssrn.com/abstract=979650>
- Daske, H., Hail, L., Leuz, C., Verdi, R. S., (2007b). Mandatory IFRS reporting around the world: Early evidence on the economic consequences. ECGI. *Finance Working Paper No. 198/2008*, from <http://ssrn.com/abstract=1024240>
- Deaconu, A. (2006). *Standarde contabile pentru întreprinderi mici și mijlocii* (Accounting standards for small and medium enterprises), Congresul al XVI-lea al Profesiei Contabile din România: Profesia contabilă și globalizarea: Bucuresti, 15 – 16 septembrie 2006, CECCAR, Bucuresti, pp. 305-314.
- Deloitte, (2009). *Use of IFRSs by Jurisdiction*. Date of access 15 July 2011, from <http://www.iasplus.com/country/useias.htm>
- Deloitte, (2012). *Bangladesh adopts IFRS for SMEs*, Date of access 7 September 2012, from <http://www.iasplus.com/en/news/2012/may/bangladesh-adopts-ifrs-for-smes>
- Demartini, P. (2005) *Accounting Harmonization for European Small Business*, Quderni di Economia Aziendale (Working Papers), Urbino.
- European commission (2003), Internalisation of SMEs, *Observatory of European SMEs*, 2003. No. 4, DG Enterprise Publications.
- Epstein, B.J. (2009) *The Economic Effects of IFRS Adoption*

- Gyasi, A.K. (2009) *Adoption of international financial reporting standards in developing countries the case of Ghana*. Bacharol Thesis, Vaasa Ammatikorkeakoulu university of applied sciences
- Hassan, M. K. (2008). *The development of accounting regulations in Egypt, Legitimating the International Accounting Standards*. Emerald Group Publishing Limited 2008.
- Hindls, R., Hronová, S., Seger, J.(2003) *Statistika pro economy*, Professional Publishing
- Hove, M. R. (1986). Accounting practices in developing countries: Colonialism's legacy of inappropriate technologies. *International Journal of Accounting Education and Research*, 22(1), 81–100.
- Chamisa (2000). *The Relevance of and Observance of the IASC Standards in Developing Countries and the Particular Case of Zimbabwe*. University of Illinois 2000.
- IFAC (2010). *The role of small and medium practices in providing business support to small and medium-sized enterprises*, New York.
- Mage, G. N., 2010: *Financial Reporting for Small & Medium Scale Enterprises (SMEs) in the Hospitality Industry*, International Research Symposium in Service Management, Mauritius 2010.
- Mir, Rahaman, (2004) *The adoption of international accounting standards in Bangladesh - An exploration of rationale and process*. Emerald, 2004.
- Peavey, D.E., Webster, S.K. (1990) *Is GAAP the Gap to International Markets?*, Management Accounting (August 1990), Vol 72, No2
- Perera, M. H. B. (1989). Towards a framework to analyze the impact of culture on accounting. *International Journal of Accounting Education and Research*, I(1), 42–56
- PricewaterhouseCoopers, 2006: *IFRS for SMEs: Is it Relevant for your Business?*
- Richter-Quinn, L.(2004) Emerging pains, *CA Magazine*, 137 (3), Charterd Accountants of Canada
- Sacho, Z.Y. and Oberholster, J.G.I. (2008) Factors impacting on the future of the IASB. *Meditari Accountancy Research*, 16(1): 117-137.
- Stainbank, L., Wells, M. J. C. (2007) Differential corporate reporting: registered accountants' and auditors' views in South Africa. *South African Journal of Accounting Research*.
- Stainbank, L. (2008). The Development of Financial Reporting for SMEs in South Africa: Implications of Recent and Impending Changes. *African Journal of Accounting, Economics, Finance and Banking Research* Vol. 3. No. 3.
- Tyrrell D., Woodward D., Rakimbekova A., (2007). *The relevance of International Financial Reporting Standards to a developing country: Evidence from Kazakhstan*. University of Illinois 2007.

- Wolk, H.I., Francis, J.R., Tearney, M.G. (1989). *Accounting Theory. A Conceptual and Institutional Approach*. Boston, PWS - Kent 1989.
- Schutte, D. P., Buys, P., 2011: A critical analysis of the contents of the IFRS for SMEs - A South African perspective, *South African Journal of Economic and Management Sciences*, Vol.14, No. 2.
- Van Wyk, H. A., Rossouw, J. (2009). *IFRS for SMEs in South Africa: a giant leap for accounting, but too big for smaller entities in general*. Meditari Accountancy Research.
- World Economic Forum (2011) Global Competitiveness Report 2011 –2012, *World Economic Forum*, Geneva.
- World Economic Forum (2012) Global Competitiveness Report 2012 –2013, *World Economic Forum*, Geneva.
- Zeghal, D., Mhedhbi, K., 2006: An analysis of the factors affecting the adoption of international accounting standards by developing countries. *The International Journal of Accounting*.

# Rural Economic Development, Modelling Employment Growth

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## Abstract:

In rural zones, employment is a measure of growth, which is generated by other than direct agriculture activities, like industry and services. Also technological innovation impact reflects quicker in industry and services than agriculture. The economic activity which produces major variations in employment is industry, for example agro-food industry, while agriculture and services relates more with the capacity to retain population.

The spatial effect over rural territories regulates the employment as much as other production, factors for the industry. In our current research, we are considering the formulation of direct relation between employment, spatial distribution and endowment of industrial sites within a geographical territory.

The model includes local employment, workers commuting from other towns (employment spill) caused by the spatial distribution, industry distribution and the technology-economy external change impact. Of course the change in the industry local capacity is the result of technological evolution and product demand, and the economic cycle situation (contraction or expansion), for which consideration of time has to be brought into the model to allow for the external factors changes.

The econometric model used is based on the Spatial SUR (Seemingly Unrelated Regression), allowing the analysis with temporal series of data relevant to the towns and the spatial distribution in the rural territory, to estimate the parameters of the employment-industry model for every period of observation.

As the actual objective of the research is proof of concept about the model and its prediction power, with this particular study we have used a reduced territory. The results produced appear to be quite positive, which will lead to a more extensive study, which will be carried out in the near future including a much larger territory with over a hundred villages, and over a longer period of time for this observations.

## Key words:

Rural development, employment models, econometric models, spatialtemporal equation models, SUR

## Introduction

The development of models for the evaluation of the relations between population, employment, rent and the local economy, natural resources and other endowments in the territory, is a constant area of research in regional econometrics that facilitates the evaluation of public policies of areas in development such as tourism [Thomson 2007], commerce, industry, population and employment, among others.

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The Carlino Mills model [Carlino, Mills 1987] it has been found to adapt well to the series of problems related to the regional development. This simultaneous equations model describes the evolution of the population and the employment in time and space considering the previous values of those variables and the effect of external variables related to the natural resources and economic activity in the territory. The spatial distribution across the geography, of the people and the economic activity influence the movements of population for work. This model then offers a convenient tool for the research of the development factors and simulation of policies.

Expression (1) shows the spatial Carlino Mills equations [Hoogstra 2005], better known as Carlino Mills Boarnet. In these equations, the variable P represents the resident population in every town of the territory and E represents the employment at the same place, both considering two different moments in time during which the variables change. The other variables S and T are the external factors representing the natural resources and production activity within the territory. The spatial character of the territory is described by W, the spatial matrix, which measures the spatial influence of the activity of nearby towns around the given town.

$$\begin{aligned}\Delta P &= \alpha_0 + \alpha_1 E_{t-1} + \alpha_2 P_{t-1} + \alpha_3 W \Delta E + \alpha_4 T + \varepsilon_1 \\ \Delta E &= \beta_0 + \beta_1 P_{t-1} + \beta_2 E_{t-1} + \beta_3 W \Delta P + \beta_4 S + \varepsilon_2\end{aligned}\quad (1)$$

However, the local environment of the rural zones does present some difficulties that render difficult to apply the Carlino Mills model. Some related to the quality of the data available, and others to the model itself. One approach that has proved useful is to develop these rural models using the Cobb-Douglas production function and the Solow- Swan growth model [Acelmogu 2007].

The population model proposed by Calzadilla (2011) presented in (2) considers the rural limitation. The model based on a Cobb-Douglas framework has the population explained by the presence of local commerce and nearby commerce and its spatial influence. The result from this model is in line with the behavior observed in the rural towns. In this model, P represents the permanent population of each town in the rural territory. The variable S represents the commerce in each town produced by the aggregation of the local commerce including informal commerce, and the projected commerce as result of the spatial influence; both are indicated by the superscripts L and P in the commerce variable S. The projection is the result of the spatial effect presented by the spatial matrix W which elements follow an inverse square power gravitation model. The other variable J it is an index associated to the economical capacity of the town's people. In this case, a larger economical capacity resulting from the temporal presence of a larger population during holidays, which will allow to larger presence of commerce than with the permanent population.

$$P = (P_0 J^{-1}) (S^L)^\alpha (W S^P)^{1-\alpha} \quad (2)$$

In this equation P0 is equivalent to the minimum population to support the total commerce present in the rural territory. Population and commerce are both spatial and temporal variables, but in this model the time it not directly involved.

To have growth models in rural territories both population and employment have to be considered. So far one model for the population has been described, now following the same line a model for the employment will be developed. Population to some level in the rural territory depends of the capacity to support their needs giving enough rent and change is slow in time. However, employment is a more dynamic variable affected by the production and economy cycle in time, availability of the production factors needed in time that includes the transfer of the population from the agriculture sector to the industry and services sector and the geography constrains that limit the movement of people and industrial production.

The ongoing research, from which this paper is an advance, will introduce time longitudinal and space transversal variables for the employment and external variables, allowing a spatial Cobb-Douglas model that will take in consideration the effect of the changes in the economic cycle. A Seemingly Unrelated Regression (SUR) set of equations including spatial elements [Anselin 1988] it will be implemented to solve and estimate the model.

## Employment spatial model

The development of the employment model it is now introduced. This uses some of the principles from Carlino Mills model, in particular that population moves to the towns with more employment possibilities, and according to Alonso [Vries 2001] this attraction follows the gravitation law power, the inverse square of distance.

Let  $R_i$  be the working rent obtained by the people living in the town ( $s_i$ ). This rent is divided between the one produced locally by the people working in the town and the other by the people working in the nearby towns where they travel to work, as described in (3).

$$R_i = R_{Li} + R_{Ni} \quad (3)$$

If  $r_i$  is the average annual wage paid by the companies operating in ( $s_i$ ), and  $X_i$  is the number of companies, expression (3) can be transformed to (4) where the rent is a function of the number of companies and their wages.

$$R_i = \eta r_i X_i + \sum_{j \in \text{Nearby}} v_{ij} r_j X_j \quad (4)$$

The parameters  $\eta$  and  $v_{ij}$  take into account the reduction in the nominal working earnings because of costs like traveling to work, taxes and others. The reduction of rent due to travel to nearby towns is described as  $v_{ij} = \kappa d_{ij}^{-2}$ , where  $\kappa$  is the same for all displacements and  $d_{ij}$  is the distance between town ( $s_i$ ) and nearby town ( $s_j$ ).

The rent produced by the agriculture, only farm production, it is not all produced by employed workers on farms, but also include rents from family labor and other financial incomes and subsidies. The farm employment is included in the total employment for the given town.

Let  $E_i$  be the total employment in town ( $s_i$ ) and  $\mu$  the annual average rent per employed person in the town. We can express (4) now as described by (5).

$$R_i = \mu_i E_i = \Theta_i (\alpha X_i + \beta \sum_{j \in A_i} w_{ij} X_j) \quad (5)$$

Where  $A_i$  is the set of nearby towns with employment opportunities, normally because they have more enterprises and job opportunities.

Equation (5) can be put also as (6), where  $B_i$  includes the effect of agriculture on the total employment.

$$E_i = B_i (\alpha X_i + \beta \sum_{j \in A_i} w_{ij} X_j) \quad (6)$$

As workers from ( $s_i$ ) travel to ( $s_j$ ) to work, there are also workers from other towns ( $s_k$ ) that travel to ( $s_i$ ). That divides the employment in ( $s_i$ ) between local population and outside workers. The new equation is presented in (7).

$$E_i = B_i(\alpha X_i + \beta \sum_{j \in A_i} w_{ij} X_j) + C_i(\theta \sum_{k \in C_i} w_{ik} X_k) \quad (7)$$

The increment of workers at ( $s_i$ ) because of the presence of external labor reduces the local contribution to the employment forcing the displacement of workers to other towns. That is one of the effects of the labor spatial spill in the rural territory.

We are now going to put the equation in Cobb-Douglas formulation (8), for that purpose, the effect of labor spatial spill is going to be proxy by the use of the employment spatial spill.

$$E_i = L_i \{WE\}_{i,t}^{\beta} X_i^{\alpha} \quad (8)$$

Let us now consider the economic cycle. The displacement of people between towns depends on the job expectations and opportunities during the time for the population, and that decision it is not taken suddenly. The buildup of information and the decision to travel to other town for work lags behind the time the job opportunities are available. We will model this effect considering the lag of one year in the employment information. The new spatial-temporal equations are presented in (9).

$$E_{it} = L_t \{WE_{t-1}\}_i^{\beta} X_{it}^{\alpha} \quad (9)$$

The constant  $L_t$  can be associated to the technological progress. That factor modifies along the time the labor demand. The more direct part of the change in the labor demand is associated to the variation of labor in industry and services due to the technological progress and in less respect to the labor change in agriculture because of the much slower technological change. The expression (10) is the more frequently used to analyze the technological progress.

$$L_t = L_0 e^{\lambda t} \quad (10)$$

Where  $\lambda$  represents the rate of change for the technological progress.

### Econometric model for the employment spatial model

The econometric model is a spatial-temporal panel model where the cross section data is spatial and corresponds to the towns, and the longitudinal data is temporal and covers the different economic years at its close. This way it is possible to study the temporal variation of the employment model and its characteristics. Let us take logarithms to equation (9), and get a linear model (11).

$$\begin{aligned} \log E_{it} &= Y_{it}, \log X_{it} = x_{it}, \log(WE_{t-1}) = y_{t-1} \\ Y_{it} &= A_{it} + y_{i,t-1}\beta + x_{it}\alpha + \varepsilon_{it} \end{aligned} \quad (11)$$

The perturbation term  $\varepsilon_{it}$  is normally distributed and i.i.d., with mean value zero and variance only dependent of time ( $\sigma^2_t$ ).

The given econometric panel model will be assimilated to a SUR model (Seemingly Unrelated Regressions) with spatial components [Anselin 1988] including the restrictions for its resolution.

## SUR model description

The SUR model [Fiegb 2001, Ruud 2000] is a simultaneous equations system based on panel data that can be spatial-temporal, and only connected by the perturbation terms and the variance-covariance matrix which it is not diagonal.

There are two formulations for the SUR model. The SUR standard model, when the number of temporal terms ( $T$ ) is larger than the spatial terms ( $N$ ),  $T>N$ . In this case, the equations are connected by the correlation of the spatial perturbation terms. The SUR spatial model, when  $N>T$ , the equations are connected by the correlation of the temporal perturbation terms. The equations in this model has its own spatial formulation either directly included in the explanatory terms of the equation, or included in the perturbation term as an error AR(1) model. In our employment model the spatial formulation is introduced via the term  $y_{t-1} = \log(WE_{t-1})$ .

In the model SUR spatial (12) the parameters  $\beta$  are constant in space but changing with time, and the correlation between the equations is dependent on temporal perturbations.

$$y_{it} = Z_{it}\beta_t + \varepsilon_{it}$$

$$V(\varepsilon_{it}, \varepsilon_{is}) = \sigma^2 \Omega, \quad \Omega = \Sigma \otimes I \quad (12)$$

To solve the SUR equations different tools are available. For example, the standard 3SLS, or ML tools specially designed for SUR, like the SUR library in the "MATLAB Econometrics Toolbox" from the Ohio USA University. This last one will be used in solving the econometric employment equations.

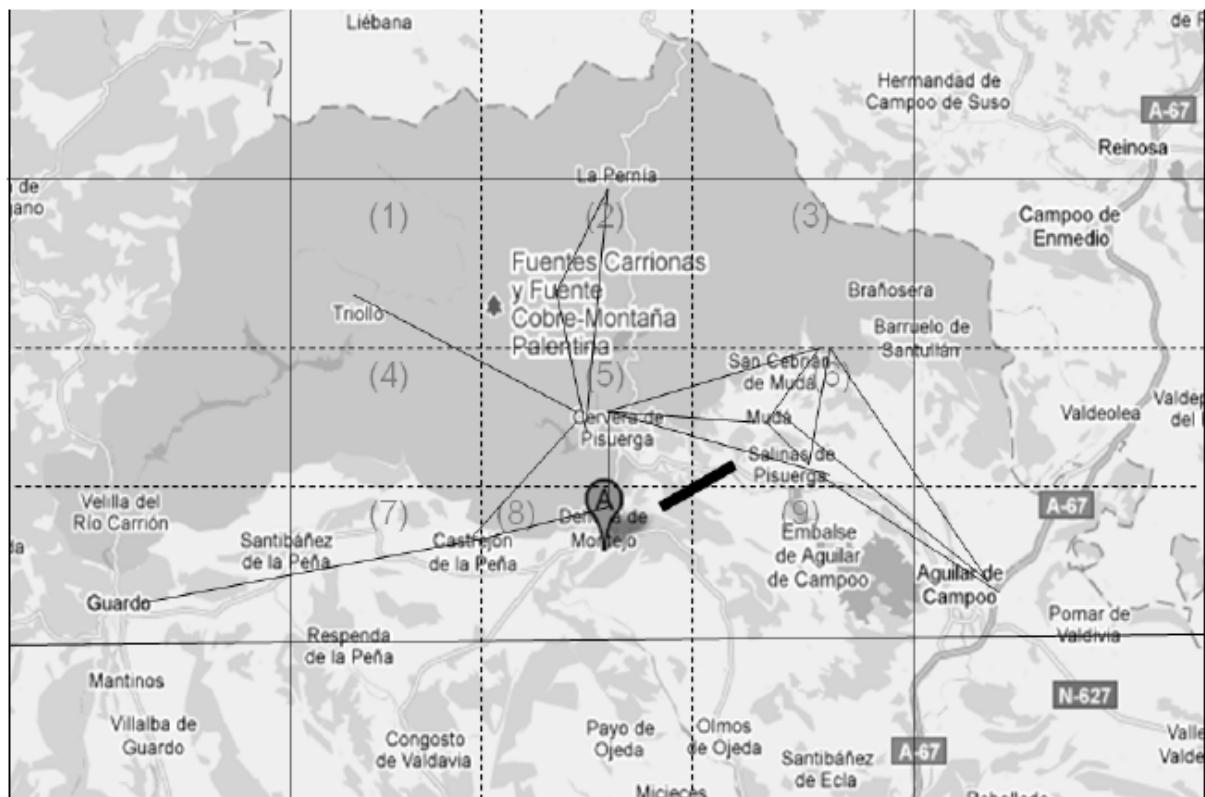
The SUR equations for the rural study of employment (13) based on equations (11) consist of eight spatial points (towns), and a cycle of five periods. Where  $A$ ,  $\alpha, \beta$  are constants in space, and are calculated for each period in the years 2006, 2007, 2008, 2009, 2010.

$$\begin{bmatrix} Y_{s1} \\ \vdots \\ Y_{sn} \end{bmatrix}_{m=1,5}^{T=T_m} = [\bar{I} \quad \bar{y}_{Tm-1} \quad \bar{x}_{Tm}]_{m=1,5} \begin{bmatrix} A \\ \beta \\ \alpha \end{bmatrix}_{m=1,5}^{T=T_m} + \begin{bmatrix} \varepsilon_{s1} \\ \vdots \\ \varepsilon_{sn} \end{bmatrix}_{m=1,5}^{T=T_m} \quad (13)$$

## Employment spatial model case data

To evaluate the rural employment model with a real rural area as data case, the province of Palencia in Spain (NUTS-3 level) and the rural zone of Cervera de Pisuerga, with eight towns, has been selected. The towns in the area are Cervera de Pisuerga, Castrejon de la Peña, Dehesa de Montejo, Muda, La Pernia, Polentinos, San Cebrian de Muda and Triollo.

The map of the rural zone with the situation of the towns and the connections between them is presented in figure 1. In the map, the geographical limitations like mountains and lakes can be appreciated.



**Pic. 1 Cervera area map with towns and connections**

The gravitational weight matrix,  $W$ , is derived from the distance matrix between towns. The weight is the power square inverse of the distance. The matrix is row normalized before calculations. Table 1 presents the distance matrix between towns. Numbers represent distance in Kms.

**Tab. 1 Towns distance matrix (Kms.)**

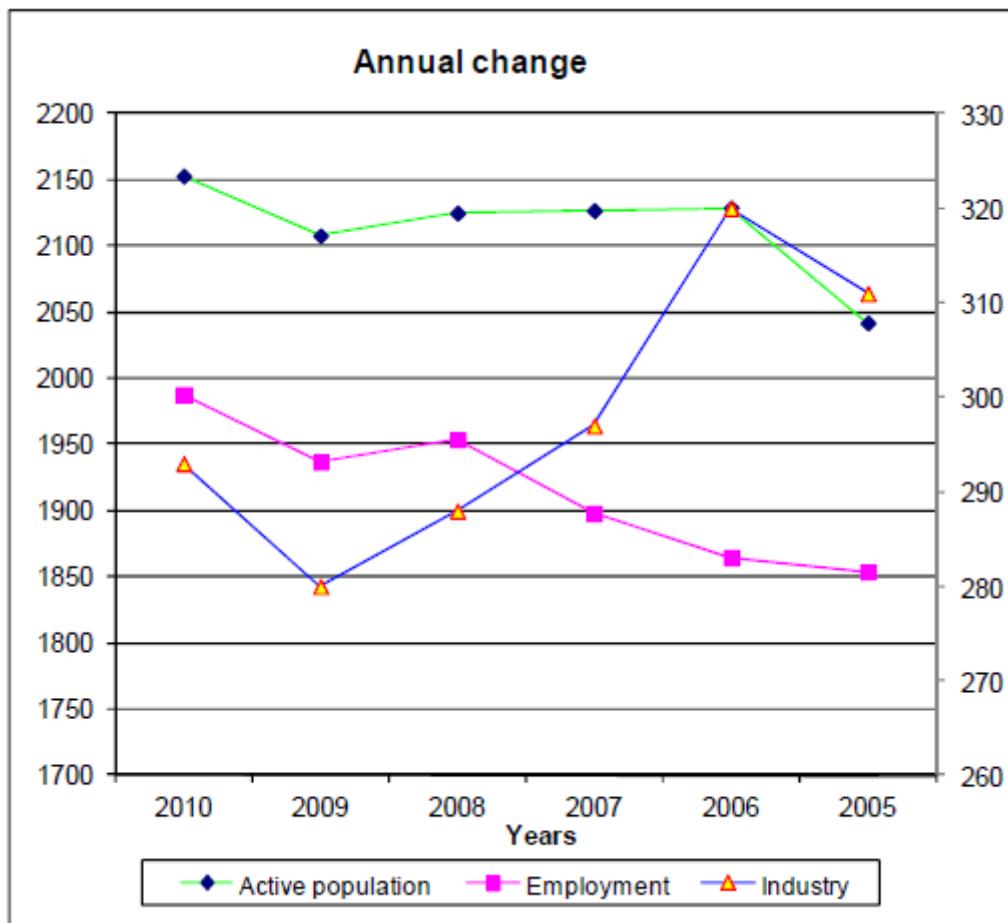
| # | Towns            | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|---|------------------|----|----|----|----|----|----|----|----|
| 1 | Castrejón Peña   | 0  | 13 | 10 | 0  | 0  | 0  | 0  | 0  |
| 2 | Cervera Pisuerga | 13 | 0  | 6  | 10 | 16 | 14 | 12 | 22 |
| 3 | Dehesa Montejo   | 10 | 6  | 0  | 15 | 0  | 0  | 19 | 0  |
| 4 | Muda             | 0  | 10 | 15 | 0  | 0  | 0  | 2  | 0  |
| 5 | La Pernía        | 0  | 16 | 0  | 0  | 0  | 10 | 0  | 0  |
| 6 | Polentinos       | 0  | 14 | 0  | 0  | 10 | 0  | 0  | 0  |
| 7 | San Cebrián Muda | 0  | 12 | 19 | 2  | 0  | 0  | 0  | 0  |
| 8 | Triollo          | 0  | 22 | 0  | 0  | 0  | 0  | 0  | 0  |

The basic data about the towns in the area is taken from the Spanish National Statistical Office (INE) and the Statistical Office of Castilla y Leon. The data series include total labor and number of industries. The data series for the selected period is presented in table 2.

**Tab. 2 Data series of employment and industry in the area**

| Year                 | 2010  | 2010     | 2009  | 2009     | 2008  | 2008     | 2007  | 2007     | 2006  | 2006     |
|----------------------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| Town                 | Empl. | Industry |
| Castrejón de la Peña | 210   | 19       | 224   | 18       | 227   | 18       | 231   | 16       | 244   | 18       |
| Cervera del Pisuerga | 1206  | 245      | 1195  | 246      | 1234  | 227      | 1280  | 224      | 1249  | 219      |
| Dehesa de Montejo    | 67    | 3        | 63    | 7        | 64    | 5        | 77    | 5        | 81    | 5        |
| Muda                 | 43    | 2        | 48    | 2        | 42    | 2        | 44    | 2        | 34    | 2        |
| La Pernía            | 185   | 27       | 191   | 26       | 199   | 26       | 190   | 25       | 191   | 20       |
| Polentinos           | 32    | 1        | 33    | 1        | 27    | 1        | 27    | 1        | 32    | 1        |
| San Cebrián de Muda  | 75    | 7        | 75    | 10       | 67    | 9        | 71    | 7        | 73    | 8        |
| Triollo              | 36    | 7        | 36    | 10       | 38    | 9        | 34    | 8        | 35    | 7        |

In figure 2, the time series aggregated value for the area, is presented by population, employment and number of industries. It can be noticed there is a slight increase in population which reflects in the increase of people employed, and a slight decrease in industries. Also reflects to some measure the presence of technological progress.



**Pic. 2 Change Cycle population, employment and industry**

### Econometric employment model calculation

The results of the calculation of equations (13) are presented in table 3.

**Tab. 3 SUR coefficients estimation**

| Equations   | Coef-A | t-prob. | Alpha   | t-prob. | Beta   | T-prob. | $\bar{R}^2$ | Durbin-Watson |
|-------------|--------|---------|---------|---------|--------|---------|-------------|---------------|
| System 2010 | 5.1462 | 0.0006  | 0.5048  | 0.0003  | -0.284 | 0.05    | 0.82        | 0.96          |
| System 2009 | 5.5501 | 0.0008  | 0.4811  | 0.0008  | -0.357 | 0.04    | 0.75        | 0.97          |
| System 2008 | 4.9825 | 0.0010  | 0.5473  | 0.0003  | -0.282 | 0.06    | 0.80        | 0.84          |
| System 2007 | 5.2341 | 0.0008  | 0.5376  | 0.0003  | -0.310 | 0.05    | 0.78        | 0.76          |
| System 2006 | 4.7081 | 0.0015  | 0.56043 | 0.0003  | -0.226 | 0.12    | 0.78        | 1.04          |

The effect of the employment spillover (WE<sub>t-1</sub>) presents a negative coefficient  $\beta$  which means the spatial effect reduces workforce in the town when employment in the nearby towns has been high.

The Wald test about the equality of the coefficients A,  $\alpha$  &  $\beta$  for five periods rejects the hypothesis, which means they are different for each period. See (14) for the results of the test.

$$H_0 : \theta_i^1 = \theta_i^2 = \theta_i^3 = \theta_i^4 = \theta_i^5 \quad (i=2,3)$$

$$\text{Wald} = 33.868 > F_{0.05}(8, 25) = 2.337 \quad (14)$$

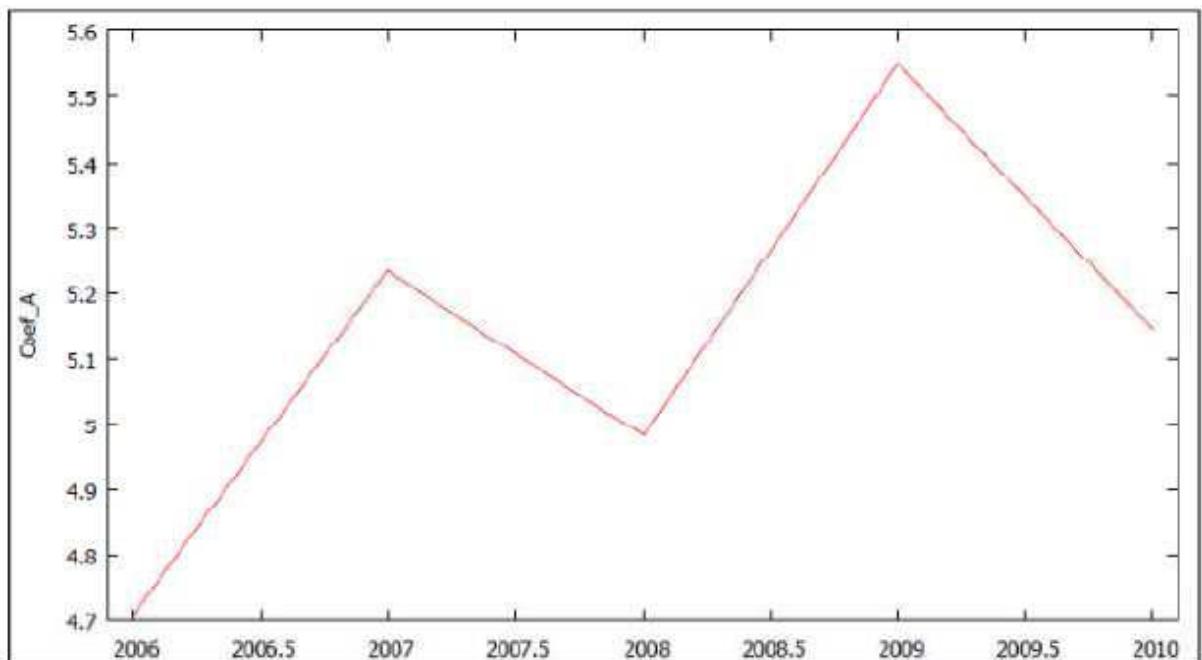
The employment model takes the expression (15).

$$E_{it} = e^A X_{it}^{\alpha_i} \{WE_{t-1}\}_i^{-\beta} \quad (15)$$

Let us now look into the technological progress and the coefficients according to equation (10). The lineal equation to estimate  $\alpha L$  and  $\lambda$  is in (16).

$$\text{Coef-A}_t = l_0 + \lambda t + \varepsilon_t, \quad l_0 = \log(L_0) \quad (16)$$

The observation of the time series graphic for Coef-A gives some insight into how to estimate the linear equation. The figure 3 presents the series.



**Pic. 3 Coef-A time graph**

The figure suggests the presence of heterokedasticity and autocorrelation. For this purpose, the GLS method will be used. The variance will be using the HAC model (Heterokedasticity Consistent Covariance Matrix with Autocorrelation).

The result of the regression is presented in table 4.

**Tab. 4 Coef-A correlation for parameters estimation**

| Model 1: OLS, using observations 2006-2010 (T = 5) |             |                    |          |              |
|--|-------------|--------------------|----------|--------------|
| Dependent variable: Coef_A                         |             |                    |          |              |
| HAC standard errors, bandwidth 1 (Bartlett kernel) |             |                    |          |              |
|  | coefficient | std. error         | t-ratio  | p-value      |
| const  | 4.76654     | 0.145769           | 32.70    | 6.29e-05 *** |
| time   | 0.119220    | 0.0496003          | 2.404    | 0.0956 *     |
| Mean dependent var                                 | 5.124200    | S.D. dependent var | 0.311115 |              |
| Sum squared resid                                  | 0.245037    | S.E. of regression | 0.285795 |              |
| R-squared  | 0.367109    | Adjusted R-squared | 0.156146 |              |
| F(1, 3)  | 5.777352    | P-value(F)         | 0.095564 |              |
| Log-likelihood                                     | 0.444769    | Akaike criterion   | 3.110462 |              |
| Schwarz criterion                                  | 2.329338    | Hannan-Quinn       | 1.014002 |              |
| rho  | -0.923385   | Durbin-Watson      | 3.173713 |              |

The value estimated for  $\lambda$ , rate of change of technological progress, is 0.119 and it is significative with p-value=0.095.

### Conclusions:

The approach used to model and study, the employment in rural territories integrating the economic cycle, the industry and the technological progress seems to produce working results even with small size territories as the one used to test this model.

This simple model uses both longitudinal data associated to the economic cycle periods and transversal associated to the spatial data about the towns in the territory. The coefficients produced are useful to explain the impact of geography and the production factors implied in the model during this time. Also allows to analyze the propensity, for people working outside their towns. The temporal part of the model facilitates the evaluation of economical shocks to the local economy.

The model needs to be extended to allow additional components for a more detail analysis, including the agriculture activity directly.

### Literature:

- Acemoglu D. (2007). Introduction to Modern Economic Growth. Dept. Economics MIT. Princeton University Press. Mas. USA
- Anselin L. (1988). Spatial Econometrics: Methods and Models. Dordrecht: Kluwer.
- Calzadilla J., Lopez J.L., Villa A. (2011). "Spatial effects of Rural Commerce". ICABR-2011. International Conference on Applied Business Research, Johor-Bharu, Malasya.
- Carlino G.A., Mills E.S. (1987). "The determinants of country growth". Journal of Regional Science 27, 1987, pp. 39-54.
- Fiebig D.G (2001). Seemingly Unrelated Regressions. An Companion to Theoretical Econometrics. Blackwell Masachusetts.
- Hoogstra J., Florax J. Van Dick J. (2005). "Do jobs follow people or people follow jobs? A meta-analysis of Carlino-Mills Studies". European Regional Science Association. 45th Congress Amsterdam. The Netherlands.
- Ruud P.A. (2000). Clasical Econometric Theory. Oxford University Press.
- Thomson E. (2007)."Measuring the Impact of Tourism on Rural Development: An econometric approach". MCRSA presidential Symposium, JRAP 27(2), pp. 147-154.
- Vries (de) J.J., Nijkman P., Rietveld P. (2001). "Alonso Theory of Movement, Developments in Spatial Interaction Models". Journal of Geographic Systems (2001), 3, pp. 233-256.

# Are Credit Rating Agencies Trustworthy?

Andrej Cupák<sup>1</sup>

## Abstract:

Credit rating agencies (CRAs) are companies that assign credit rating to an issuer of certain type of debt obligation. The role of credit rating agencies is to evaluate the probability of default in paying back the loan or debt. When assigning a credit rating for countries, there are taken several factors into consideration such as GDP per capita, real growth of GDP, country's debt to GDP and many more. Therefore, in this paper, we try to estimate an econometric model that finds relationship between categorical dependent variable and set of quantitative explanatory variables and forecast the likelihoods of assigning a certain grade of rating. Since the model cannot be estimated by classic linear models, we use multinomial logistic regression and estimate regression coefficients by maximum likelihood method.

## Key words:

Credit rating agencies, Standard & Poor's rating, financial crises, categorical dependent variable, multinominal logit model

## Introduction

What are credit rating agencies (CRAs) and what is their mission? According to Cantor and Packer (1994) or Hill et al. (2010) globalization and implementation of Basel II have allowed banks to employ external entities to assess risks connected to securities, and thus promoted the importance of credit rating agencies in the financial system. Basically, CRAs have been established in order to inform global investors about risks linked to securities. Hence, CRAs deliver important information to investors about the debtors' ability or disability to repay its debts back. Here, the debtor can be an individual, a firm or even a country. Therefore, credit rating agencies measure and assess quantitative and qualitative risks, and accordingly give a feedback or information to investors and help them in decision making. Principally the quantitative analysis is aimed at the comparison of financial indicators with the chosen criteria. On the other hand, qualitative assessment deals with the evaluation of economic, political and legislative situation in a given environment (country).

In 2008, during the global financial crises, credit rating agencies were enormously criticized and later accused and punished for incorrect calculations of risks connected to loans and mortgages. They were accused for creating too complicated models in computing and assessing the probabilities of the default of individuals or firms in paying back the risky loans, which were said to start the world financial crises.

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When assigning the rating, CRAs usually express their opinion about the certain object and its ability to fulfill its liabilities. CRAs therefore have created their own methodologies how to assess the objects and accordingly assign a certain level of rating. They usually use categories like AAA, AA etc., where triple A represents the best condition for an object, while lower categories like CC or even D express high probability of default in paying back securities. Nowadays, there are hundreds of Credit rating agencies all over the world, but together only three of them have more than 95% of share at the market, namely Standard & Poor's, Moodys and Fitch Ratings.

However, credit rating agencies have been criticized for too complicated methodologies when assigning ratings. Specialists say, that their decisions are often biased and create too much pressure at the financial markets and de facto, influence the whole financial system. Especially when countries with lower ratings want to borrow Money, they are charged a bigger interest for bonds.

Therefore, we want to somehow simplify the used models in assigning ratings; however the methodologies of CRAs are most of a time not even publically available. In our paper we follow already used models. Here we suggest focusing on available macroeconomic and financial indicators, hence the quantitative assessment. It is also important to put stress on the qualitative evaluation, but such data are hard to measure, not even collect them. In our paper we analyze which countries have over or underrated ratings. We use different statistical approaches to prove that.

## Credit rating agencies

Generally, rating is defined as an independent assessment of different economic subjects- whether an individual or a firm, where they are grouped into different categories and we can somehow order and compare them from the best to the worst acting. The most known is credit rating assigned by CRAs, which basically express the credibility of a debtor. CRAs play an important role at the global markets with bonds and securities or in financial and banking system. Therefore, it is crucial to assign ratings in independent, transparent and objective way in order to eliminate asymmetric information among different players at financial markets.

Alcubilla a Del Pozo (2012) explain that CRAs have been criticized for their acting during the global financial crises, when they underestimated the risks in providing the certain types of securities. According to the authors, big loan crises in the USA had underlined the shortcomings of CRAs which led to the international agreement to somehow regulate CRAs.

Langohr (2009) also admits, that CRAs play an important role at capital markets, they direct the allocation of assets of investors freely moving among countries and looking for the best possible compromise between risks and profits. On contrast, author points out that it were credit rating agencies which had been responsible for failures during the Asian crises at the beginning of 1990, for collapses of Enron, WorldCom and Parmat in 2000 and they also responsible for recent financial crises.

Kaššovič (2009) in his report explains that the role of CRAs is to give statements connected to the ability of certain eminent or financial subject to repay its loan or a debt. He states that the key role of rating agencies is to assess the likelihood that a particular issuer (firm or country) will or will not be able to meet its financial obligations. When assigning ratings for countries, several items as GDP per capita, economic growth or the ability to repay the debt to GDP are taken into account. When granting the rating, the fact that in the past the rated entity did meet its obligations is also taken into account. Due to this fact, CRAs must consider current economic situation or economic development; they must be regularly reviewed and validated. In granting the rating, we distinguish between low-risk investment grades and high-risk speculative investment grades.

## **History of CRA**

History of credit rating agencies is strictly connected to the evolution of financial markets in the USA. The 1909 is considered to be a beginning of CRAs when John Moody was assessing bonds of railway companies, which at that time represented a significant sector of the economy. Soon after, he began to use this type of assessment for bonds of public services and industrial companies. Poor's Publishing Company belonged to the first credit rating agencies, which published its first ratings in 1916; Standard Statistics Company and Fitch Publishing Company, whose ratings were followed in 1922. Gradually, the rating market has evolved so that today there are three global credit rating agencies, and other more locally oriented agencies which are not globally competitive (Vinš, Liška, 2005).

Moody's, Standard & Poor's and Fitch Ratings are considered the most important rating agencies, which are sometimes called "Big Three". Aforementioned agencies operate all around the world and their opinions are internationally recognized and accepted. Independence and credibility are the most important activities of these agencies. They do not only assess private companies, but also evaluate other entities as countries, for example. Currently, there are several agencies, but we will briefly introduce only the three largest ones:

- i. **Moody's**- agency was founded in 1914 by John Moody and currently having about 40% market share among other agencies. Besides assigning ratings, it also provides economic surveys, financial analysis of commercial and government entities, and ensures risk management software for financial institutions. The company has approximately 4,000 employees in 27 countries all over the world.
- ii. **Standard & Poor's**- company founded in 1941 by the merger of Standard Statistics Company and Poor's Publishing Company. It focuses on providing an array of financial services. In addition to granting ratings and other assessments, it operates its own economic surveys, creates own S&P indices, and is one of the world's leading provider of independent investment information. It has branch offices in 23 countries and market share of about 40% among credit rating agencies.
- iii. **Fitch Ratings**- Company founded in 1913 by John Knowles Fitch and today Fitch Ratings is one of the three divisions of the financial Fitch Group. Fitch Ratings is international rating agency, which has a smaller market share than the previous agencies, only about 16%.

## **Methodologies of CRAs**

When assigning a rating, several attributes must be taken into account, either factors within the rated entity or external factors, respectively. For further classification, we distinguish between two categories of factors being quantitative and qualitative. Quantitative factors assess primarily economic conditions and are usually the result of some mathematical and statistical methods. We here include assessment based on indicators derived from accountings such as profits, capital structure, liquidity, development funds and so on. Likewise, countries are being evaluated according to factors such as economic growth, inflation, debt ratio, etc. On the contrary, qualitative factors are those that are very difficult to objectify. These include corporate governance, relationships with business partners, risk management, company strategy, government policy and the competitive environment. By countries, we evaluate factors such as payment and budgetary situation in the past or social, political and economic stability.

Each credit rating agency has developed its own system for evaluating major corporations and borrowers. Fitch Ratings has developed its rating system in 1924, which was subsequently taken over by Standard & Poor's. Conversely, Moody's rating agency is slightly different in its assessing. Moody's sometimes defends its rating system having an approach, which takes into account not only the likelihood of insolvency of an object, but also the severity of the review of past events in the rating valuation. This paper focuses solely on the ratings of countries according to the Standard & Poor's agency.

### **Rating scale**

Each credit rating agency use rating scales that are very similar. The following scale is the most frequently used one. Agencies use those scales to assign a rating for evaluation of specific entities such as banks or countries:

- **AAA-** very high ability to repay obligations or debts;
- **AA-** similar to AAA, differing very little;
- **A-** strong payment capacity;
- **BBB-** Strong ability to repay obligations, but more susceptible to adverse conditions than the previous category;
- **BB-** speculative character;
- **B-** speculative character;
- **CCC-** probably will not be able to meet its financial obligations;
- **C-** high disability to meet obligations;
- **D-** unable to repay its financial obligations;

Individual levels of ratings can be seen in Annex 1.

### **Specification of the model**

In our work, we focus on an estimation of econometric models depending on a set of macroeconomic indicators; consequently compare estimated ratings with the current S&P ratings and afterwards being able to determine which countries have under or overestimated rating grades. As long as there exist a lot of macro indicators, and we want to create a model, which would not be too complicated, we include as a minimum, but the more of significant variables. Our research is based on the report of Elkhouri (2008), who analyzes the role of credit rating agencies and their potential impact on developing countries. Although the author states that the model is also applicable to developed countries. He argues that, in practice, a small number of macroeconomic indicators such as GDP per capita, GDP growth, Inflation rate, the level of balance of the state budget and Public debt to GDP having great influence on assigning the rating to a country. For example, a high level of GDP per capita is favorable to increase the rating of the country. Conversely, the higher the inflation rate, the lower the country's rating. The lower the rate of GDP budget balance, the lower the rating. High public debt causes reduction in ratings.

In the report the author outlines the key macroeconomic indicators that significantly affect the rating award. These parameters were estimated by a group of economists who

econometrically estimated determinants having influence on ratings both for developed and developing countries (Cantor and Packer, 1995; Haque et al., 1996, 1997; Reisen and von Maltzan 1999; Juttner and McCarthy, 2000; and Bhatia, 2002). These determinants are:

- GDP per capita
- GDP growth rate
- Foreign exchange reserves
- Interest rate
- Inflation rate
- Debt to GDP
- Current account to GDP
- Exchange rate
- Export to GDP
- Country risk

The report further states that gross domestic product per capita is the most important variable. The macroeconomic indicator shows 80% of the variability in ratings of countries. Other variables have smaller affect on granted ratings.

### **The objectives**

Currently, rating agencies play an important role at the financial and capital markets. However, acting and assessing of CRAs raises much controversy last years. Critics of credit ratings claim that ratings are less transparent and rating agencies bring there a high degree of subjectivity into the evaluation. Furthermore ratings are often found to be biased. In order to mitigate this, we attempt to estimate simplified econometric model by which we could reveal whether the country, based on its macroeconomic indicators, reaches the actual rating, assigned by well-known rating agencies.

The aim of this work is to find out by the constructed model, which countries have undervalued or overvalued credit ratings. The paper also assesses the suitability of the multinomial logit model. The conclusion also brings proposals and measures that would contribute to a more objective assigning of credit ratings by agencies.

### **Methodology and data**

In the paper, we examine a sample of 74 randomly selected countries, both developed and developing, on a basis of several macroeconomic indicators collected by the end of 2011. Standard and Poor's credit rating acts as the dependent variable. Here, we distinguish 6 basic categories: AAA, AA, A, BBB, BB and B. To all of those categories, we assign codes 1, 2, 3, 4, 5 and 6. With respect to the theory, several macroeconomic indicators enter the model as independent variables. We collected the data from publicly available sources like Trading-economics, Eurostat or Standard and Poor's. Empirical analyses were processed by statistical software packages Statgraphics and Gretl.

In our paper we use an econometric approach that examines the relationship between categorical dependent variable and set of explanatory indicators. As long as the dependent variable entering the model is nonlinear, we cannot estimate regression coefficients by standard ordinary least squares method. Therefore, we use another estimation approach in order to compute likelihoods of assigning a certain grade of rating, while coefficients are estimated by maximum likelihood method.

### **Multinomial logit model**

**Assumption:** many researchers consider ordered response models superior in comparison to linear models in explaining sovereign credit ratings as the credit risk between countries rated by AAA and AA is not the same as for countries assigned CC and C (Poon, 2003; Berman and Fry, 2001; Bissoondoyal-Bheenick, 2005). The model used to examine

ratings must reflect ordinal nature of discrete dependent variable (rating). In our analysis, we do not want to estimate the thresholds (intervals) for ordered rating grades, we focus more on estimating the likelihoods of assigning a certain grade of rating and we assume, that differences between rating grades AAA and AA; BBB and BB, CCC and CC..., are the same. By logic, this allows us to use the multinomial logit model

Let the dependent variable consists of 1,2, ..., J categories, where 1 is considered to be the reference category (benchmark). Subsequently, for each category we perform regression to predict the probability of y-th dependent variable, whether it belongs to that category. Then the probability that  $y_i$  belongs to category 1 (AAA), is determined by adding the conditions in which the sum of the probabilities for  $y_i$  belonging to different categories, is equal to one. Regression are made for  $k = 2, 3, \dots, M$ . Mathematically, we can write the following relations:

$$P(y_i = k) = \frac{\exp(\beta_k)}{1 + \sum_{j=2}^J \exp(\beta_j)} \text{ for } j \neq 1,$$

by adding up a condition:

$$P(y_i = 1) = \frac{1}{1 + \sum_{j=2}^J \exp(\beta_j)},$$

where:

$y_i$  is the result for the  $i$ -th observation of a dependent variable,  
 $X_i$  is the vector of all explanatory variables for the  $i$ -th observation,  
 $\beta_j$  is the vector of all regression coefficients in the  $j$ -th regression.

As mentioned above, the outcome probabilities are highly nonlinear; the regression coefficients cannot be estimated by ordinary least square method. Therefore, the unknown parameters  $\beta_j$  are estimated by maximum likelihood method, which is one of the iterative methods (Crammer, 2003).

### Estimation

Let's assume that the sample data consist of  $n$  independent observations  $(y_i, x_i)$ ,  $i = 1, \dots, n$  and let  $\beta = (\beta_1, \dots, \beta_J)$ . Then the likelihood of outcome for  $y_i$ , given  $x_i$  can be written as following:

$$f(y_i | x_i; \beta) = \prod_{j=0}^J 1[y_i = j] p_j(x_i) = \prod_{j=0}^J \{p_j(x_i)\}^{1[y_i=j]},$$

The log-likelihood function yields:

$$\begin{aligned} \log L(\beta) &= \sum_{i=1}^n \log f(y_i | x_i; \beta) \\ &= \sum_{i=1}^n \sum_{j=0}^J 1[y_i = j] \log p_j(x_i) = \sum_{i=1}^n \sum_{j=0}^J 1[y_i = j] \log \frac{\exp(\beta_j)}{1 + \sum_{k=2}^J \exp(\beta_k)} \end{aligned}$$

### Results

This section lists the results of the used econometric model, where we find out whether the model is accurate for classification of the selected countries. Based on a

comparison of actual S&P ratings and predicted ratings we are able to determine which countries are undervalued or overvalued in ratings. Hence, we analyze the data using the multinomial logit model. In general, logistic regression is more appropriate when variables entering the model do not meet the criteria like (normally distributed variables, outliers, homogeneity of variation-covariance matrix of explanatory variables). Though, the multinomial logit models are sensitive to the presence of multicollinearity, therefore we test it first.

Multicollinearity is an undesirable phenomenon in all econometric models. Likewise, one of the main conditions of multinomial logit models is the absence of this phenomenon. Basically, multicollinearity occurs when explanatory variables are correlated. This issue can be detected by different tests. For the lack of space, we showed here only two types of methods to detect multicollinearity. The first method is the analysis of correlation coefficients between pairs of independent variables. The second method is by using of Variance Inflation Factor analysis.

In this method, the correlation coefficient for a pair of explanatory variables must be computed. If any of the correlation coefficients, except the diagonal, is greater than 0.8 or 0.9, we can talk about the presence of multicollinearity.

Another way to detect multicollinearity is the calculation of variance inflation factor. The minimum possible value takes on the value of 1, while values greater than 10 may indicate a problem of multicollinearity between the explanatory variables.

**Tab. 1 Correlation matrix of explanatory variables**

|     | x1           | x2           | x3           | x4           | x5           | x6           | x7           | x8           | x9           | x10          |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| x1  | <b>1,000</b> | 0,463        | -0,030       | -0,435       | -0,412       | 0,079        | 0,530        | 0,163        | 0,310        | 0,612        |
| x2  | 0,463        | <b>1,000</b> | 0,049        | 0,221        | 0,117        | -            | 0,305        | 0,256        | 0,045        | 0,082        |
| x3  | -0,030       | 0,049        | <b>1,000</b> | -0,045       | -0,101       | 0,090        | 0,184        | 0,056        | 0,016        | 0,104        |
| x4  | -0,435       | 0,221        | -0,045       | <b>1,000</b> | 0,777        | -            | 0,238        | -0,355       | 0,200        | 0,287        |
| x5  | -0,412       | 0,117        | -0,101       | 0,777        | <b>1,000</b> | 0,177        | -0,264       | 0,498        | 0,117        | -0,634       |
| x6  | 0,079        | -0,305       | 0,090        | -0,238       | -0,177       | <b>1,000</b> | -0,119       | 0,056        | 0,120        | 0,184        |
| x7  | 0,530        | 0,256        | 0,184        | -0,355       | -0,264       | 0,119        | <b>1,000</b> | 0,100        | 0,446        | 0,393        |
| x8  | -0,163       | 0,045        | -0,056       | 0,200        | 0,498        | 0,056        | -0,100       | <b>1,000</b> | 0,066        | -0,173       |
| x9  | 0,310        | 0,082        | -0,016       | -0,287       | -0,117       | 0,120        | 0,446        | 0,066        | <b>1,000</b> | 0,204        |
| x10 | 0,612        | -0,130       | 0,104        | -0,693       | -0,634       | 0,184        | 0,393        | 0,173        | 0,204        | <b>1,000</b> |

Source: own processing

**Tab. 2 VIF values**

|                           |       |
|---------------------------|-------|
| GDP per capita            | 4,145 |
| GDP growth rate           | 2,627 |
| Foreign exchange reserves | 1,184 |

|                        |       |
|------------------------|-------|
| Interest rate          | 3,989 |
| Inflation rate         | 4,048 |
| Debt to GDP            | 1,339 |
| Current account to GDP | 1,813 |
| Exchange rate          | 1,579 |
| Export to GDP          | 1,396 |
| Country risk           | 3,417 |

Source: own processing

Analyzing the data, both methods rejected the presence of multicollinearity. The table 1 shows the correlation matrix of all explanatory variables. We see that none of the pair wise correlation coefficients has a value greater than 0.8. This test therefore rejects the presence of multicollinearity. Likewise, the variance inflation factor analysis proves that the data are not impaired by multicollinearity, since none of the VIF values is greater than 10, see Table 2.

By multinomial logit model, we classified totally 74 countries into six categories based on the dependent variable being Standard & Poor's rating and a set of explanatory variables being the chosen macroeconomic indicators. We estimated five isolated regression for each category being 2, 3, 4, 5 and 6, where Category 1 (AAA) is taken as a reference category (benchmark). The summary table 3 shows the estimated regression coefficients of each category being estimated by the maximum likelihood method.

**Tab. 3 Estimated regression coefficients**

| variable                  | Regression |             |            |          |          |
|---------------------------|------------|-------------|------------|----------|----------|
|                           | 2 (AA)     | 3 (A)       | 4 (BBB)    | 5 (BB)   | 6 (B)    |
| Constant                  | 34,7044    | 13,2471     | 73,1616    | 94,4136  | 100,203  |
| GDP per capita            | -6,082E-05 | -0,00035214 | -0,000341  | -0,0004  | -0,0003  |
| GDP growth rate           | 37,6762    | 148,782     | 1,22808    | -2,8098  | 24,9069  |
| Foreign exchange reserves | 3,9544E-06 | -0,0000123  | -1,066E-06 | -1,3E-05 | -3,1E-05 |
| Interest rate             | -27,5181   | 124,455     | 98,8476    | 144,671  | 141,782  |
| Inflation rate            | -49,5836   | -80,0439    | -52,6604   | -81,362  | -72,578  |
| Debt to gdp               | -0,0372659 | 0,103711    | 0,050151   | 0,19344  | 0,17688  |
| Current account to gdp    | -0,248618  | -0,500674   | -0,812111  | -0,4040  | -0,4925  |
| Exchange rate             | 0,0201474  | 0,0316642   | 0,0316612  | 0,03259  | 0,03259  |
| Export to gdp             | -0,0110804 | 0,0622854   | 0,0735249  | -0,0024  | -0,0999  |
| Country risk              | -0,360255  | -0,182055   | -0,999069  | -1,5019  | -1,6006  |

Source: own processing

The model converged after 20 iterations in total with all parameters, there were estimated five isolated regressions. As we can see in the table 5, multinomial logit model classifies countries with the success rate of 90.5%. The resulting Chi-square likelihood ratio test verifies the hypothesis that at least one of the coefficients of the explanatory variables in the regression model is not being zero. We see that at the chosen 95% significance level, the p-value is less than the critical value of 0.05 and thus rejects the  $H_0$  hypothesis about the insignificance of the coefficients in the regression model and accept the alternative hypothesis  $H_1$ .

**Tab. 4 Forecast evaluation statistics**

|                                |          |
|--------------------------------|----------|
| Mean Error                     | 0,013514 |
| Mean Squared Error             | 0,094595 |
| Root Mean Squared Error        | 0,30756  |
| Mean Absolute Error            | 0,094595 |
| Mean Percentage Error          | -0,9009  |
| Mean Absolute Percentage Error | 3,6937   |
| Theil's U                      | 0,09818  |

Source: own processing

The table 4 shows us the different coefficients of forecast evaluation statistics. For example, the mean error statistic is 0.0135. The closer the value is to 0, the smaller the differences between predicted and actual values. Theil's U coefficient takes value of 0.098. There is also a rule; the closer the value of the statistics is to 0, the more accurate the prediction is.

#### Odds ratios of a country's rating

Based on the prediction, we determine for each country the likelihoods (proportional odds ratios) of belonging to certain categories and we compare actual versus predicted values of the dependent categorical variable.

**Tab. 6 Actual S&P, predicted ratings and odds ratios**

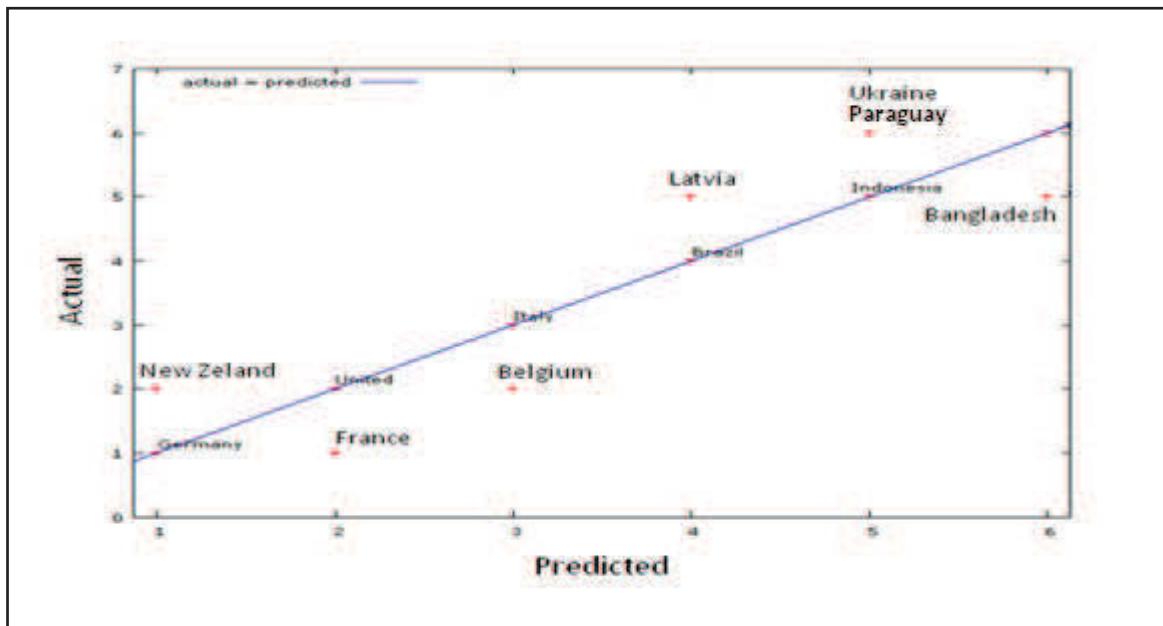
| Country     | Actual S&P rating | Predicted rating | P (AAA) | P (AA) | P (A)  | P (BBB) | P (BB) | P (B)  |
|-------------|-------------------|------------------|---------|--------|--------|---------|--------|--------|
| France      | AAA               | AA               | 0,2683  | 0,7002 | 0,1174 | 0       | 0      | 0      |
| Belgium     | AA                | A                | 0,4138  | 0,1249 | 0,4613 | 0       | 0      | 0      |
| Ukraine     | B                 | BB               | 0       | 0      | 0      | 0,0762  | 0,7013 | 0,2225 |
| New Zealand | AA                | AAA              | 0,5811  | 0,4105 | 0,0084 | 0       | 0      | 0      |
| Bangladesh  | BB                | B                | 0       | 0      | 0      | 0,0003  | 0,0823 | 0,9174 |
| Latvia      | BB                | BBB              | 0       | 0,0003 | 0,0012 | 0,604   | 0,2369 | 0,1575 |
| Paraguay    | B                 | BB               | 0       | 0      | 0      | 0,0514  | 0,5132 | 0,4354 |

Source: own processing

Out of the total, only seven countries were not correctly classified by the model. The overall success rate of classification of objects in each category is up to 90.5%. Individual results can be seen in the table 6. New Zealand has an underestimated rating, when it should have triple A instead of AA with the likelihood of 58%. Latvia, Paraguay and Ukraine also deserve according to our analysis better ratings with probabilities of 60,4%; 51,32% and 70,13%. On the other hand, according to the analysis we proved that France has an overestimated rating with the probability of 70% and should be reduced from AAA to only AA. Similarly, Belgium and Bangladesh both having overestimated ratings with the probabilities of 46,13% and 91,17% and should be reduced from AA to A and from BB to B, respectively.

**Tab. 5 Significance of the model**

|                        |           |
|------------------------|-----------|
| Mean dependent var     | 3,351351  |
| Log-likelihood         | -21,99316 |
| Schwarz criterion      | 280,7099  |
| S.D. dependent var     | 1,723587  |
| Akaike criterion       | 153,9863  |
| Hannan-Quinn           | 204,5379  |
| Likelihood ratio test: | 215,457   |
| Chi-square(50)         | [0,0000]  |



**Pic. 1 Actual S&P vs predicted ratings**

Source: own processing

Figure 1 portrays the actual S&P and predicted rating of the countries. The graph shows that countries that do not lie on a straight line are either undervalued or overvalued in rating. In our model, countries such New Zealand, Lithuania, Ukraine and Paraguay have underestimated ratings. By contrast, France and Bangladesh have overestimated ratings. Checking the Table 10 once again, Belgium should be lowered a rating with a likelihood of approximately 46%, while bettering a rating would be probable with around 41 % probability. Since the odds ratios are ambiguous we cannot determine with certainty which category the country belongs to. Furthermore, table 8 portrays the relationships between average values of macroeconomic indicators and the rating grade.

### Conclusions:

Since the global financial crises appeared, credit rating agencies have been blamed for using too complicated models when assigning ratings to countries. Furthermore, many authors think that they provide asymmetric information at the financial markets. Economists often claim that the results of credit rating agencies are often biased, bringing lot of subjectivity in assessments. Likewise, politicians of many developing countries claim that CRAs assign lower ratings, even though they have made huge economic progress last years. Unfortunately, current political situation makes a barrier to improve a rating. Those qualitative factors, often being hard to measure and quantify, bring a lot of uncertainty to assessment.

Multinomial logit model classified countries with up to 91% success rate, where in seven countries were recorded differences between the actual S&P ratings and the predicted ones. As a prove of our observations, American credit rating agencies lowered the credit rating of France from AAA to AA at the beginning of 2012. Furthermore, they also lowered credit ratings of more than 9 countries, and immediately countries started to be afraid of consequences on the financial markets. Back then, such dramatic decreases in ratings were not in place according to our analysis. In this context, CR agencies should use their influential decisions more carefully when assigning ratings.

We used multinomial logit model in order to detect, which countries have under or overvalued ratings and we estimated the likelihoods of getting certain level of rating. The use of an ordered logit model would be more appropriate in this case, since rating is an ordered

categorical variable. According to the assumption we made, we can simplify the reality about ratings and analyze the data by multinomial logit model. Regarding the use of a multinomial logistic model is not it wrong to use it when we know the response variable is ordered? It is not "wrong" to use the multinomial logit model. True, it does not take advantage of the ordinal structure in the data, but the ordinal model is a submodel of the multinomial model. Therefore, any fit achievable with the ordinal model is achievable with the multinomial model, as well. By enlarging and updating the dataset, we would like to analyze ratings of countries also by ordered logit model. So far, it is a question for the future research.

## Literature:

1. Berman, G., Fry, T. R. L. (2001). A charitable rating. *Economic Papers*, 20, 67-80.
2. Bhatia AV (2002). Sovereign Credit Ratings Methodology: an Evaluation. IMF Working Paper 02/170, IMF.
3. Bissoondoyal – Bheenick, E. (2005). An analysis of the determinants of sovereign ratings. *Global Finance Journal*, 15, 251- 280.
4. Cantor, R., Packer, F. (1994). The credit rating industry. *Federal Reserve Bank of New York QUARTERLY REVIEW* 19, no. 2 (winter): 1- 26.
5. Cantor R and Packer F (1995). Sovereign Credit Ratings, *Federal Reserve Bank of New York, Current Issues in Economic and Finance*, Vol. 1, no.3, June.
6. Cramer, J.S. (2003). Logit models from Economics and Other Fields. Cambridge Press, ISBN: 978-0-521-81588-8.
7. Elkhouri, M. (2008). Credit rating agencies and their potential impact on developing countries. United Nations Conference on Trade and Development. Discussion Paper no. 186.
8. Haque NU; Mathieson D and Mark N (1997). Rating the Raters of Country Creditworthiness, *Finance & Development*, IMF, March .
9. Hill, P., Brooks, R., Faff, R. (2010). Variations in sovereign credit quality assessments across rating agencies. *Journal of Banking & Finance*, 34, 1327- 1343.
10. Juttner and McCarthy (2000). Modelling a Rating Crisis, Sydney, Australia, Macquarie University, unpublished.
11. Kaššovič V. (2009). Ratingové agentúry. ISSN 1336 – 5711.
12. Langohr H. (2009). The Rating Agencies and Their Credit Ratings: What They Are, How They Work, and Why They are Relevant. Wiley Finance, ISBN-13: 978-0470018002.
13. Poon, W. P. H. (2003). Are unsolicited credit ratings biased downward? *Journal of Banking and Finance* 27, 593- 614.
14. Raquel García Alcubilla, Javier Ruiz Del Pozo (2012). Credit Rating Agencies on the Watch List: Analysis of European Regulation. Oxford University Press, London, ISBN 978-0-19-960886-7.
15. Reisen H and Von Maltzan J (1999). Boom and Bust in Sovereign Ratings, OECD Technical Papersno.148, [www.oecd.org/pdf/M00006000/M00006204.pdf](http://www.oecd.org/pdf/M00006000/M00006204.pdf).
16. Stankovičová, Iveta; Vojtková, Mária (2007). *Viacrozmerné štatistické metódy s aplikáciami*. Iura edition, ISBN 978-80-8078-152-1.
17. VINŠ, Petr; LIŠKA, Václav (2005). Rating. Praha : C. H. Beck, ISBN 80-7179-807-X.

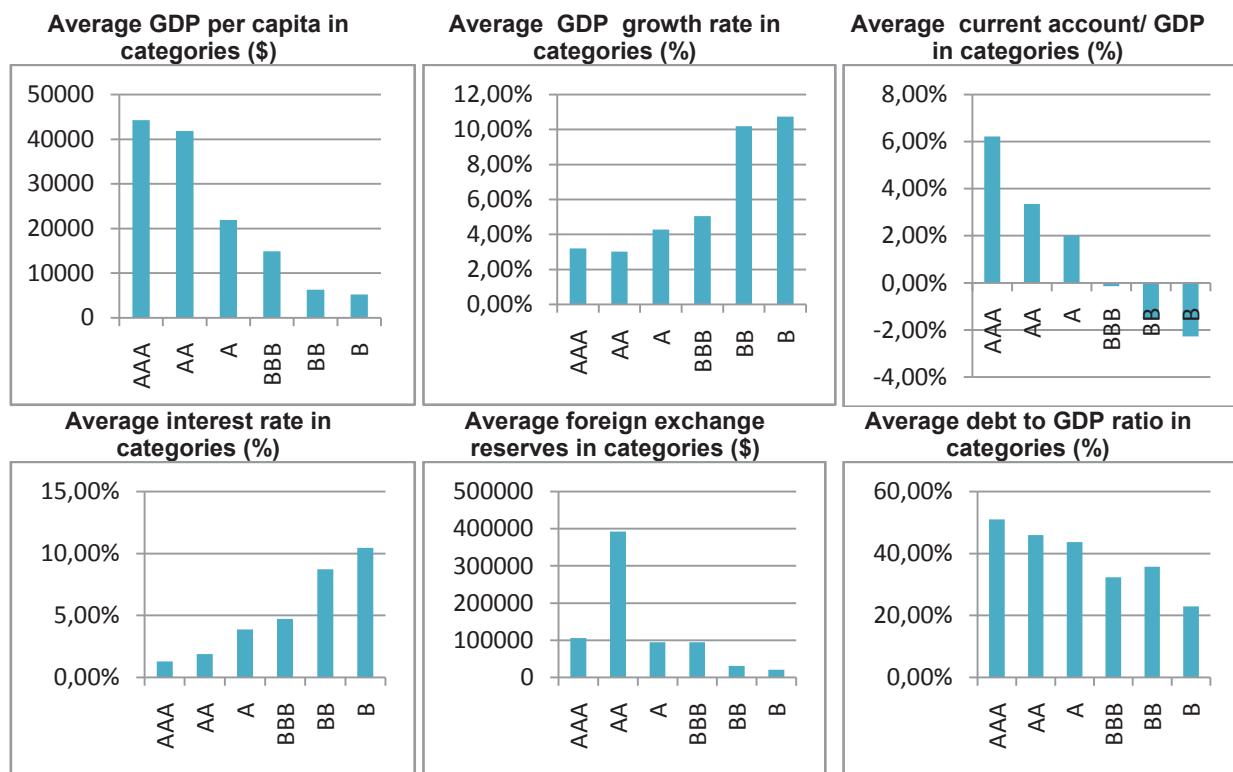
## Annexes

**Tab. 7 Rating symbols**

| Interpretation                   | Moody's   |            | S & P     |            | Fitch     |            |
|----------------------------------|-----------|------------|-----------|------------|-----------|------------|
|                                  | Long-term | Short-term | Long-term | Short-term | Long-term | Short-term |
| <b>Investment Grade/ rating</b>  |           |            |           |            |           |            |
| Highest quality                  | Aaa       |            | AAA       |            | AAA       |            |
| High quality                     | Aa1       | Prime-1    | AA+       | A1+        | AA+       | F1         |
|                                  | Aa2       |            | AA        |            | AA        |            |
|                                  | Aa3       |            | AA-       |            | AA-       |            |
| Strong payment capacity          | A1        | Prime-2    | A+        | A1         | A+        |            |
|                                  | A2        |            | A         |            | A         |            |
|                                  | A3        |            | A-        |            | A-        |            |
| Adequate payment capacity        | Baa1      | Prime-3    | BBB+      | A2         | BBB+      | F2         |
|                                  | Baa2      |            | BBB       |            | BBB       |            |
|                                  | Baa3      |            | BBB-      |            | BBB-      |            |
| <b>Speculative grade/ rating</b> |           |            |           |            |           |            |
| Speculative                      | Ba1       |            | BB+       | B          | BB+       | B          |
|                                  | Ba2       |            | BB        |            | BB        |            |
|                                  | Ba3       |            | BB-       |            | BB-       |            |
| Highly speculative               | B1        | Not prime  | B+        |            | B+        |            |
|                                  | B2        |            | B         |            | B         |            |
|                                  | B3        |            | B-        |            | B-        |            |
| High default risk                | Caa1      |            | CCC+      | C          | CCC+      | C          |
|                                  | Caa2      |            | CCC       |            | CCC       |            |
|                                  | Caa3      |            | CCC-      |            | CCC-      |            |
| Default                          | Ca, C     |            | C,D       | D          | C, D      | D          |

Source: Standard and Poor's, Moody's and Fitch

**Tab. 8 Macro indicators and rating grades**



Source: TradingEconomics, Eurostat, Standard & Poor's; own processing

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# **Reconciliation Plan of Career and Private Life in the Circle of Daytime Students in Hungary**

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**Juhász Tímea<sup>2</sup>**

## **Abstract:**

We automatically presume that social values and views are changed by economic and general social changes. Family has an especially important place among the traditional Hungarian values. The social and demographics researches of the past decade (Kamarás, 1995, Pongrácz T-né, 2011, Spéder Zs., 2001) have proven that Hungarians consider family more important than other fields of life (work, free time, other social interaction forms etc.).

However, while women reverted to the traditional expectations in the last few centuries, and they concentrated on raising the children and running the household, there was a change in attitude in the 20th century, and women have been appearing in the labour market in an ever increasing number. Work became an important aspect of their life in the 21st century: more and more women want a career and be successful professionally. It is no wonder, then, that the issue of the reconciliation of work and family life has been in the forefront since the 70s (Juhász, T., 2010).

In our current essay, we examined young people's opinion about work (career) and family.

## **Key words:**

Reconciliation of work and family life, life-long learning, career

## **Introduction**

Several Hungarian social researches have been dealing with the reconciliation of work and family life. To create a guideline among the vast amount of relevant information, we examined the available professional literature by raising specifically aimed research questions:

- The reconciliation of work and family commitments and requirements as an EU-perspective as well as
- the problems for women to reconcile work and family roles in Hungary.

It is a well-known fact that population figures have been plummeting in parallel with the rising number of female employment. Women's situation has theoretically, as well as on a practical level, changed a lot since the 1990s: women have been getting a bigger and bigger "slice" from the labour market, but this does not automatically lead to equal male-female relations or the creation of a fairer domestic labour division (Czeglédi Cs., p. 11).

Regarding the reconciliation of work and family commitments and requirements, the EU has several recommendations for its member states, all of which could be implemented in international labour policies.

Resolutions have been made from the beginning of the 2000s concerning the balanced presence of men and women at work and within the family, for example: Women and Men Reconciling Work and Family Life (2002), Gender Gaps in the Reconciliation between Work

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and Family Life (2004), EEC directive 92/85 about the defence of pregnant employees, the 2006/54/EC directive of equal opportunities and equal treatment of male and female employees and the 2010/18/EU directive about parental child-care leave. In 2011, child-care leave regulations were to be harmonized with the 2010/18/EU directive. Besides the above mentioned directives, the Europe 2020 plans are attempting to coordinate work and family life reconciliation and the flexibility of labour-related issues. The main concerns of the 2011 EU family policies were entitled "Europe for the Families, Families for Europe."

## **The Problems of Reconciling Female Employment and Family Roles in Hungary**

It has become obvious today that unfavourable working conditions seriously affect the willingness to bear children. Hungarian women usually plan to have more children than they give birth to in the end. Low birth-rate is not only a problem in Hungary, but in the whole of Europe; one of the main reasons for this is late family founding. In 2010, approximately 35% of all births were linked to women between 30 and 34 (KSH, Population Statistics, 2010.). The EU statistics clearly show that our 1.32 birth-rate is among the lowest ranking European countries.

What is the reason for these figures? The conditions of the Hungarian labour market do not assist in the reconciliation of work and family life: it is enough to think of the low flexibility of the labour market or of the fact whether childbirth hinders career. Besides being an employee, women also have to think of family and other social commitments as the traditional family- and people-centred values are still strong in society. Female employment has become natural today, and women are willing to work if the conditions are favourable. As to what women consider their work, the picture is not so clear. Women are more likely to look at their job as a means to make money instead of getting a carer than men: for this reason, the two-wage-earner family model is widespread in Hungary, and the salary of both adults is necessary as well (especially when there is a child in the family). We can see that childbirth is more and more often preceded by stable employment from the part of the woman (Oláh-Szilágyi, 2012). We believe that this economic necessity is the reason why the atypical, more family-friendly employment forms are not preferred (for example, the salary of a part-time job is usually not enough to support a family).

The researches of Tiborné Pongrácz and Edit S. Molnár enable us to present the changes over time. While in 1991, only one-fifth of those questioned claimed that work and family are equally important in their life, four-fifths claimed family had priority over work for them. Later works of the authors found out that the role of the wage-earner has gained importance besides motherly roles within the framework of "family versus career" and "child versus career."

At the same time, the majority of the people started to claim that neither the family nor the children suffer significantly if the mother does some form of work outside the house, be it part-time or full-time work.

The coordination of society and the economy is needed to help the reconciliation of work and family life as well as to assist in higher birth-rates. We collected a list of the possible means, some of which were already been brought up in the 2011/CCXI Act about the protection of the family and the new Labour Codes introduced in 2012:

- family protection through support
- ban on lay-offs (for mothers and also for single fathers!)
- favourable work-time (breast-feeding, human reproduction procedures)
- limiting work done in a different settlement (single parents)
- incentive to ensure part-time and other atypical employment
- unpaid leave for child-care
- parental leave for both parents.

At the same time, the Confederation of Family Organisations in the European Union (COFACE) stated that they want to devote 2014 to the reconciliation of family and work and the creation of a family-friendly economy.

#### Research Description and Methodology

As we can see from the summary of the professional literature, the topic is a timely one. It is no wonder, then, that we conducted a research in the second half of last year with the aim of examining the question from the point of view of a special social stratum. Our research focused on those university and college students who were to become the mothers of the future, with a chance of changing the current trends. The participants were at the beginning of their career and family life, that is, the problem of reconciling these two factors was just becoming an issue for them. We were essentially curious as to how they saw the individual aspects of this question, what they think of the timely nature of this topic and what kind of solutions they might have.

Our research consisted of two parts. The first part involved an in-depth interview with the participation of 19 voluntary daytime students. The qualitative research helped us to get a clearer picture of the point of view and opinion of young people. Based on the results of the in-depth interview, we put together a questionnaire where we were also trying to reveal and examine certain connections within this topic. Although our research cannot be considered representative, we believe that it gave us a lot of useful information concerning the Hungarian practice and general opinion.

The aim of our current examination is not the detailed introduction of both our research: we essentially concentrated on the quantitative part, while applying some of the results of the qualitative research as well.

We summarized the message of the in-depth interviews in the following way:

Our examinations revealed that students were basically following the traditional views, and they put family relations and commitments before their career: the latter only appear as a question of future career path. If they were not forced to make a definite decision between the two areas, we could see that their opinion changed according to the given period of their life. In the 5-8 years following university, they mostly valued their career, which was followed by a stronger emphasis on the family in their 30s; finally, when their family commitments were no longer so severe, their work gained prominence once more. At the same time, our respondents saw clearly that the reconciliation of these two areas involved a lot of sacrifice; it would be inevitable for one of these two areas to suffer as a result, and finding the right balance would appear as a life-long challenge.

Based on these results, we set up our questionnaire last winter. The questionnaire contained primarily closed questions with mostly nominal and metric (5 point Likert scale) variables; it was also divided into several sections.

The first part was concerned with the reasons for choosing university or college. We tried to illuminate all the factors here which played a role in our respondents' decision to start their particular educational institution. We examined how much this was their own decision and what kind of influence their surroundings represented.

The next part of the questionnaire revealed the realistic and ideal career paths and prospects for the students.

Finally, the last part of the questionnaire investigated the ideas today's youth had about family planning and the reconciliation of work and family life. We wanted to know which area would receive priority in the next 10-15 years of their life and how they think they would manage to harmonize the two areas. Our current publication is mostly concerned with the questions emerging in the last two parts, and we intended to use these questions to support the following hypothesis.

## Hypothesis

The people participating in our research follow the traditional views and they give priority to family over career and work; this notion is strongly present in the sample among both genders.

The respondents could fill in the questionnaire through the Internet. 483 people responded all together, while 476 of the questionnaires were suitable for assessment. We analysed the data with the help of SPSS as well as with multiple- and one variable statistical methods, among other things, chi-test, t-test, F-test, cluster analysis, and factor analysis.

Approximately 60% of the samples came from the most developed region, Central Hungary, while the rest of the samples were divided by their region in the following way: 23.1% from Northern Hungary, 7.6% from the Southern Great Plains, 4.4 % from Central and Western Transdanubia and 1.1% from southern Transdanubia. Regarding their age, the oldest respondent was 41 years old, while the youngest was 18. Based on their gender, 68.9% of the respondents were women and 31.1% were men. 20% were freshmen students, 44.5% were in their second, 22.1% in their third, 9.5% in their fourth and 4% in their fifth year. The participants were studying in a multitude of different courses: 8.4% were studying humanities, 32.8% social sciences, 14.7% engineering, 6.5% agriculture, 1.7% medical science, 3.2% pedagogy and, finally, 31.1% were studying in other areas.

60.5% of those we asked would have liked to work in Hungary after getting their diploma, while 35.3% would have been willing to go to work abroad. 21.8% were planning to get a further diploma at home, while 5.7% wanted to go abroad to continue their studies. 17.4% of them wanted to start a family immediately after their diploma, and there was no significant difference regarding this question between men and women (Pearson Chi-square: .987 df: 1 sign.: .320 p> .05: 18.6% of females and 14.9% of males would have founded their own family right after school).

It was interesting to see that while almost 60% of the young people would have liked to work, 54.2% also felt that they would not meet the requirements of their future employer. We examined whether there was any connection here based on home region, university studies or even gender, but none of these variables produces any significant difference.

Students felt their weak points were primarily professional experience, languages, professional knowledge and communicational skills, all of which they would have to improve during their career. At the same time, although these were the factors they indicated as their weak points, they believed that the most important career-influencing factors were connections, language knowledge and professional experience. They also marked emotional intelligence, precision and the ability to work in groups as the least important factors.

The three most important factors in choosing a job for the students were a competitive salary, good atmosphere at work and career prospects within the company, while the least important factors were travel opportunities offered by the organization, charismatic management and the chance of using a language.

11% of the respondents thought that career will have priority in their life between the age of 20 and 25, while 51.7% claimed the same about the age between 25 and 30. Only less than 2% of the respondents believed that their career would catch up after 40.

Regarding the question of family founding, an interesting result came up: 42.2% of the respondents claimed this question would become important between the age of 26 and 30, while 45.4% thought this would become an issue between the age of 31 and 35. This means that according to young people, both career and family become important at the same time, which could be a source of various conflicts. It is also true, however, that 88.9% of the respondents said it was important for them to have a family of their own, so the willingness to found a family was very strong in the sample.

Students thought that while career primarily means financial security, self-respect and professional contentedness in their life, family essentially provides emotional and social security for them.

Opinions varied regarding the effect work and family had on each other. While 75.6% of the students said family has a positive effect on career, only 42.2% said that career has a positive effect on the family. Moreover, while 16.2% of the students thought that family affects the career negatively, 44.67% thought the opposite to be true. There was no significant difference regarding the effect of the family on career between men and women (Pearson Chi-square: .261 df: 2 sign.: .878 p> .05). Similarly, we found no difference of opinion between men and women concerning the effect of the career on the family (Pearson Chi-square: 4.158 df: 2 sign.: .125 p> .05).

We made claims regarding the priority of work and family, which the respondents had to grade on a 5 point Likert scale based on how much they agreed with the statement. 5 meant complete agreement, while 1 meant complete disagreement. In the following chart, we summarized the results for some of the claims:

**Tab. 1 Claims Concerning Career and Family**

| Claims   | N   | Mean | Std. Deviation |
|--|-----|------|----------------|
| Currently, future career prospects offered by my workplace are the most important. | 476 | 3.04 | 1.050          |
| Currently, my family is the most important goal in my life.                        | 476 | 3.40 | 1.092          |
| In the future, my career and my family must have the same priority.                | 476 | 3.88 | 1.098          |
| In the future, family will be more important than my career.                       | 476 | 3.70 | 1.065          |
| In the future, my career will be more important than my family.                    | 476 | 2.24 | 0.991          |
| There are situations for me when my career must come before my family.             | 476 | 2.82 | 1.088          |

Source: Own Chart

We can see from the results of the chart that family has bigger priority among the respondents than career; what is more, placing the latter before the former is less accepted by them.

For further analysis, we divided the claims into factors to rule out multi-collinearity among the variables; the factors we created did thus not correlate with one another. The following chart summarizes the communality and the rotated component matrix.

**Tab. 2 Rotated Component Matrix and Communality**

| Rotated Component Matrix   |           |   | Communalities |
|--|-----------|---|---------------|
|  | Component |   | Extraction    |
| Claim  | 1         | 2 |               |
| Currently, future career prospects offered by my workplace are the most important. | .807      |   | .676          |
| There are situations for me when my career must come before my family.             | .766      |   | .607          |

|   |      |      |      |
|---|------|------|------|
|   | .691 |      | .620 |
| In the future, my career will be more important than my family.     |      | .793 | .672 |
| Currently, my family is the most important goal in my life.         |      | .735 | .689 |
| In the future, family will be more important than my career.        |      | .688 | .541 |
| In the future, my career and my family must have the same priority. |      |      |      |

Source: Own Chart

All elements in every diagonal within the anti image correlation matrix were above 0.5. The KMO and the Barlett-test was the following: .695 df: 153 sign.: .000. Based on this, the variables were suitable for factor analysis. The explained variant proportion was 63.423%.

The two factors created this way were named career-oriented and family-oriented. We wondered what kind of homogenous groups we could create from our sample based on these two factors. For this reason, we applied K-centre, non-hierarchical cluster procedure, during which, we managed to create two clusters. The final cluster centres are shown in the following chart:

**Tab. 3 Final Cluster Centres**

| Factors         | Cluster |         |
|-----------------|---------|---------|
|                 | 1       | 2       |
| Career-Oriented | -.20802 | .32722  |
| Family-Oriented | .61570  | -.96849 |

Source: Own Chart

Based on the cluster centres, cluster 1 contains those students who were typically family-oriented, while the second contains those who wanted to concentrate on their career. There were 291 students in cluster 1 and 185 in cluster 2. We examined what kind of gender differences there were between the clusters, but we found no significant difference (Pearson Chi-square: 1.239 df: 1 sign.: .266 p> .05). Approximately 62.8% of the women and 57.4% of the men belonged to the family-oriented cluster. When it came to the question of what the clusters would relinquish first: family or career, we received no surprising result (Pearson Chi-square: 66.845 df: 1 sign.: .000 p< .05), that is, while family-oriented people would have relinquished their career in 95.9% of the cases, only 68.6% of the career-oriented people would have relinquished their family.

The respondents also had to decide what would become more important in their future life in 5, 10, 15 and 20 years. The answers are summarized in the following chart:

**Tab. 4 Importance of Given Areas Regarding Time Passed (%)**

| Years       | Parents | Career | Own Family | Other |
|-------------|---------|--------|------------|-------|
| In 5 years  | 13.9    | 65.5   | 14.5       | 6.1   |
| In 10 years | 1.9     | 32.4   | 62.8       | 2.9   |
| In 15 years | 10.9    | 14.7   | 69.1       | 5.3   |
| In 20 years | 19.3    | 6.7    | 59.2       | 14.7  |

Source: Own Chart

We can see from the results of the chart that the importance of parents gains significance in the next stage of the respondents' life, followed by the next similarly important phase in their late 30s and 40s, possibly in connection with taking care of the elderly. The family has the dynamic lead from the second half of their 20s onwards, while the importance of career gradually loses importance as they grow older. We checked whether there was any significant difference in this respect regarding gender. We saw that there was significant difference between the two genders regarding their imagined life in the next 5 years (Pearson Chi-square: 9.169 df: 3 sign.: .027 p< .05). 16.8% of all women thought the family would be important in their life at that point, while the same figure was only 9.5% among men. Parents received priority with 14.9% of the women and 11.5% of the men; finally, 63.7% of the women considered their career important in this time period, while the same figure was 69.6% among men.

Finally, if the respondents had been forced to choose to relinquish either their family or their career, 85.3% would have voted against their career, and there was no significant difference between the two genders in this respect (Pearson Chi-square: .818 df: 1 sign.: .366 p> .05). It is no wonder that they answered this way as 60.1% of all respondents claimed that family provides more happiness than career, while 35 said the career is a greater source of happiness and the 37% rest said both provides the same amount of happiness. 63.9% of the students were already paying attention to the reconciliation of work and private life, although in this respect, there was some difference between men and women: 67.4% of the women and 56.1% of the men paid attention to this problem (Pearson Chi-square: 5.640 df: 1 sign.: ,018 p< .05).

## **Conclusions:**

In our current essay, we have published some of the results of the research we did at the end of last year, based on which, we can accept the hypothesis we made earlier. The examinations show that even the students currently active in the educational system are interested and involved in the questions of reconciling work and private life.

It is a fact that these students had different opinions about the priority of these two areas at different stages in their lives; however, if they were to choose between them, most of them would favour their family, and in this respect, there was no significant difference between men and women. On finishing school, students typically favour their career, while family and the parents gained more significance towards the end of their 20s, and the importance of these factors follow them on during their active working years.

## **Literature:**

- Csehné, Papp I. (2012). Női szemmel: Háztartás és munka. Munkaügyi Szemle, 2012/I, 26-31.
- Czeglédi, Cs. (2008). A női vezetői szerep sajátosságai Magyarországon. PhD thesis. SZE, Regional and Economic Sciences Doctoral School, Győr.
- Havasi, V. (2011). A nők a munkaerőpiacán és a családban – a tények és értékek összefüggései. Társadalomkutatás, 29 (2011) 4, 501–517.
- Juhász, T. (2009). Családbarát munkahelyek, családbarát szervezetek. PhD thesis, SZE, Regional and Economic Sciences Doctoral School, Győr.
- Kende, A. (2000). "Család és/vagy karrier" - Fiatal női életutak szociális konstrukciós megközelítésben. Magyar Pszichológiai Szemle, Budapest, 1, LV C., 89-112.
- Makra, E.- Farkas, D.- Orosz G. (2012). A munka-család konfliktus kérdőív magyar validálása és a munka-család egyensúlyra ható tényezők. Magyar Pszichológiai Szemle, issue 2012/3, 491-518.
- Oláh, J. – Szilágyi, A. (2012). A női munkanélküliség alakulása Hajdú-Bihar megyében Multicultural Workshop Studies, 2nd Debrecen University, Faculty of Child-Raising and Adult Education, Hajdúbőszörmény.. ISSN 2062-9834, 33-39.

- Pongrácz, T.-né – S. Molnár, E. (1994). Kisgyermekes anyák és apák szülői, családi attitűdjei négy európai országban. KSH, Bp., Komáromi Nyomda és Kiadó Ltd., 1994. 1-97. /KSH Population Research Institute Report
- Pongrácz, T.-né – S. Molnár, E. (2011). Nemi szerepek és a közvélemény változásának kölcsönhatása. Szerepváltozások, pp. 192-206.
- Szádvári, L. (2012). Család vagy munka? Család és munka! Humánpolitikai Szemle, issue 2012/4, 27-28.
- Szombathelyi, Cs. (2010). A munka és a család egyensúlya. Munkaügyi Szemle, issue 2010./III, 12- 18.
- Tárkányi, J. (2012). A munkahely és a párokkapcsolat kölcsönhatásai. Munkaügyi Szemle, issue 2012./I, 78- 87.
- Ternovszky, F. (2005). Munka, nők (férfiak), család I. rész. Munkaügyi Szemle, 15-18th of September, 2005.
- Vernon, K. (2009). Work-Life Balance: The Guide. Hong Kong. Community Business [http://www.communitybusiness.org/images/cb/publications/2009/WLB\\_Guide.pdf](http://www.communitybusiness.org/images/cb/publications/2009/WLB_Guide.pdf)
- Zsótér, B. (2008). Változó női szerepek: munkavállalás és családi élet összeegyeztetése a fejlett országokban. Esély, 2010/4, 121-124.

# **Management of energy production from renewable sources as a way to reduce energy production from fossil fuels**

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**Lucia Richterová<sup>2</sup>**

## **Abstract:**

One of the most important issues of this century is resolving the question of energy sources for the sustainable development of society, as our life and the whole world is nowadays inextricably linked with energy. The growth in demands for energy and raw material and also the increasing demands on people's quality of life deepens the states' dependence on vital resources and the likelihood of raw material and energy crises. The energy that we use today, whether in the form of heat, electricity or fuels for motor vehicles has its origin mainly in fossil fuels, especially in oil, coal and natural gas. Each of these resources is still created by the action of natural forces, but not fast enough and not everywhere. As the majority of energy sources are non-renewable, such dependence is highlighted even more. The current consumption of fossil fuels for energy production exceeds their creation many times, and so it may be that they will be exhausted in the near future. It is for this reason fossil fuels are considered to be nonrenewable. Their limitation is not the only problem that humanity is facing. Imprudent and inefficient exploitation of natural resources can lead to their exhaustion, irreversible damage to the environment and the emission of greenhouse gases. Therefore, it is necessary to highlight the importance of renewable energy sources as a substitute for fossil fuels, rural development and the need for good energy policy that will create favorable conditions for the expansion of energy production from renewable energy sources. In addition to environmental benefits, the application of renewable energy sources increases the country's energy independence on imported fuels and energy. They are domestic resources, which help to increase the security of energy supply and its diversification. Renewable energy sources have a major role in local and regional development, as well as employment. This contribution presents the current state of the energy sources usage in the European Union and the Slovak Republic and the comparison between their consumption. It refers to the management of energy production from renewable sources, particularly biomass, its use in the agricultural and heat generation enterprise and the economic benefit quantification of energy production from this source for the enterprise's needs, as an option for reducing the use of fossil fuels for energy production. Next, the situation in the use of gas as an energy source before and after the construction of a straw burning boiler, cost analysis associated with the operation and the quantification of economic benefit of replacing the conventional energy source with biomass is compared. In addition, the contribution includes a model project for the construction of a straw burning boiler in conditions of Slovak farms and transparently handles the procedure of replacing conventional sources with renewable sources in the model farm. This process includes an initial analysis of the annual heat demand for objects, which are to be heated by energy from biomass, determination of the required average boiler power, quantifying the cost of investment and return on such investment.

## **Key words:**

Renewable energy sources, biomass, straw burning boiler, straw, management, European union, agricultural enterprise, Slovak Republic

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## Introduction

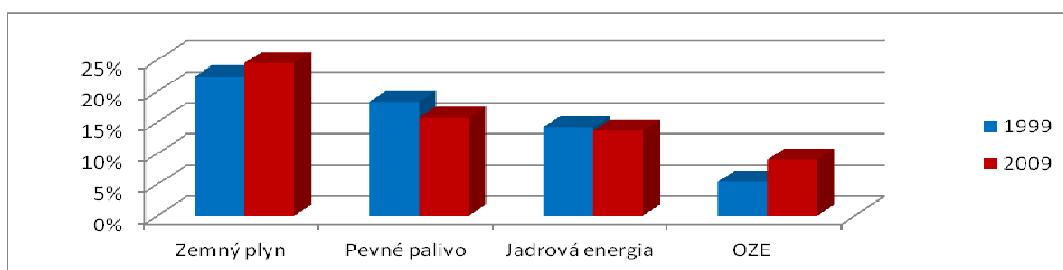
The states' dependence on the use of fossil fuels for energy production is high. Since this is a resource that is depletable and if we take into account the fact that its consumption is much higher than its production, it forces us to think about alternative sources of energy. One option is clean energy from renewable sources of energy originating in the earth's natural resources in the form of sunlight, wind, water, biomass and geothermal energy. This source, if used wisely, will never get depleted, and unlike fossil fuels, it does not pollute our planet and cause dangerous climate changes. It also plays a major role in the case of the very important issue of energy supply security, states' independence on imported fuels and energy, and finally, it contributes to local and regional development and employment increasing. In the near future, renewable sources of energy will still be only used as additional resources, especially with local and regional importance. Increasing the use of these energies is a world trend, which is also indicated with strategic goals of energy policy in most countries, including the Slovak Republic.

## Energy policy of the European Union

A competitive, reliable and sustainable energy sector has a major impact on the economy. In recent years this area has received much attention, mainly because of the constant fluctuations in oil prices and natural gas supply disruptions. Because of that, energetics got to the forefront of national and European policy agendas. The main objective of energy policy for Europe is to fight climate changes and to enhance its energy security and competitiveness. Therefore, the Council of the European Union on the basis of a proposal from the European Commission in March 2007 approved the following objectives to be met by 2020:

- Reducing greenhouse gas emissions by at least 20% compared to 1990,
- Improving energy efficiency by 20%,
- Increasing the share of renewable energy to 20%,
- Increasing the level of biofuels in transport to 10%.

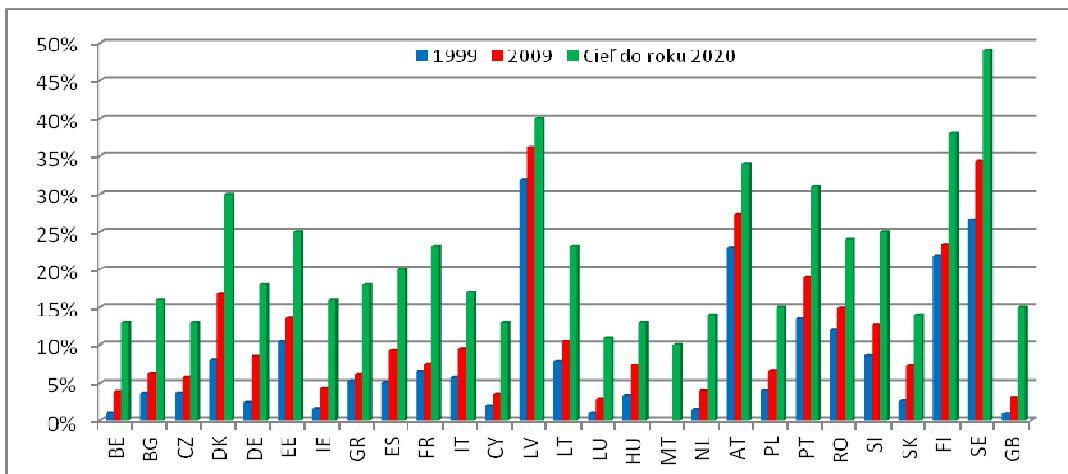
One of the most important issues of this century is solving the problems of energy for the sustainable development of companies and as one of the objectives of the European Union is to increase the share of energy from renewable sources, each Member State shall ensure that the share of energy from these sources in gross final energy consumption in 2020 will at least meet its national overall target set out in the Directive of the European Parliament and of the Council 2009/28/EC (Pic. 1). The share of renewable sources in energy production in the EU-27 almost doubled between 1999 and 2009 (Figure. 1). Compared to 1999, this share on the gross domestic energy consumption increased from 5.4% to 9% in 2009, while natural gas consumption increased by only 2.1%. Nuclear power fell slightly from 14.2% to 13.6% during this period, while consumption of oil and solid fuels decreased by 2%.



**Pic. 1 Share of energies on gross final energy consumption in 1999 and 2009**

Source: [epp.eurostat.ec.europa.eu](http://epp.eurostat.ec.europa.eu)

By comparing the share of energy from renewable sources on the gross final energy consumption in 1999 and 2009 (Pic. 2) in the EU27 countries, we find that renewable energy sources are the main source of energy in Latvia (36.2%) and Sweden (34.4%). The largest increase in the share of RES on gross domestic energy consumption in the reported period occurred in Denmark, from 8.6% to 16.7% and Sweden from 26.6% to 34.4%. In Germany, this share on the gross domestic energy consumption increased by 6.1%.



**Pic. 2 Share of energy from renewable sources on the gross final energy consumption in 1999 and 2009 and the national overall targets of EU27 countries**

Source: [epp.eurostat.ec.europa.eu](http://epp.eurostat.ec.europa.eu), European Parliament and Council directive 2009/28/EC <http://www.economy.gov.sk>

Among the EU 27 countries, the most successful in meeting its national overall targets (Figure. 2) is Latvia, which represents up to 40%, and thrives mainly because of the energy potential that the country has. Slovak Republic has had the share of energy from renewable sources in gross final energy consumption in the year 2010 at 9.5% and the national overall target is to have 14%. This goal can and must be achieved mainly because the Slovak Republic is dependent on imports for primary energy sources by 90% of its total consumption, which is 43% higher than the proportion in the European Union. We are almost entirely dependent on Russia, mainly on the supply of natural gas, oil, coal and nuclear fuel. The recent gas crisis proved this business partner to be unreliable. The only way to reduce energy dependence of the Slovak Republic from other countries is the use of renewable energy. Water, wind, solar, geothermal, and biomass energy can be used from the renewable energy sources portfolio.

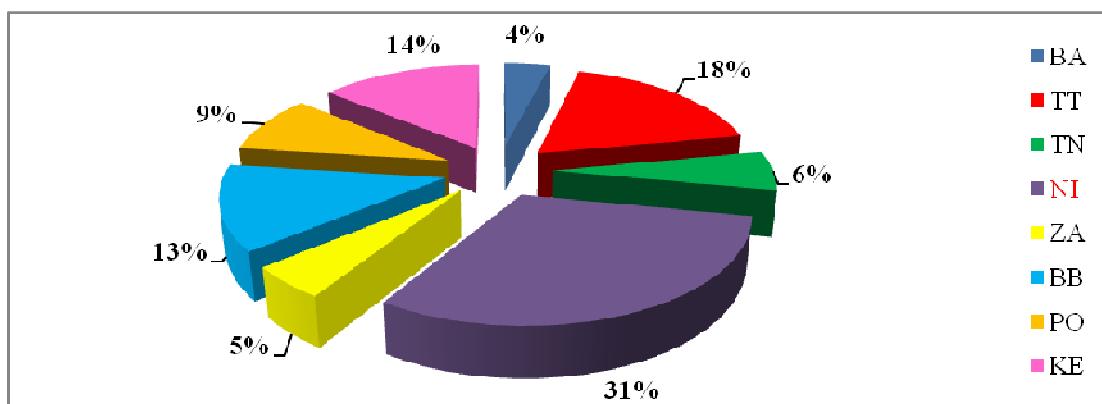
### The potential of renewable energy sources in the Slovak Republic

In the Slovak Republic, the greatest potential lies within solar energy. This potential is at 194 537 000 TJ. The average annual solar energy radiation on a horizontal surface is 1100 kWh/m<sup>2</sup>. The second largest potential is in geothermal energy - 174 640 TJ, unfortunately its technical potential is significantly lower - 22 680 TJ, because of technological problems related to the chemical composition of geothermal waters. Hydropower is the most used renewable energy source for electricity production in the Slovak Republic. The technical potential for electricity production based on hydropower is 6,600 GWh per year. Concerning wind energy, only its technical potential was determined, at 600 GWh. The potential was calculated on the assumption that wind turbines with 500 to 1,000 kW of power would be used. Considering the technical potential of biomass, which represents 28 600 TJ, its use in Slovakia is insufficient, although the latter seems like the best option for energy production, from the agricultural enterprises' point of view. Use of this energy source for energetic purposes has many advantages, which are rural economic development, efficient land use,

reducing greenhouse gas emissions (CO<sub>2</sub>, CH<sub>4</sub>) and sulfur emissions. Of course, like any source, also the use of biomass for energy has its disadvantages. These lie in the rapid degradation of all kinds of biomass in normal conditions and also it is less suitable for storage and has a low energy density.

Biomass potential, which the Slovak Republic offers, opens the door for the use of this resource for energy purposes, and whereas the largest producer of biomass is agriculture, this is a great opportunity to increase its energy independence, and contribute not only to the reduction of the costs associated with providing energy from conventional sources, but also to diversify its activities. At this time when most farms have reduced or eliminated the livestock sector from their activities, an opportunity opens up to use surplus straw for energy purposes. Up to 30% of straw from the farm output can be used for energy coverage of activities related to agricultural activity, such as the drying of cereals, corn, heating facilities, hot water demand. Its application is wide, not just on the farm, but in the municipal sector as well.

The total area of agricultural land in Slovakia is 2,432,979 ha. Only part of this agricultural area is used. The unused land makes up more than 500 000 ha and it is this unused arable land that could be used for the production of biomass suitable for energy purposes. The proportion of the energy potential of agricultural biomass by regions of the Slovak Republic is the highest in the Nitra region (Pic. 3), where up to 2734 pieces of biomass burning equipment and 52 units of biogas plants could theoretically be built.



**Pic. 3 The proportion of the energy potential of agricultural biomass by region of SR in%**

Source: PEPICH Š., Agricultural biomass in terms of regional bioenergy, Tsup Rovinka

Biomass as a source of energy is not only convenient and useful in terms of farms but also in the municipal sector. By now, a number of towns in Slovakia moved from the use of traditional energy sources to renewable sources. Conventional coal boilers change to boilers with the use of the combustion of straw and wood chips. The energy potential of biomass is large, we only have to choose which is the best for us.

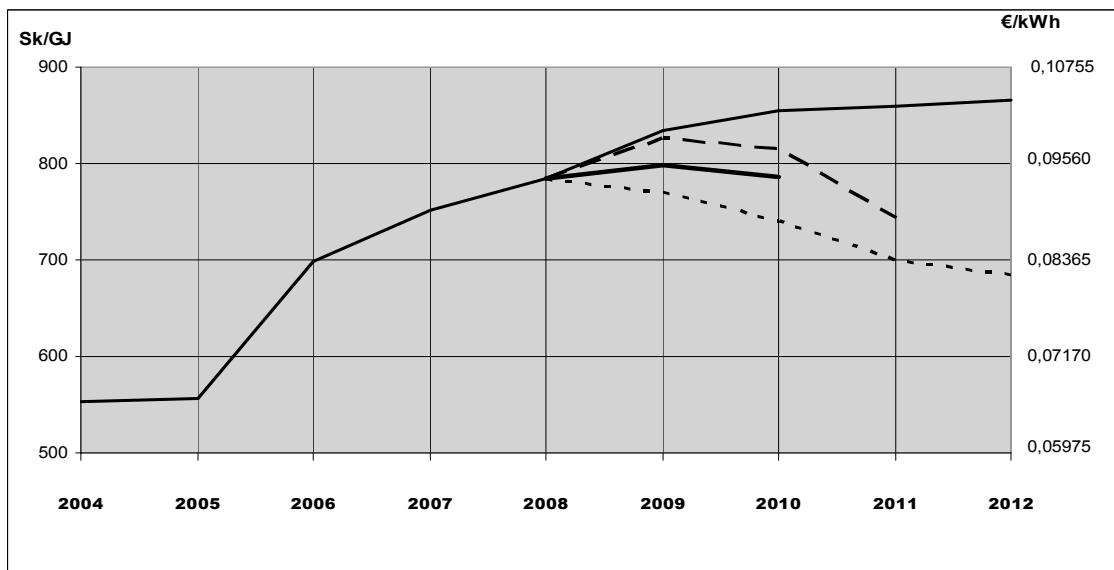
## Characteristics and economic evaluation of companies using biomass as an energy source

The examined farm is located in the Nitra region. Its main activity is the primary agricultural production, which takes place in the administrative area of five municipalities. In 2010, it farmed the area of 3790 hectares of agricultural land, of which 3433 ha is arable land. The company, in addition to crop and livestock production deals with energy production from biomass, which is used to heat workshops and the office building by using a hot water heating system with forced circulation of heating water. The total investment cost amounted to 103 013,84 €, 79954,46 € (77%) of which represented the cost of building the boiler, 3806,91 € (4%) for building the chimney and the cost of buying the KNS 250 boiler was

19 252,47 € (19%). Boiler operation was launched in 2009, before that the company used natural gas as an energy source. One year before starting the boiler operation, i.e. in 2008, natural gas consumption reached 16 125 m<sup>3</sup>. Commissioning the boiler decreased gas consumption to 425 m<sup>3</sup>. This reduction represents more than 97% of energy saved compared to a traditional source. The share of fixed costs associated with the combustion of straw in 2009 and 2010 was 5,603 € of the total cost. Variable costs primarily including transportation costs related to the transport of straw from the loft represented 572 € in 2009 and 650 € in 2010. The farm does not record the other variable costs. When comparing the cost of energy to 2008, in the years during boiler operation the costs were significantly reduced - by 2 243,26 €, which proves the advantages of using biomass as fuel. By burning biomass, the farm can provide up to 170,000 kWh of energy for heating, thereby reducing the need for natural gas. In 2009, the farm used 165 879,21 kWh of the biomass burning energy capacity for heating purposes. The enterprise saved costs in the amount of 0.383 €.kWh-1 in 2009 and 0.046 €.kWh-1 in 2010, which it would have paid for the use of natural gas. This would represent more than 6,000 €. With the replacement of natural gas with biomass, a reduction in the cost of energy started occurring, which was ultimately reflected positively on the overall results of the company.

The second examined company is a heating company in southern Slovakia. The construction project of a straw burning boiler provides heat and hot water for more than 800 apartments, which represents about 80% of the energy provided, and also for other city buildings. The intention behind carrying out the boiler reconstruction was the diversification of the fuel base from natural gas to biomass in the form of straw and natural gas. The company has installed a straw burning bio-boiler ST 2000, the heating output of which is 2 MW and the electric output of a cogeneration unit is 25 kW. The cogeneration unit covers the increased electricity need to run the gas-fired boiler. Total investment costs for the reconstruction of the original boiler was estimated at 745 000 €. The whole project was financed by the company itself. The investment costs include the costs of boiler technology, distribution system, cogeneration system, chimney construction and other costs associated with construction. The largest cost items were the construction costs and the cost of the boiler technology. The cost of the building reconstruction was 145 000 €, representing 20% of total investment costs, 54% of the total costs, i.e. 400 000 € has been spent on the boiler technology. Return on investment spent on the reconstruction of the boiler room with the change of the fuel base to biomass - straw is 8 and a half years.

The company's sales of the amount of heat are gradually rising. Starting with 7,494,300 kWh in 2009, they rose to 8,257,900 kWh in 2011. Variable costs in 2009 amounted to 438 270 €. Fixed costs consist of the costs of insurance, taxes, rent, inspection, pollution charges, repairs and maintenance, depreciation and amortization, interest and profit. These costs show an increasing trend, from 264 700 € in 2009 and up to a projected 260 600 €. This increase is principally caused by the growth in depreciation of assets due to the purchase of new technology. The amount of total costs of the boiler operation rises from 703 000 € to 737 500 €.



**Pic. 4 Impact on the development of heat prices with VAT**

Source: internal documents Comments:

- Price of heat with natural gas as fuel - without the implementation of the Concept of city development in heating energetics
- - - The maximum price of heat with biomass fuels + natural gas
- The actual price of biomass fuel heat + natural gas
- ..... Originally planned heat price with biomass + GAS fuel at input price levels from 2007

As we can see in Figure 4 the prices of heat with natural gas as fuel soar. It amounted to almost 0.09859 €. kWh-1 in 2009, while the price of heat from using biomass was 0.0956 €. kWh-1. In 2010, this difference was even greater. Without the use of biomass for heat production, the price of heat was 0.10277€.kWh-1, with the use of biomass 0.093609 €.kWh-1, thus the difference is 0.009161 €.kWh-1. An increase in the price of heat gained from natural gas and a drop in prices of heat produced by a combination of natural gas and biomass is assumed in the future. The company achieved a profit of nearly 0.003 €.kWh-1 on each unit of heat sold in 2010, i.e. the profit for the year was 23 653 €.

### A model for the management of farms for the production of energy from renewable sources

Today, when many farms restricted or completely eliminate the livestock sector from their activities, they have an opportunity to reduce their energy dependence through use of biomass for energy production. As it was already mentioned, 10 to 30 % of the straw from crops production, taking needs of livestock production into account, can be used for energy purposes. Farms can use the energy from biomass combustion to heat their buildings and facilities, provision of hot water, but also for drying crops to replace natural gas. Usage of biomass energy depends on decision of management.

Following the decision of the farm management, to use of biomass for energy, the need of heat input and potential heat consumption for individual buildings and objects must be identified firstly. Accordingly, they must also determine the necessary technology and related capital costs. The following procedure will work with the business model, which will reflect all the aforementioned procedure, which can be considered as a possible model for many farms in Slovakia. We decided that the company will use biomass and burning whole bales of straw to heat the office building, social hall and workshop equipment repair shop.

The first step is to determine the heat loss of building structures, and the subsequent determination of the required heat input. For this we chose a method that is based on the average values of buildings. It uses the specific heat loss from 1 m<sup>3</sup> of built-up area of the building. The calculation is done by multiplying thus building capacity and specific heat loss, which is included in the tables. The calculations determine the heat input in the period of lowest outside temperature, which is usually referred to the standards. This calculation thus provides a basis for determining the correct capacity size of the installed boiler. The annual heat demand for heating can be determined for all observed objects in the same way, by calculation based on the integration of standard curves over the duration of the heat requirements (STN 383350). The heat required for heating is determined by the maximum output multiplied by the annual fund 8000 hours transferred on the base of second unit and by coefficient of 0.25 to 0.31. Coefficient of 0.31 corresponds to old buildings from the period 1950 to 1985, a coefficient of 0.25, corresponds to a new building insulation. The coefficient is determined by integrating surface of temperature chart of the year, which need is proportional to the need of heat output. It is suggested to use coefficient 0.25. Thus, annual heat demand for heating of buildings is calculated by using the formula:

$$Q_k = P_k \times 8000 \times 3600 \times 0,25 \quad (1)$$

**Where:**

- Q<sub>k</sub> – the annual heat demand,
- P<sub>k</sub> – the required heat input.

**Tab. 1 : Determination of the heat demand for office building heating**

|   |                       |
|---|-----------------------|
| <b>Width of the building</b>  | 13 m                  |
| <b>Height of the building - offices</b>                                     | 6 m                   |
| <b>Length of the building</b>   | 30 m                  |
| <b>Heat losses</b>  | 40 W. m <sup>-3</sup> |
| <b>The required heat input (P<sub>k</sub>)</b>                              | <b>93,6 kW</b>        |
| <b>The annual heat demand for heating – office building (Q<sub>k</sub>)</b> | <b>673,92 GJ</b>      |

Source: Own calculations

The calculations show, that the necessary output to provide heat in an office building, whose volume is 2310 m, and the specific heat loss is 40 W m<sup>-3</sup> is 93.6 kW. The annual heat energy demand is 673.92 GJ.

Another object, for which we want provide a heating is hall of repair shop whose volume is 3360 m. Calculation of the heat demand is provided in Tab. 2 .

**Tab. 2 : Determination of the heat demand for heating buildings repair shop**

|   |                       |
|---|-----------------------|
| <b>Width of the building</b>  | 14 m                  |
| <b>Height of the building</b>   | 8 m                   |
| <b>Length of the building</b>   | 30 m                  |
| <b>Heat losses</b>  | 20 W. m <sup>-3</sup> |
| <b>The required heat input (P<sub>k</sub>)</b>                          | <b>67,2 kW</b>        |
| <b>The annual heat demand for heating – repair shop (Q<sub>k</sub>)</b> | <b>483,84 GJ</b>      |

Source: Own calculations

The required heat input to provide heating of repair shop buildings is 67.2 kW. Annual heat requirement was intended to 483.84 GJ.

**Tab. 3 : Determination of the heat demand for heating of sanitary facilities**

|  |                       |
|--|-----------------------|
| <b>Width of the building</b>                                 | 10 m                  |
| <b>Height of the building - offices</b>                      | 3 m                   |
| <b>Length of the building</b>                                | 12 m                  |
| <b>Heat losses</b>   | 60 W. m <sup>-3</sup> |
| <b>The required heat input (Pk)</b>                          | <b>21,6 kW</b>        |
| <b>The annual heat demand for heating – repair shop (Qk)</b> | 155,52 GJ             |

Source: Own calculations

Heat input required for heating of sanitary facilities is 21.6 kW and annual heat requirement is 155.52 GJ.

To determine the heat necessity for hot water for staff is necessary to determine daily consumption of heat for heating per 1 person, using the formula:

$$Q_{TUV} = Mv_{TUV} \times Cw \times (t_{TUV} - t_{VST}) \quad (2)$$

where:

- $Q_{TUV}$  – daily heat demand for hot water per person in  $\text{kJ} \cdot \text{day}^{-1} \cdot \text{person}^{-1}$
- $Mv_{TUV}$  – water consumption per person in l
- $Cw$  – heat capacity of water in  $\text{kJ} \cdot \text{kg}^{-1} \cdot \text{K}^{-1}$
- $t_{TUV}$  – height of the water temperature, which is required to head the water in °C
- $t_{VST}$  – height of the water temperature from which heat is required in °C

Farm has 15 employees, and therefore it was necessary to quantify the need for heating of hot water for each person per day according to the formula:

$$Q_{TUV \ total} = Q_{TUV} \times n \quad (3)$$

where:

- $Q_{TUV \ total}$  – daily heat demand for domestic hot water in  $\text{kJ} \cdot \text{day}^{-1}$
- $Q_{TUV}$  – daily heat demand for domestic hot water per person in  $\text{kJ} \cdot \text{day}^{-1} \cdot \text{person}^{-1}$
- $n$  – number of employees

Average performance for heating water reservoirs for 8 hours for 2 changes are calculated as a proportion of total QTUV and the number of changes multiplied by the number of seconds of one change. If the number of working days per year, which is 250, is multiplied by the total QTUV, we get annual heat consumption for heating of hot water. The results of the calculation of the heat demand for hot water can be found in Tab. 4 .

**Tab. 4 : Identifying the need for heating hot water for staff**

|  |  |
|--|--|
| <b>Water heating to temperature (<math>t_{TUV}</math>)</b>   | 55 °C                                  |
| <b>Water heating from temperature (<math>t_{VST}</math>)</b> | 8 °C                                   |
| <b>Water consumption per capita <math>Mv_{TUV}</math></b>    | 50 l                                   |
| <b>Heat capacity for water (Cw)</b>                          | 4,187 $\text{kJ} \cdot \text{kg}^{-1}$ |

|   |   |
|---|---|
| <b>Q<sub>TUV</sub></b>                                  | 9 839,45 kJ.day <sup>-1</sup> .person <sup>-1</sup> |
| <b>Q<sub>TUV</sub> total</b>                            | 147 591,75 kJ.day <sup>-1</sup>                     |
| <b>Avarage performance for heating water reservoirs</b> | <b>2,5624 kW</b>                                    |
| <b>The annual heat demand for hot water TUV</b>         | 36,8979 GJ  |

Source: Own calculations

Technology of production of heat and heat consumption efficiency are less than 100%. The usual boiler efficiency is 85 to 90% and the average annual efficiency of piping heat system is above 90% in average operating systems. To determine our needs of fuel we add up the heat consumption for each technology (heating, water heating) and divide it by the sum of efficiency. So we get the need for heat in brought by the fuel and by dividing of fuel calorific value we find the mass of fuel required for the entire year. The observed values are shown in Tab. 5 and Tab. 6 .

**Tab. 5 : Determination of the heat demand brought by the fuel**

|   |                     |
|---|---------------------|
| <b>The sum of the heat demand per year</b>  | 1350,1779 GJ        |
| <b>The effectiveness of the heat source</b> | 0,9                 |
| <b>Efficiency of piping heating system</b>  | 0,9                 |
| <b>The overall effect</b>                   | 0,81                |
| <b>The heat demand broght by the fuel</b>   | <b>1666,8863 GJ</b> |

Source: Own calculations

**Tab. 6 : Determination of fuel needs**

|  |                          |
|--|--------------------------|
| <b>Calorific value of fuel – cereal straw, hay ...</b> | 14,5 GJ. t <sup>1</sup>  |
| <b>Annual need of fuel</b>                             | 115 t.year <sup>-1</sup> |
| <b>Bulk density of the fuel</b>                        | 120 kg. m <sup>-3</sup>  |
| <b>Warehouse capacity</b>                              | 957,98 m <sup>-3</sup>   |

Source: Own calculations

**Tab. 7 : Determination of necessary size of roofed warehouse**

|                            |        |
|----------------------------|--------|
| <b>Width of warehouse</b>  | 24 m   |
| <b>Hight of warehouse</b>  | 7m     |
| <b>Lenght of warehouse</b> | 5,70 m |

Source: Own calculations

For the annual storage need of a fuel, which is 115 t.year-1, the farm need a warehouse with capacity of 958 m-3, whose dimensions are shown in Tab. 7 . The current price of 1 t of straw is 10 €, so the value of annual fuel needs is € 1 150 € per year.

### **The Price study of biomass boiler supply**

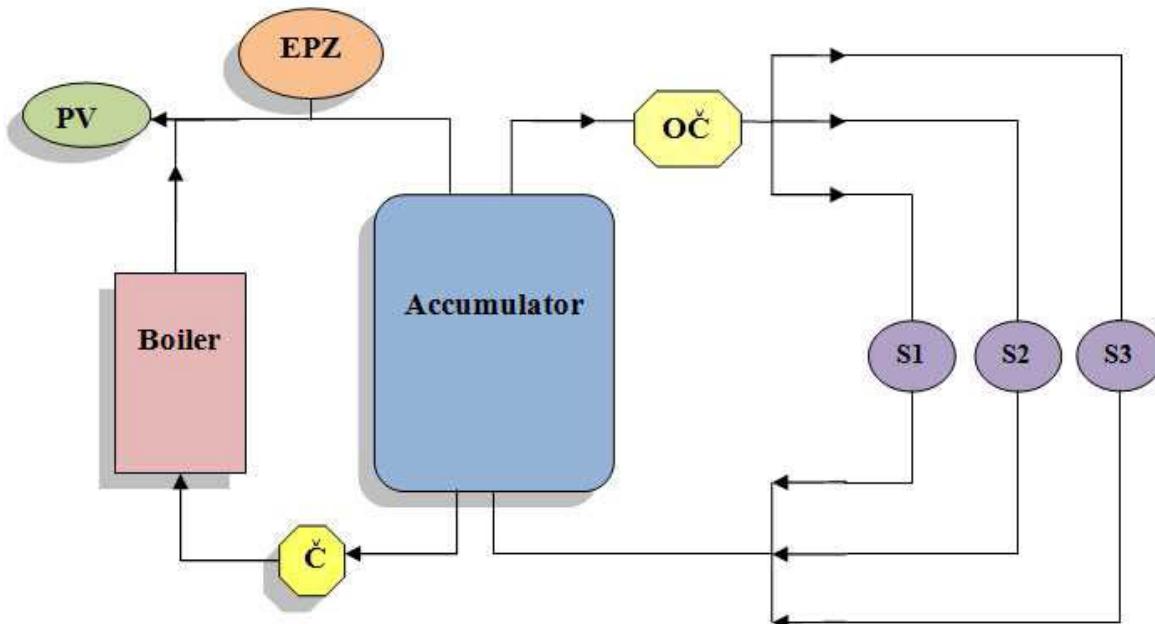
The objective of this study is the supply of hot water boilers using whole packages of cereal straw or hay with the necessary accessories. In general, we will describe the necessary parameters of the boiler and its components, which are irreplaceable for realization of the heating plant and then we will quantify the amount of investment costs. The whole study is based on real supply of biomass boilers and other technology needed to build a heating plants on the market today. As we found in the previous analysis, to provide the required heating for farm buildings we need a boiler with 185 kW output. We will count on the output of 190 kW, i.e. which is currently available.

The required parameters, which were reached by the boiler:

- the boiler output 190 kW
- the operating pressure 2 bars
- the water temperature output from the boiler 90 °C
- calorific value of a fuel minimum 14 MJ.kg<sup>-1</sup>
- content of an ash up to 6 %
- The fuel moisture up to 18 %
- the flue gas outlet temperature 160 až 200 °C
- efficiency of the boiler 85 %
- the load of a fuel 1 package of hay
- the value of the emission meet the current legislation of the SR and its emission limits TZL 250 mg/ ref m<sup>3</sup>, NOx 650 mg /ref m<sup>3</sup>, CO 850 mg /ref m<sup>3</sup>.

### Boiler description

The boiler has a cylindrical design with bulky combustion chamber for the entire bale of hay or straw to fuel fire. The combusted air is supplied into the combustion chamber of the boiler by an air blower. The boiler is equipped with a control of the combustion process, and automatic shutdown when exceeding the set maximum temperature, and with other technologies necessary for operation. The part of a delivery of the boiler is also heated water accumulator, circulation pump boiler of inner circle-accumulator, expansion relief device, duct within 3 m from the boiler heating water pipe connecting between the battery and the boiler, boiler tube premium of up to 3 m, boiler safety valve, boiler shut-off valves, manual stoking mechanism for handling parcels and packages stoking the boiler and ash container. Schematic diagram of the boiler and the technology to burn the whole package is shown in Pic. 8.



**Pic. 8 : Diagram for a small combustion source for a burn of a whole packages**

Source: Own drawing

Note: EPZ – expansion relief device

PV – security device

Č – heat water pump of heat battery charging circuit

OČ – circulation pump of heating circuit

**Qualifying the price of the boiler and its necessary components:**

|  |             |
|--|-------------|
| • the boiler for combustion of whole packages of straw and hay | 26 518,71 € |
| • heat accumulator   | 10 525,89 € |
| • expansion of the safety device                               | 12 157,81 € |
| • pumps  | 815,96 €    |
| • the electrical power supply and control system               | 3 957,41 €  |
| • the connecting pipe  | 820,72 €    |

The total price for the realization in this extent is 54 796,5 €.

Investment costs could contain also construction work associated with the construction of the heating plant, but in our case, we will install the heating plant into the existing farm building, thus investment costs will be reduced. Construction work will be associated only with the building up of the necessary chimney, the price is around 3,000 €. Investment costs must add the construction of heat and hot water, where the price is set at 244.79 € for 1 m. The heating plant is placed in the center of the farm, so it can be assumed that the required pipe length is 25 m, i.e. the price of the construction pipeline is 6 119.75 €.

The total investment cost amounts to 63 916.25 €.

**Return on investment**

Cost of gas per 1 kWh is 0.045 €. The heating plant can produce 180,000 kWh of energy, replace the gas consumption and save gas costs in the amount of € 8,100. Costs in the form of depreciation are 5 023 €, so profit is 3 077 € per year and the investment return is 8 years old.

**Conclusions:**

Today, the most important environmental issue is the global climate change due to continuous increase in the concentration of greenhouse gases in the atmosphere. Therefore the European Union has set itself the target of increasing the share of energy produced from renewable energy sources. The EU Member States have committed themselves to reducing greenhouse gas emissions by 20%, also renewable energy sources would represent 20% of the final energy consumption and 10% of consumption in the transport sector by 2020. The constantly increasing energy consumption also did not go unnoticed and thus energy consumption must be reduced by 20% compared with 2007. The Slovak Republic has a good chance of achieving its goal. In 2010 the share of renewable energy sources on final energy consumption was 9.5%, and the goal is to reach 14%.

The most important renewable energy source for farms is biomass, since they are its biggest producers. The currently unused agricultural land area is about 500,000 ha, and it is this land, that could be used for the production of biomass suitable for energy purposes. The potential is huge and needs only to be exploited. Farms can use up to 30% of their own biomass production for energy purposes, and so not only help to reduce the dependence on conventional sources, but also reduce the cost of gaining energy and diversify its business. In this paper, two companies using this resource for energy were described. In both cases, we concluded that the decision to switch from conventional to renewable energy source was correct and economical beneficial. As has been shown, biomass is not only suitable as a source of energy for farms but also for many cities and towns.

A model project that could serve as a guideline for the management of farms in the implementation of the construction of a straw burning boiler and subsequent energy production used for business' needs was presented at the end of the article. The construction of a straw burning boiler was applied to the conditions of Slovak farms and synoptically processes the replacement procedure of the classical source of energy with a

renewable source in a model farm. The annual heat requirement for building heating and the necessary boiler power was ascertained using calculations. Subsequently, the investment costs and return on investment have been calculated.

Renewable energy helps to diversify the structure of industry and agriculture, in the innovation and development of information technology, in improving energy independence and environmental protection. Rational management of domestic renewable energy sources is in accordance with the principles of sustainable development, thus becoming one of the pillars of sound economic development of society.

### **Literature:**

- [1] ČULIKOVÁ, M., (2011). Manažment výroby energie z obnoviteľných zdrojov ako doplnková výroba poľnohospodárskeho podniku (diploma thesis). Nitra: SPU v Nitre.
- [2] GADUŠ, J., (2010). Biomasa ako zdroj energie. Nitra. Retrieved March 25, 2013 from <http://www.slideshare.net/Oikosbratislava/biomasa-ako-zdroj-energie>.
- [3] Ministerstvo hospodárstva Slovenskej republiky (2007). Stratégia vyššieho využitia OZE v SR Retrieved March 15, 2013 from [www.economy.gov.sk/strategia-vyssieho-vyuzitia-oze.../128005s](http://www.economy.gov.sk/strategia-vyssieho-vyuzitia-oze.../128005s).
- [4] Ministerstvo hospodárstva Slovenskej republiky (n.d.). Energetická politika SR. Retrieved February 15, 2011 from <http://www.economy.gov.sk/energeticka-politika-sr-5925/127610s>.
- [5] Ministerstvo životného prostredia Slovenskej republiky (n.d.). Obnoviteľné zdroje energie. Retrieved March 25, 2013 from <<http://www.minzp.sk/oblasti/obnovitelne-zdroje-energie/obnovitelne-zdroje-energie/>>.
- [6] PEPICH, Š. (n.d.). Poľnohospodárska biomasa z pohľadu regionálnej bioenergetiky, TSÚP Rovinka. Retrieved October 15, 2011, from <[http://www.abe.sk/casopis/clanky/Polnohospodarska\\_biomasa.pdf](http://www.abe.sk/casopis/clanky/Polnohospodarska_biomasa.pdf)>.
- [7] The European Parliament and Council of the European union. (2009). Smernica Európskeho parlamentu a rady 2009/28/ES o podpore využívania energie z obnoviteľných zdrojov energie a o zmene a doplnení a následnom zrušení smerníc 2001/77/ES a 2003/30/ES z 23. apríla 2009. Retrieved March 25, 2013, from <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:01:SK:HTML>>.
- [8] WULLT, J., ROUBANIS, N., (2010). Renewable energy contributed 10.3% of energy consumption in the EU27 in 2008. Retrieved February 15, 2012 from <[http://epp.eurostat.ec.europa.eu/cache/ITY\\_PUBLIC/8-13072010-BP/EN/8\\_13072010\\_BP-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/8-13072010-BP/EN/8_13072010_BP-EN.PDF)>.
- [9] <http://www.economy.gov.sk>
- [10] ZACHARDA, F., PEPICH, Š., GADUŠ, J., PISZCZALKA, J. (2009). Biomasa, jej potenciál a reálne možnosti využitia na Slovensku. Nitra : Agroinštitút Nitra, štátny podnik.

# **Global Production Shifts: Changes in Dynamic Comparative Advantage for BRICS?**<sup>1</sup>

**Tereza De Castro<sup>2</sup>**

## **Abstract:**

The paper assesses the changes and shifts of comparative advantages in BRICS' goods and services export patterns. It stems from the assumption that a greater involvement of BRICS emerging economies in the global exports and supply chains has influenced the reorientation and relocation in global production and has increased BRICS's share in the world trade. The aim of the research is to identify exported product groups, in terms of factor intensity, in which the BRICS economies have comparative advantages in, and how these advantages have shifted within the past decade (2000 – 2011). The study examines revealed comparative advantage index from the dynamic evolution point of view and the results are compared with the outcomes from Spearman and Gini-Hirshmann coefficients as well as from the Galtonian regression. The results revealed that the ongoing process of economic integration and globalization has not led so far to major changes in specialization in BRICS economies in the direction of producing more advanced products.

## **Key words:**

BRICS, exports, dynamic revealed comparative advantage, specialization

**JEL Classification:** F10, F14, F15

## **1. Introduction**

The current world economic integration not only has involved developed OECD countries but also large emerging BRICS markets (Brazil, Russia, India, China and South Africa), hence the latter ones have been continually growing in their relative importance, especially in terms of trade. BRICS' domestic and trade reforms (OECD, 2008) and an uneven recovery during the past economic crisis strengthened their position in the world economy. Their greater involvement in the global supply chains, and increasing intra-industry trade, has influenced the reorientation and relocation in global production and increased BRICS's world trade share. BRICS contributed to the world goods exports 20.4% in 2011<sup>3</sup>. This indicates almost a double increase in comparison to the year 2000. Regarding services, this ratio has been much smaller but also increasing. BRICS share to world service exports counted for 4.8% in 2000 and 11.6% in 2010<sup>4</sup>. The largest exporter of goods in terms of BRICS but also worldwide is China followed by Russia, India, Brazil and South Africa respectively. As far as services the highest and fastest growing share recorded China followed by India, Russia, Brazil and South Africa. Even though the service sector in comparison to the country's total exports remains relatively small (apart from India) it has been gaining its importance in the

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<sup>3</sup>Data based on UN Comtrade database

<sup>4</sup>Data based on UN ServiceTrade database

countries' production. The increasing integration of BRICS to world markets results also in changing export structures both in OECD and BRICS economies.

The paper intends to point out whether the ongoing process of economic integration and globalization has led to changing comparative advantages in BRICS economies in the direction of producing more advanced products, hence shifting them towards more high-tech oriented economies such as those of OECD. The assessment in this paper particularly focuses on changes and shifts in the patterns of comparative advantages of BRICS. The aim of the research is to investigate what sort of exported products BRICS economies have comparative advantages in and how these advantages have shifted from the dynamic point of view within the past decade.

There has been limited research conducted regarding this topic for all BRICS economies. It can be found partially by Batra and Khan (2005) who conducted an assessment of the revealed comparative advantage for commodity levels as well as for the factor intensity in the manufacturing sector based on HS and SITC classifications respectively. Data provided an overtime comparative advantage comparison between 2000 and 2003. The results revealed similar comparative advantages for China and India, particularly in labor and resource intensive sectors. Another assessment was conducted by Gao (2007) who compared the dynamic comparative advantage of China to India as the two largest developing economies with a comparative advantage in labor-intensive industry. Gao applied the revealed comparative advantage as well as the Heckscher-Ohlin-Vanek theory to prove China and India's exports of commodities based on relatively abundant factors which was confirmed. The results are therefore in concordance with the findings obtained by Batra and Khan (2005).

One of the latest OECD (2011) publications provides probably the broadest overview of current trends in the world economy and changing patterns in international trade. It concentrates particularly on the revealed comparative advantage and its dynamics. The study focuses on changing trade patterns arising from increasing integration of emerging economies with the world trade. The analysis provides some insights to changing export dynamics and export classifications according to factor intensity and intra-distributional mobility for OECD as well as BRICS economies. Another assessment was conducted by Chen (2012) who examined BRICS competitiveness and disadvantages in the global value chains. He not only analysed trade trends but also revealed the comparative advantage, factor intensity and foreign direct investment flows. Based on his findings BRICS remains in the lower value-added fragments of the global value chains and in order to move up in the value chains they would need to focus on improving their technological capacity.

This study distinguishes from other studies by assessing the BRICS' revealed comparative advantages not only for commodities but also for services and their dynamic changes within the past decade (from 2000 to 2011 for goods and 2010 for services).

The structure of the paper is organized as follows. Section 2 provides an overview of the methodology and data. Section 3 contains the empirical assessment of BRICS exports in the following areas: firstly, the evolution analysis of the overall comparative advantage of each of the BRICS and the analysis of their export orientation towards products with high or low RCA; secondly, the evaluation of changes in BRICS' specialization towards a more sophisticated production based on factor intensity; and thirdly, the examination and description of similarity in the comparative advantage patterns among BRICS. The conclusion is in Section 4.

## **2. The Methodology and Data**

There have been many publications issued on trade analysis dealing with the revealed comparative advantage. WTO together with UN published a useful joint book containing broad information for researchers and policymakers about trade policy analysis (WTO 2012). A more narrow study was conducted by Sanidas and Shin (2011). They specifically focused their research on an overview and comparison of different approaches towards comparative advantage measurements ranging from classical Balassa's revealed comparative advantage index to its modifications based on non-econometric and econometric approaches. This study presents an analysis of advantages and disadvantages of alternative methods of comparative advantage measurement as well as their application to East Asian countries trade assessment. The results revealed that there is no perfect RCA index (the best rated was normalized RCA). One should be thus cautious with result's interpretation and aware of the limitations selected indices possess.

Similar research elaborating on dynamic comparative advantage of ASEAN+3 countries was conducted by Widodo (2009), and Vixathee (2011), who examined the external trade patterns and dynamics of comparative advantage in relation to trade policies in Lao PDR during 1985 and 2005.

### **2.1 Export Specialization**

The assessment covered in this paper employs Balassa's Revealed Comparative Advantage (RCA) index (Balassa, 1965). Generally, Balassa's RCA assessment allows an identification of exported product groups in which a particular country relatively specializes in despite being it a result of its own factor endowments or trade policies. The RCA enables to map country's trade patternsthus, to identify: firstly, the comparative advantage of a country in a given sector in respect to a neutral point (ordinal measure); secondly, cross-sector and cross-country comparisons (cardinal measure); thirdly, changes of comparative (dis)advantage in terms of changing index values over the examined time period (dichotomic measure) (Sanidas and Shin, 2011). According to Balassa, the RCA in trade reflects the differences in relative costs as well as in non-price factors (e.g quality, goodwill or availability). The advantage of the RCA index stems fromits ability to correspond to changes in an economy's relative factor endowment and productivity. However, it does not provide any information about the driving forces of trade hence it is not able to distinguish improvements in factor endowments and pursuit of appropriate trade policies by country (Batra and Khan, 2005). Therefore, the limitation of RCA measurement stems from distorting economic policies which are reflected in RCA results.

Even though there are several more shortcomings of Balassa's RCA index in terms of non-existence of particular theoretical background (unavailability of autarkic variables, existence of non-price factors), and further imperfections e.g. those proposed by Yeats (1985) regarding its incomparability across time and space originating from its asymmetry, unstable mean across time and space, and aggregation effect, it gained popularity among academia and researchers for its simplicity and usefulness. Many other different approaches towards measuring the comparative advantage also possess their own shortcomings. Therefore, for the purpose of this study Balassa's RCA index has been used with an awareness of its limitation and caution when interpreting results.

#### **Balassa's RCA Index**

The Balassa'sRCA index is defined as a ratio of the export share of commodity  $i$  by country  $j$  to the total export of country  $j$ (in numerator), and export share of the same commodity by the world to the total world's exports (in denominator).

$$RCA = \frac{\frac{x_{ij}}{x_j}}{\frac{x_{wi}}{x_w}}$$

where,

$x_{ij}$ - export of commodity  $i$  by country  $j$ ;

$x_j$ - total export of country  $j$ ;

$x_{wi}$ - export of commodity  $i$  by the world;

$x_w$  - total export of the world.

The value of the fraction can reach from 0 to infinity. While values in the range of zero to one mean the comparative disadvantage, values above unity (neutrality) indicate the comparative advantage. A large concentration of values around one indicate a less specialized economy, while more values at edge signals a higher export specialization. Dudley and Moenius, (2001) also point out that a positive change of RCA in one industry happens at the cost of decreasing RCA in the rest of the industries as a whole.

### **Mean, Median, Standard deviation and Skewness**

Selected descriptive statistical methods such as mean, median and standard deviation are further applied for elaboration on the shifts in BRICS' RCAs. The median in comparison to the average serves as a divider of total RCA values to the exact same halves thus identifying the orientation of a country towards products with low or high RCA. Over time the median comparison shows whether a country is losing or gaining its comparative advantage. The standard deviation of RCA provides insight into a country's RCA export dispersion. The higher/lower the value of standard deviation the more/less diversified exports a country has. Furthermore, skewness coefficient, similar to median, reveals information about a country's concentration to either products with high or low RCA. A country's concentration to products with high RCA is reflected in a negative value of skewness coefficient and contrary. Over time the assessment of skewness coefficient gives information about a shift in a country's export concentration either towards products with higher RCA, lower RCA or whether it remains unchanged.

### **Gini-Hirshmann coefficient**

Furthermore, Gini-Hirshmann coefficient enables the estimation of country's commodity concentration.

$$GH = \sqrt{\sum_{i=1}^n \left(\frac{x_i}{x}\right)^2}$$

where,

$x_i$  - export of commodity  $i$  from a given country;

$x$  - total export of a given country;

$n$  - number of commodities.

The coefficient reaches values from 0 to 1, where zero value implies export diversification and one export specialization.

## **2.2 Export Structural Changes**

### **Spearman rank coefficient**

Changes in the overtime period export structure of a single country can be tested by the Spearman rank correlation coefficient, which provides a useful tool for this kind of measurement. Increasing coefficients imply smaller changes in export structure, while decreasing coefficients indicate bigger export structure changes in rank order.

$$SC_{R_1 R_2} = 1 - 6 * \left[ \frac{\sum_{i=1}^n d_i^2}{n(n^2 - 1)} \right]$$

where,

n -number of commodity groups;  
 R1, R2 - the rank of commodity for period t1, t2;  
 d- the rank difference of commodity*i*.

Spearman correlation coefficient observed within two time periods can reach values ranging from -1 to 1 indicating a negative or positive relationship in rank orders, i.e. significant changes in rank orders or not and/or minor changes. Zero value means no relationship. The same can be applied for cross-country analysis (in this case R1, R2 are ranks of commodities for countries that are compared). In this case higher (positive) values suggest export competition and lower (negative) values imply export complementarity.

### Galtonian regression

Structural changes of trade pattern can be further tested by the Galtonian regression. Calculations are based on the simple OLS (ordinary least squared) method and bring about information regarding the export specialization over time (convergence or divergence of products with RCA). This approach was applied in research conducted by Laursen (1998), Sharma and Dietrich (2007) or Worts (2005) who assessed trade patterns by using RCA. The OLS method assumes normal distribution of error terms, hence it can be problematic to use RCA results obtained from the Balassa index as they tend to be asymmetric (Sanidasand Shin, 2011). This imperfection can be partially solved by applying the symmetric formula from the Balassa index - Revealed Symmetric Comparative Advantage (RSCA), proposed Dalum et al and Laursen (1998).

$$RSCA = \frac{RCA - 1}{RCA + 1}$$

In comparison to the previous Balassa RCA index, the symmetric RSCA index reaches values of -1 to 1. Values above zero imply a comparative advantage and contrary values below zero indicate a comparative disadvantage. However, the RSCA index still does not allow a precise comparison across sectors and/or countries due to an unstable mean over space and time. For a study/comparison of a specialization at two different time points, the Galtonian regression is widely used. It is defined as follows:

$$RSCA_i^{t_2} = \alpha_i + \beta_i * RSCA_i^{t_1} + \varepsilon_i$$

where,

t<sub>1</sub>, t<sub>2</sub> - start and end time period;  
 i –commodity;  
 α, β - regression parameter;  
 ε - residual.

if β = 1 - no changes in specialization during studied time period

if β > 1 - specialization increases for products with RCA > 1 and weakens for products with low RCA, i.e. RCA of products converges

if 0 < β < 1 – the results is ambiguous and depends also on the correlation coefficient (for detail see Cantwell (1989) and Dalum et al and Laursen(1989))

if β < 0 - the specialization is reversed or random

### **Intra-distributional mobility**

The intra-distributional mobility of individual products and the country's specialization changes can be assessed based on the Markov transition matrix. For this purpose the products are divided into four interval groups according to the strength of the comparative advantage, following Hinloopen and van Marrewijk (2001) classification:

- A - products with comparative disadvantage:  $0 < \text{RCA} \leq 1$
- B - products with weak comparative advantage:  $1 < \text{RCA} \leq 2$
- C - products with medium comparative advantage:  $2 < \text{RCA} \leq 4$
- D - products with strong comparative advantage  $4 < \text{RCA}$ .

Elements of the Markov transition matrix  $P$  determine the probability of transition from one interval to another during the studied period. (The unit matrix means no changes). On the bases of this transition matrix the mobility can be estimated.

For the purpose of this paper the index of mobility proposed by Shorrocks (1978) is applied.

$$M = \frac{K - \text{tr}(P)}{K - 1}$$

where,

$K$  - number of interval groups;

$\text{Tr}(P)$  - trace of the transition probability matrix.

The index reaches positive values, where zero value implies perfect immobility. The higher the value of the index the better mobility among groups.

## **2.3 Data**

This paper focuses on the observation of dynamic RCA changes and the export structure of BRICS economies covering the trend within the past decade from 2000 to 2011. The study compares results for the years 2000-2003 and 2010-2011. The years were defined in order to minimize the effects of the world economic crisis after 2007.

The trade data has been primarily collected from the international UN-COMTRADE statistics in case of goods and from the UN ServiceTrade database in case of services. Even though the HS classification provides a more precise product distribution, and data for this assessment was preferably obtained at SITC rev. 3, a three-digit categories level, since they serve better information about industries.

The import data was primary retrieved and used for calculations due to their ability to more precisely reflect the true trade flows between countries (suggesting applied various systems of trade protection). Missing import statistics were completed by export data adjusted to the difference in FOB and CIF prices.<sup>5</sup>

In order to be able to identify and compare the factor intensity commodity aggregation of BRICS' exports the study employs Empirical Trade Analysis (ETA) classification. This classification is based on SITC rev. 2 codes at a 3-digit level and divides products into five groups: (A) primary products, (B) natural-resource intensive products, (C) unskilled-labor intensive products, (D) technology intensive products, (E) human-capital intensive products and a couple sectors that are not classified. Due to existing variations between the two revisions, some SITC rev. 3 product codes had to be adjusted according to the concordance table between SITC rev. 3 and 2.

Major calculations included in this paper employ the mathematic optimizing program - GAMS.

<sup>5</sup>This adjustment is, however, not the case for the trade data statistics obtained for services since there are no specific tariffs applied in this sector and trade barriers otherwise are hard to identify.

### 3. The findings

#### 3.1 BRICS' Product Export Specialization

Over the examined time periods 2000-2003 and 2010-2011 the number of products with RCA exported by Brazil declined from 78 to 61. Russia out of all of the BRICS obtained the least number of products with positive RCA. It had been decreasing from the beginning of the time period when Russia had 54 products with RCA to 37 by the end of the assessed time period. During the examined time period India firstly recorded an increase in the number of products with positive RCA followed by a drop in the number of products with positive RCA to about the same amount as at the beginning. China is the only out of all the BRICS that recorded a major increase in the number of products with positive RCA. In 2010-11 it exported 96 products with RCA that was 16 more than at the beginning of the time period. Products with RCA in South Africa revealed contrary development to that of India, first the number declined from 81 to 61 within 2000-03 and 2006-07, and then it increased by 5 until 2010-11.

Statistical distribution of RCA and its overtime development is represented in the Table 1.

**Table 1: Statistical Evaluation of BRICS' RCA**

|                   | BRA    |        | RUS    |        | IND    |        | CHN    |        | ZAF    |        |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                   | 00-03  | 10-11  | 00-03  | 10-11  | 00-03  | 10-11  | 00-03  | 10-11  | 00-03  | 10-11  |
| <b>Mean</b>       | -0.270 | -0.362 | -0.475 | -0.583 | -0.247 | -0.228 | -0.291 | -0.238 | -0.200 | -0.299 |
| <b>Median</b>     | -0.353 | -0.461 | -0.668 | -0.765 | -0.33  | -0.284 | -0.390 | -0.250 | -0.300 | -0.382 |
| <b>St.deviat.</b> | 0.515  | 0.507  | 0.502  | 0.457  | 0.526  | 0.495  | 0.504  | 0.491  | 0.481  | 0.475  |
| <b>Skewness</b>   | 0.512  | 0.749  | 1.083  | 1.374  | 0.449  | 0.294  | 0.433  | 0.08   | 0.552  | 0.658  |

t1 – year 2000-03, t2 – year 2010-11

Resource: UN-COMTRADE, author's calculation

The median results for Brazil, Russia and South Africa are negative and declining, hence this indicates a larger orientation of these countries towards products with lower RCA, and thus they are losing their comparative advantage. This is confirmed by the results obtained from the skewness. A loss of products with  $RCA > 1$  corresponds to a decline in the number of products with RCA. As for Brazil and Russia the number of products decreased by 17, and in case of South Africa the difference is by 15 product groups, which lost their RCA.

The median for India remains negative but improving. Therefore, India acquired a higher number of products with improving RCA. The decline of skewness confirms this statement – India has a concentration towards products with higher RCA. Again this trend is reflected in the smaller loss of products with  $RCA > 1$ , precisely by 3 product groups. Products with  $RCA < 1$  reveal a shrinking comparative disadvantage.

China represents a contrary case to the hereof-mentioned trends for BRICS. The median acquired negative values but diminishing, thus reflecting to gain 18 new product groups with positive RCA. The skewness coefficient remarkably decreased from 0.43 to 0.08 revealing China's orientation towards products with higher RCA.

Standard deviation remained nearly unchanged for all BRICS, or only with a small decline, hence this indicates none or very small changes in de-specialization.

Statistical attributes of RCA thus do not confirm any major changes in BRICS' export specialization.

The results were also further tested by the Gini-Hirshmann coefficient (Appendix 1). The calculations imply the highest export specialization for Russia, where the index increased from 0.34 to 0.42 between 2000-03 and 2010-11. On the contrary, China shows the lowest export specialization from 0.16 to 0.17 over the same time period (indicating an export diversification). This could contribute, among others, to possible explanations for a better resilience of emerging economies, particularly China, during the recent economic crisis since export diversification supported better economic stability. On the contrary, Russia and Brazil,

mostly oriented on natural resources and primary product exports, are more vulnerable to volatile prices in the world commodity markets.

The results are in concordance with the OECD (2011) findings, where OECD countries revealed a tendency for convergence of their RCAs while the opposite was true for emerging countries. Generally, more developed countries tend to have more concentrated exports on products with high or moderate RCA and less developed economies rather exports more products across various values of RCA. Emerging economies continue to export products that have relatively high labor and natural resources content, and they have gradually expanded exports of technology, physical and human capital-intensive goods as well.

Export data based on factor intensity classification show that for all BRICS except for China's group of primary products contains the most products with a revealed comparative advantage. Within the past decade this group gained its importance within Brazilian exports. The second most exported product group based on factor intensity is a group consisting of technology intensive products. Russian exports with a comparative advantage decreased across all classified groups. The most significant exports remained primary and natural-resource products. India improved its export composition with products with comparative advantage in natural-resources and technology intensive groups, even though the second most exported group consists of un-skilled labor intensive products. China improved its exports based on factor intensity mostly in human-capital, technology and un-skilled labor product groups. The last mentioned also contributes to the biggest share of Chinese exports with a comparative advantage. South African exports recorded a worsening trend for all groups with a major export role of primary products. The results of China's and India's increasing comparative advantage in unskilled-labor products are in concordance with the OECD (2011) conclusions.

**Table 2: BRICS' Export Classification Based on Factor Intensity**

| Country                 | Brazil |       | Russia |       | India |       | China |       | SouthAfrica |       |
|-------------------------|--------|-------|--------|-------|-------|-------|-------|-------|-------------|-------|
| Years                   | 00-03  | 10-11 | 00-03  | 10-11 | 00-03 | 10-11 | 00-03 | 10-11 | 00-03       | 10-11 |
| <b>Primary</b>          | 33     | 35    | 26     | 20    | 33    | 33    | 18    | 12    | 40          | 35    |
| <b>Natural-resource</b> | 10     | 8     | 11     | 10    | 5     | 8     | 10    | 10    | 13          | 10    |
| <b>Unskilledlabour</b>  | 2      | 0     | 1      | 0     | 18    | 17    | 23    | 26    | 1           | 0     |
| <b>Technology</b>       | 19     | 11    | 9      | 3     | 11    | 12    | 17    | 24    | 12          | 9     |
| <b>Human-capital</b>    | 13     | 7     | 6      | 4     | 16    | 10    | 12    | 24    | 14          | 11    |
| <b>Non-classified</b>   | 1      | 0     | 1      | 0     | 0     | 0     | 0     | 0     | 1           | 1     |

Resource: UN-COMTRADE, ETA, author's calculation

### 3.2 Export Structural Changes

A test of the Galtonian regression applied on BRICS brings information about a very weak export structural specialization (graphs are included in Appendix 2). The coefficients reach values of 0.78 for Russia to 0.89 for South Africa.

These results are further confirmed by the calculation of the Spearman rank correlation coefficient within the time periods 2000-2003 and 2010-2011. The coefficients imply a nearly unchanged rank of exported product groups (based on their volumes). The Spearman rank correlation coefficient reach values of 0.87 for Brazil, Russia (0.86), India (0.9) and 0.88 for China and 0.91 for South Africa.

**Table 3: Spearman Rank Correlation Coefficient of BRICS' Exports (2000-03 vs. 2010-11)**

|            |      |
|------------|------|
| <b>BRA</b> | 0.87 |
| <b>RUS</b> | 0.86 |
| <b>IND</b> | 0.90 |
| <b>CHN</b> | 0.88 |
| <b>ZAF</b> | 0.91 |

Resource: UN-COMTRADE, author's calculation

As far as intra-distributional mobility (according to Shorrocks' coefficient), the biggest mobility changes occurred in Brazil (0.62) and Russia (0.63). The least mobility out of the BRICS revealed China and South Africa, at 0.49 and 0.48 respectively. The results included in the matrices (Appendix 3) show a transition of products with weak RCA to a group with the revealed comparative disadvantage, and from the medium RCA group to weak RCA. This especially occurs in the case of Brazil, India and Russia.

Nowadays, we can observe an increasing tendency of BRICS' mutual cooperation, among others also in terms of trade. The Spearman Rank Correlation Coefficient enables another useful cross-country comparison for BRICS, indicating their export competitiveness or complementarity. The highest coefficient, thus export competition, was obtained by Russia and South Africa, Brazil and South Africa, and India and China.

**Table 4: Spearman Rank Correlation Coefficient of BRICS' Exports Competitiveness**

|            | <b>BRA</b> | <b>RUS</b> | <b>IND</b> | <b>CHN</b> | <b>ZAF</b> |
|------------|------------|------------|------------|------------|------------|
| <b>BRA</b> | x          | 0,47       | 0,52       | 0,25       | 0,62       |
| <b>RUS</b> |            | x          | 0,24       | 0,24       | 0,66       |
| <b>IND</b> |            |            | x          | 0,59       | 0,44       |
| <b>CHN</b> |            |            |            | x          | 0,35       |
| <b>ZAF</b> |            |            |            |            | x          |

Resource: UN-COMTRADE, author's calculation

### 3.3 BRICS' Service Export Specialization

The lack of services data availability hinders more detailed export analysis<sup>6</sup>. The assessment was conducted for the years 2000 and 2010. The number of service sectors remains low<sup>7</sup> and nearly unchanged for all of the BRICS. The biggest change was recorded by India which lost its comparative advantage in 3 sectors.

The Galtonian regression provided very diverse results for the BRICS. While the results for Brazil and China reveal almost no change in specialization ( $\beta=0.95$  and  $\beta=0.92$ , respectively),  $\beta$  for Russia indicates convergence among its services sectors, and for India there was no dependence identified.

The Gini-Hirshmann coefficient results did not confirm any specialization. The coefficient worsened for all of the BRICS except for India.

<sup>6</sup>No data availability for South Africa.

<sup>7</sup>This is partially caused by lack of data availability.

#### **4. Conclusion**

The study assessed the changing export patterns for the emerging BRICS economies based on the hypothesis that due to the changing global environment, and larger integration of these economies to the world economy, a change in the export structure towards more sophisticated products occurred.

BRICS' growing world export share is given mainly by products with a comparative advantage. However, the results obtained from the Balassa's RCA index revealed a decreasing number of product groups with a comparative advantage for all countries apart from China within the last decade. Observation from the Galtonian regression and Gini-Hirshmann coefficient did not confirm any major increasing export specializations for BRICS in terms of trade in goods and services. This provides, among others, a possible explanation for better resilience of emerging economies during the recent economic crisis since export diversification supported better economic stability. This could be the case for China and India but not mostly for natural resource and primary product exports oriented Russia or Brazil who are more vulnerable to volatile prices on world commodity markets. The highest intra-distributional mobility was recorded for Brazil and Russia, and the lowest for China and South Africa. This has occurred particularly for the second and third groups. BRICS' focus on primary and un-skilled labour provides a chance for further export development of human-capital and technology intensive products.

#### **5. References**

- BALASSA, B. (1965). Trade liberalization and „revealed” comparative advantage, *The Manchester School of Economic and Social Studies*, 33: 99–123.
- BATRA, A., KHAN, Z. (2005). Revealed Comparative Advantage: An Analysis for India and China, *ICRIER Working Paper No. 168*
- CANTWELL, J. (1989). *Technological innovation and multinational corporations*, Oxford, Basil Blackwell.
- CHEN, L. (2012). The BRICS in the Global Value Chains: An Empirical Note. *Cuadernos de Economía*, 31 (57) No. Especial, 221–239.
- DALUM, B., LAURSEN, K., VILLUMSEN, G. (1998). Structural change in OECD export specialization patterns: de-specialisation and ‘stickiness’. *International Review of Applied Economics*, 12: 423–443.
- DUDLEY, L., MOENIUS, J. (2001). The Comparative Advantage: A Dynamic Analysis, *American Economic Association*
- EMPERICAL TRADE ANALYSIS CENTER. *Factor Intensity Classification*. [Online], Available at: <<http://www2.econ.uu.nl/users/marrewijk/eta/index.htm>>. [Accessed 19 February 2013].
- GAO, Y. (2007). *Dynamic Comparative Advantage: A Comparison of China and India*. [Online], Available at: <<https://papyrus.bib.umontreal.ca/jspui/bitstream/1866/2551/1/a1.1g1086.PDF>>. [Accessed 13 January 2013].
- HINLOOPEN, J., van MARREWIJK, C. (2001). On Emperical distribution of the Balassa index. *WeltwirtschaftlichesArchiv*, 137: 1–35.
- LAURSEN, K. (1998). Revealed comparative advantage and the alternatives as measures of international specialization. *DRUID Working Paper No. 98–30*.
- OECD (2008). Globalisation and emerging economies: Brazil, Russia, India, Indonesia, China and South Africa, OECD. Paris.
- OECD (2011). *Globalisation, Comparative Advantage and the Changing Dynamics of Trade*,

Publishing. [Online], Available at: <<http://dx.doi.org/10.1787/9789264113084-en>>. [Accessed 20 February 2013].

SANIDAS, E., SHIN, Y. (2011). *Comparison of Revealed Comparative Advantage Indices with Application to Trade Tendencies of East Asian Countries*. [Online], Available at: <<http://s-space.snu.ac.kr/handle/10371/73137>>. [Accessed 25 February 2013].

SHARMA, A., DIETRICH, M. (2007). The Structure and Composition of India's Exports and Industrial Transformation (1980-2000). *International Economic Journal*, 21: 207–231.

SHORROCKS, A. (1978). The measurement of Mobility. *Econometrica*, 46: 1013–1024.

UNITED NATIONS. *COMTRADE accessed by World Integrated Trade Solution*. [Online], Available at: <<https://wits.worldbank.org/WITS/Restricted/Login.aspx>>. [Accessed 9 November 2012].

UNITED NATIONS. *Service Trade Statistics Database*. [Online], Available at: <<http://unstats.un.org/unsd/servicetrade/default.aspx>>. [Accessed 12 November 2012].

VIXATHEP, S. (2011). Trade Liberalization and Comparative Advantage Dynamics in Lao PDR. *Lao Trade Research Digest*, 3: 1–33.

WIDODO, T. (2009). Dynamic Comparative Advantages in the ASEAN+3. *Journal of Economic Integration*, 24: 505–529.

WORLD TRADE ORGANIZATION. (2012). *A Practical Guide to Trade Policy Analysis*. [Online], Available at: <[http://www.wto.org/english/res\\_e/publications\\_e/practical\\_guideflyer12\\_e.pdf](http://www.wto.org/english/res_e/publications_e/practical_guideflyer12_e.pdf)>. [Accessed 13 March 2013].

WORZ, J. (2005). Dynamic of Trade Specialization in Developed and Less Developed Countries. *Emerging Markets Finance & Trade*, 41: 92–111.

YEATS, A. (1985). On the appropriate interpretation of the revealed comparative advantage index: implications of a methodology based on industry sector analysis. *Weltwirtschaftliches Archiv*, 121: 61–73

## Appendix 1 - Gini-Hirshmann coefficient

|            | Goods |      | Services |      |
|------------|-------|------|----------|------|
|            | t1    | t2   | t1*      | t2*  |
| <b>BRA</b> | 0.15  | 0.24 | 0.76     | 0.61 |
| <b>RUS</b> | 0.35  | 0.43 | 0.55     | 0.48 |
| <b>IND</b> | 0.18  | 0.22 | 0.44     | 0.47 |
| <b>CHN</b> | 0.16  | 0.17 | 0.60     | 0.50 |
| <b>ZAF</b> | 0.18  | 0.21 | 0.63     | n/a  |

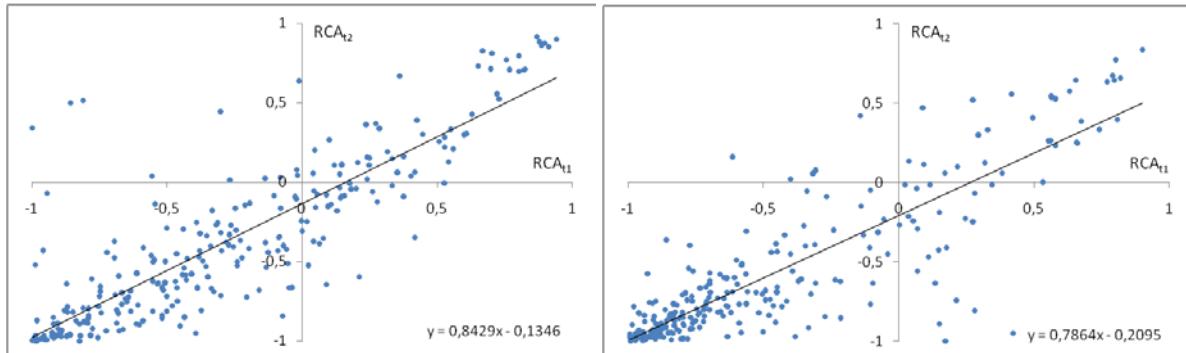
t1 – year 2000-03, t2 – year 2010-11

t1\* – year 2000, t2\* – year 2010

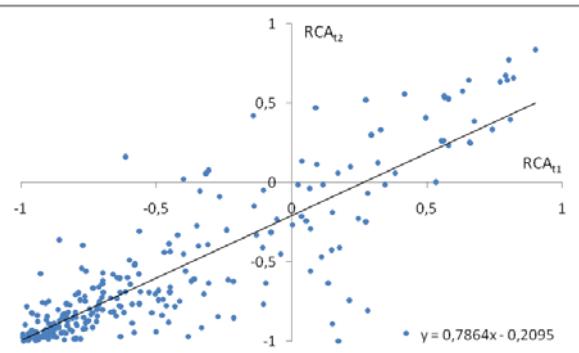
Resource: UN-COMTRADE, UN serviceTrade database, author's calculation

## Appendix 2 - Galtonian regression of RCA (2001-03 vs. 2010-11)

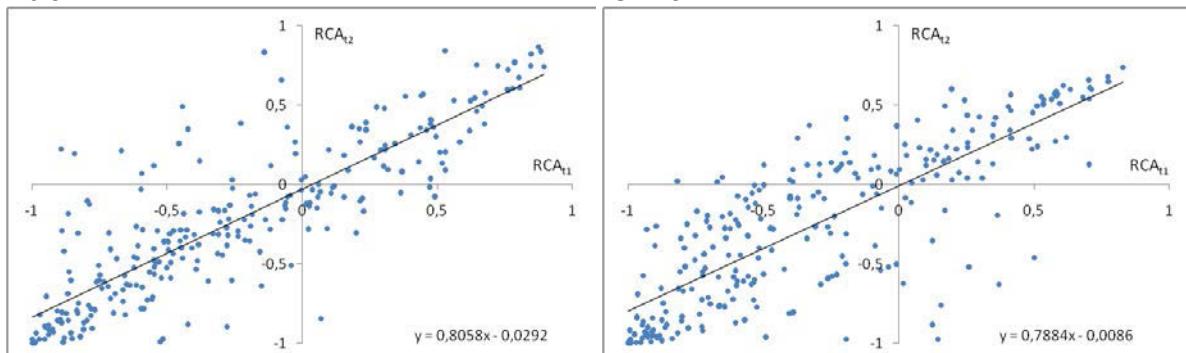
Brazil



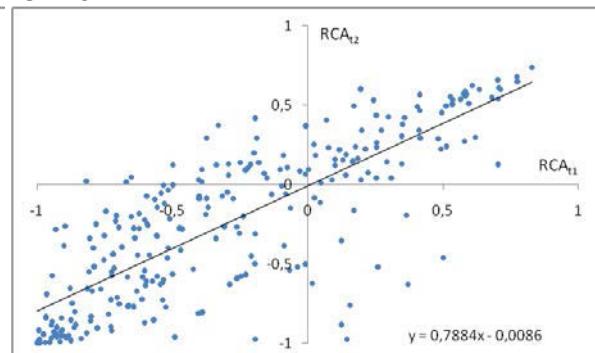
Russia



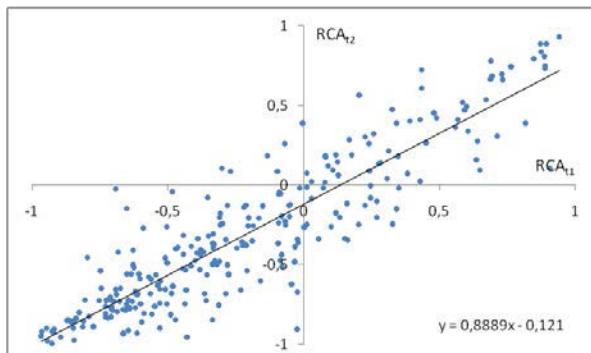
India



China



South Africa



t1 – year 2000-03, t2 – year 2010-11

### Appendix 3 – Transition matrix

Brazil

| <b>from/to</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|----------------|----------|----------|----------|----------|
| <b>A</b>       | 0.94     | 0.03     | 0.02     | 0.01     |
| <b>B</b>       | 0.61     | 0.29     | 0.07     | 0.03     |
| <b>C</b>       | 0.24     | 0.65     | 0.11     | 0.00     |
| <b>D</b>       | 0.00     | 0.10     | 0.13     | 0.77     |

Russia

| <b>from/to</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|----------------|----------|----------|----------|----------|
| <b>A</b>       | 0.98     | 0.02     | 0,00     | 0.00     |
| <b>B</b>       | 0.67     | 0.22     | 0.11     | 0.00     |
| <b>C</b>       | 0.14     | 0.43     | 0.43     | 0.00     |
| <b>D</b>       | 0.13     | 0.13     | 0.27     | 0.47     |

India

| <b>from/to</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|----------------|----------|----------|----------|----------|
| <b>A</b>       | 0.90     | 0.07     | 0.02     | 0.01     |
| <b>B</b>       | 0.47     | 0.37     | 0.16     | 0,00     |
| <b>C</b>       | 0.11     | 0.41     | 0.44     | 0.04     |
| <b>D</b>       | 0.00     | 0.00     | 0.33     | 0.67     |

China

| <b>from/to</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|----------------|----------|----------|----------|----------|
| <b>A</b>       | 0.84     | 0.14     | 0.02     | 0.00     |
| <b>B</b>       | 0.22     | 0.58     | 0.18     | 0.02     |
| <b>C</b>       | 0.14     | 0.24     | 0.62     | 0.00     |
| <b>D</b>       | 0.00     | 0.17     | 0.33     | 0.50     |

SouthAfrica

| <b>from/to</b> | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|----------------|----------|----------|----------|----------|
| <b>A</b>       | 0.97     | 0.03     | 0.00     | 0.00     |
| <b>B</b>       | 0.45     | 0.45     | 0.10     | 0.00     |
| <b>C</b>       | 0.11     | 0.26     | 0.53     | 0.10     |
| <b>D</b>       | 0.00     | 0.22     | 0.17     | 0.61     |

Resource: UN-COMTRADE, author's calculation

# **Eziko-Sipheka Sisophula: African Indigeneity and Decolonising Perspectives on Research at Modimolle Mountain (Mountain of the Gods) in South Africa**

**A.V Dhliwayo<sup>1</sup>**

**G.N Mokwatio<sup>2</sup>**

## **Abstract:**

Professor Nomalungelo Goduka of Walter Sisulu University in South Africa, drawing on the scholarship on IK (Indigenous Knowledge) by indigenous researchers and other African-centred intellectuals, has constructed a new and unique theoretical framework aiming at decolonising knowledge production in African cultural worlds. She deploys her own language, Xhosa, belonging to the Nguni group of languages, to name the theoretical framework: Eziko: Sipheka Sisophula. The cultural process eziko sipheka sisophula or “gathering around the hearth (iziko) to cook (sipheka) and dish out (sisophula)”, rooted in the deep structure (worldview) of Nguni culture, symbolically and metaphorically captures, inter alia, the rhythmic nature and ontogenetic concept of the indigenous African self, relational African knowingness and intergenerational spiritual knowing characteristic of African ecological contexts. Rooted in African deep thought, Goduka’s framework delinks theoretical construction and research from the hegemonic, oppressive, Eurocentric tradition thus affecting an epistemic/paradigmatic revolution which leads to intellectual freedom, emancipation, harmony and healing in African communities. Constructed on and deriving from the pillars of the dynamic relational African indigenous worldview- ontology, epistemology, axiology, cosmology, logic, teleology, and ideology-Goduka’s eziko theoretical framework is a reflection of African indigeneity. Our research at Modimolle Mountain, which African people view as a spiritual entity, demonstrates the potency of the theoretical framework.

## **Key words:**

language, culture, Africa, society,

## **Introduction**

This paper seeks to demonstrate that a new and unique indigenous African theoretical framework: *Eziko-Sipheka Sisophula*, rooted in the dynamic relational African worldview has been constructed by Professor Nomalungelo Goduka of Walter Sisulu University in South Africa (Goduka, 2005). The theoretical framework is an example of a type of theory construction which delinks indigenous creativity from the moorings of the hegemonic Eurocentric tradition thus laying the foundation for an emancipatory episteme/paradigm of indigenous scholarship. Our **Modimolle History and Heritage Research Project** commissioned by the Modimolle Municipality in South Africa demonstrate the intellectual potency of Goduka’s framework. The Modimolle project commenced before we were introduced to Goduka’s framework. Our subsequent involvement in workshops and think-

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tanks designed to unpack the contours and pillars of the framework is transforming our approach to research and knowledge production on the history and heritage of Modimolle.

The paper is structured into four sections. The first section is this introduction. The second section contextualizes and unpacks the contours of the theoretical framework. Specifically, the pillars of this framework, deriving from the deep structure of African culture (Myers, 1987) are critically discussed in order to bring into sharp focus the indigeneity of the theory. In the third section, the elements of a new approach to research on Modimolle, in the light of Goduka's theory, are discussed. The fourth section which concludes the paper focuses on the challenges confronted in rethinking along the lines of *Eziko* and how these challenges might be resolved.

### **Eziko-Sisophula: Context, Contours and Definitions**

Nomalungelo Goduka has answered the call by indigenous scholars and African-centred intellectuals to "return to the African source" as a practice of freedom which involves constructing a new episteme rooted in the deep structure of African culture as well as ancient African wisdom( Goduka, 2000, 2005; Nabudere, 2002; Mahuika, 2008; Myers, 1992; Asante, 2003; Dei, 2012; Carroll, 2010). In most of her studies which focus on Indigenous Knowledge Systems (IKS) she shows an acute awareness of the fact that Eurocentric knowledge systems imposed on Africans through the colonial system of imperialism, leave Africans strangers to themselves, alien to their culture, oblivious to their condition, and less than human to their oppressors.

The fragmented, suboptimal European worldview (Myers, 1992) in which African intellectuals are incarcerated has made most of them intellectual imitators, simply good at mimicking dominant European theories and knowledge in the colonial academy. The Chair on Indigenous Research she currently holds at Walter Sisulu University, *inter alia*, hopes to mainstream IKS in curricula and pedagogy in order to dismantle the monopoly European "regimes of truth" have on university curricula. In this way, culturally conscious graduates will emerge equipped with relevant knowledge, skills and values needed for independent African development.

It is the context of the dominance of oppressive European "regimes of truth" and the resultant cultural dislocation, "misdevelopment", and "miseducation" of the African (Woodson, 1933) which has inspired her to construct a theoretical prism which is able to account for the lived experiences of the Nguni/Africans in rural communities. Eziko-Sipheka Sisophula, the theoretical framework Goduka has constructed, exemplifies what African-centred scholars and Black psychologists have called the "black cognitive process" or "hieroglyphic thinking" characterized by symbolic imagery and rhythm (Frye, Harper & Myers, 1983). Goduka observes that the process *eziko sipheka sisophula* or "gathering around the hearth (*iziko*) to cook (*sipheka*) and dish out (*sisophula*)", is rooted in the Nguni and other African languages, cultures, and a relational worldview (Goduka, 2005: 5). What is captured in Eziko are various layers of meaning or multiple realities and relational processes which characterize the indigenous African worldview.

Goduka (2005) distinguishes between the physical space, the hearth (*iziko*), and the cultural process (*eziko*). The hearth (*iziko*) is where practices/activities such as cooking and eating food take place. It is the physical space that provides warmth and food for mother and new born. Herbs and other medicines for mother and baby are prepared at this space. Also, at the time of death family members meet to prepare meals to bid farewell to members transitioning to the spiritual world. Eziko, on the other hand, is a concept/notion Goduka deploys to capture/grasp the cultural processes which constitute the Nguni/African holistic and relational worldview. Encapsulated in the notion, Eziko, is the deep structure of Nguni culture/worldview. This notion comes to grips with the indigenous ontological, epistemological, axiological, cosmological, logical, teleological, and ideological orientation<sup>7</sup>s of the Nguni.

At the cultural and spiritual levels, eziko is a learning space around which intercultural and intergenerational dialogue occur in a spirit of connectedness and respect. These dialogues entail the education of children through stories, mythology and legends (iintsomi, izaci, namaqhalo), as well as for performing rituals, cultural and spiritual activities for healing and for connecting with the ancestors. In indigenous villages/communities, discussions (iimbizo) of significance with the elders; celebrations of the coming of age of young men occur around the courtyard (enkundleni), while discussions around the rite of passage for young women occur around eziko. Eziko thus frames learning and research context/space within which cultural, spiritual and healing processes and activities can be understood, analysed, investigated, and shared with youth and other interested participants. These contexts provide a landscape for intercultural and intergenerational dialogue in which indigenous elders use oral tradition to share wisdom with the youth and other participants (Goduka, 2005, p.5).

It is clear that Eziko speaks to the existence of a powerful and distinct deep structure of culture/worldview which the Nguni deploy to make sense of their surroundings, make sense of life and the universe. African-centred scholars (Dixon, 1971b; Myers, 1987; Carroll, 2008) have identified seven components/tenets of the deep structure of African culture or worldview: African relational ontology, epistemology, axiology, cosmology, logic, teleology, and ideology. These tenets/philosophical principles which operate at the deep level of culture are archetypal, enduring and generative of what appears at the surface structural level: specific ethnic languages, customs, rituals, myths, socio-politico-economic institutions etc. (Myers, 1987). While the surface structural level phenomena have either been weakened/distorted or destroyed through the epistemic violence of the imposed European worldview, the deep structural level philosophical principles have endured and remain potent. It is these that Goduka has creatively deployed as pillars of the Eziko theoretical framework. This is what makes her theoretical framework indigenous African.

At the heart of a people's worldview is their ontology i.e., their definition of reality or being. It is this definition which constrains the answers which a historically constituted people give to the other elements of their worldview. It is therefore, necessary, to define this aspect in some detail. Ontologically, indigenous Africans view being or reality as spirit/energy (Carroll, 2008, p.15). At the fundamental level of all that exists within the universe is a spiritual/energy force manifesting itself on material and immaterial levels. Richards (1990) also observes that spirit is not separate from matter. Both spiritual and material being are necessary for there to be meaningful reality. Spiritual being gives force and energy to matter, while material being gives form to spirit. Realities are not viewed "as in irreconcilable opposition, as they are in the West" (Richards, 1990, p.210).

Mazama (2002) supports this position by noting that the major articulation of African metaphysics is the energy of cosmic origin that permeates all that is: human beings, animals, plants, as well as events. This spirit/energy constitutes the active, dynamic principle that animates creation. The whole universe was a living and dynamic unity. Everything is one thing. This is the African principle of ontological unity. Everything is unified, interrelated, interdependent, interconnected and integrated. Everything becomes spirit manifest (Myers, 1983).

Developing this principle further, Myers (1983) argues that from an indigenous African view what is real is not just what appears, but goes beyond appearance. The implication of this is that it is not possible to define "who we are or what our circumstances are, merely based upon what our five senses can tell us, i.e., by what we can see, hear, touch, taste and smell" (Myers, 1983, p.8). Thus, the question of who we are as humans can be answered by the awareness we are in essence spirit or divine spirit. To be human is to be "Divine Presence incarnate" (Myers & Speight, 2010, p.72). It must be noted in this regard that defining the human being as "Divine Presence incarnate" is due to the fact that for indigenous Africans spirit/energy is used synonymously with God, Life Force or that which is Supremely Good (Myers, 1983)

How is human purpose posited in the indigenous African view? It is to realize union with Supreme Being. It is to pursue perfection or deification; becoming one with God (Myers & Speight, 2010; Hilliard, 1997; Nobles, 1985). Education and socialization are also integrated into the larger process of human transformation i.e., the process of becoming more like God; valuing peace, harmony, justice, truth, reciprocity, righteousness and natural order. It must be noted that all these concepts explain the Southern African concept of Ubuntu.

The ontological positions on humans and human purpose lead to a distinct position about the relationship between life and death or the living and the dead. Life is viewed as infinite, as spirit is infinite and knows no end (Mazama, 2002). Death is merely another form of existence. It is a rite of passage which allows one to attain the status of ancestor. In dying, one transitions to the spiritual world. There is no waterproof separation between the world of the living and the world of the dead. There is no dichotomy between the so-called natural and supernatural worlds. The only difference between the world of the spirit and that of the living is essentially one of degree of visibility, the spiritual world being largely invisible but real. Communication between the two worlds exists, with the living propitiating the ancestors for help to resolve earthly problems. Ancestors communicate with the living through dreams and appear during divination sessions. This communication is made possible through the immaterial/spiritual component of the living (Mazama, 2002, p.221).

The communication between the world of the living-dead (ancestors) and the living is also underlined through the reincarnation of the living-dead in their own families. New-borns are believed to be ancestors who have come back as spiritual entities. Life and death are therefore not regarded as opposites or absolutely different phenomena but as complementary. Life is born out of death, and death is a prolongation of life. There are no limits or impenetrable boundaries between life and death. The circle, which, according to Mazama (2002, p.221) is the African spiritual symbol par excellence, takes on its meaning as it represents the constant renewal of life through death and birth.

The above ontological position has its corollary in an epistemology which posits that self-knowledge is the basis of all knowledge and that Africans know through symbolic imagery and rhythm (Myers, 1983; Dixon, 1971b). The “self” that is being referred to is Spirit/Self. Self-knowledge knows that we are spirit or a component of the infinite spirit. This puts Africans in a different relationship to the world. Instead of seeing subject/object or rigid oppositions, all becomes subject. Africans do not objectify the world as in the dominant Western orientation.

How do Africans know? If reality is infinite spirit, then the question is: how is this essence, infinite spirit, appearing? Myers (1983) answers this question by noting that “everything coming into experience, into five-sense awareness, is automatically processed, not only by the count-and-measure data, but also by the extrasensory acknowledgement that this is spirit manifesting”. Thus, everything in experience is a symbol or symbolic of infinite spirit. This is symbolic imagery. But, what about rhythm? On this aspect Myers (1983) notes that everything that comes into five-sense awareness is not “real” or “true”, thus it is necessary that we make a determination of the “truth” of what comes to experience based on the nature of the interrelatedness; the relationship of this thing appearing and what we already know to be true.

Axiologically, for Africans the highest value is in positive interpersonal relations among people and not in objects or acquisition of objects as in the West (Myers, 1983). Furthermore, Africans value communalism and harmony-with-nature (Carroll, 2008). Kambon (1992) holds a similar conception on African axiology. Africans value cooperation and collective responsibility, corporateness and interdependence, and spiritualism and circularity.

The indigenous African orientation to logic is diunital (Dixon, 1976; Carroll, 2008; Myers, 1983). Diunital reasoning does not produce an either/or conclusion, such as dichotomous logic does, but a both/and conclusion. Differences are not viewed as rigid and antagonistic but as complementary.

African cosmology is based on an interdependent and interconnected edifice. In other words, all things in the universe are connected (Carroll, 2008). The African universe is thus fundamentally communal. Africans do not view their universe as composed of separate and disconnected objects or phenomena as in the West. This cosmological orientation is based on the ontological principle described above. The teleological dimension of indigenous African thought was introduced in discussions of the African worldview by W. Curtis Banks. He argued that African people have consistently held a sense of directedness and definite purpose which can be understood through the sense of commitment and extended investment which characterizes the African notion of self (Banks, 1992; Carroll, 2008).

The last tenet, indigenous African ideology is related to the teleological assumption in the sense that directedness and purpose of the African self are underpinned by the interest and needs of African people. Rather than focusing on material needs and interests, African indigenous ideology puts a premium on spiritual development. The ancient Kemetic (Ancient Egyptian) principle of Maat captures the indigenous African vision of an ideal society. Maat encapsulates notions such as harmony, justice, truth, reciprocity, righteousness and natural order (Myers & Speight, 2010). Asante (1987, 1990) also identifies Maat- the quest for justice, truth and harmony-as a principle intrinsic to African cultures wherever they may be found.

It must be noted that the indigenous African worldview is different, in fundamental respects, from the European/Western worldview which has dominated construction of meaning/life since the imposition of the colonial system of imperialism. The table below shows the differences. The model has been adapted from Goduka(2005) and Carroll(2008).

**Tab. 1 Africa and European Worldview Differences**

|   | African Worldview/Optimal  | European Worldview/Sub-optimal  |
|---|--|---|
| Ontology (being/reality)                  | Reality is matter and spirit at once; matter a manifestation of spirit; unity of being.                  | Reality is matter/material. Only that which is observed by the five senses is real. Nothing beyond the material.      |
| Epistemology ( grounds for knowledge)     | Affect-symbolic-imagery cognition; immersion; feeling/affect important; spiritual knowing.               | Object-measure-cognition; detachment; distancing; suppression of affect.  |
| Axiology (values)                         | Highest value is in positive interpersonal relationships; harmony-with-nature; communalism; cooperation. | Highest value is in the object/acquisition of objects; mastery-over-nature; individualism; competition; separateness. |
| Cosmology (structure of the universe)     | The universe is an interconnected an interdependent edifice; communal universe.                          | Independence, separation; disconnectedness of phenomena.  |
| Logic (criteria of validity in reasoning) | Diunital; both/and logic; something apart and united at the same time; complementarity of duality.       | Dichotomous logic; either/or logic; rigid oppositions, dichotomy between matter and spirit.                           |
| Teleology                                 | Sense of directedness; sense of definite ends; sense of definite purpose.                                | Life for life's sake; knowledge for knowledge's sake.   |
| Ideology                                  | Ideology of liberation; Maat-quest for justice, balance, reciprocity, righteousness etc.                 | Ideology of domination; supremacy; expansion etc.   |

It is important to note the centrality of African spirituality in the Eziko theoretical framework. The activities and processes which centre around eziko -learning, the sharing of stories (knowledge), the production of knowledge through myths, legends, rituals e.tc. -are captured through the symbol and image of the circle . The circle symbolises spirit/energy which interpenetrates and animates everything that is: reality. Eziko as process is a manifestation of African spirituality, Eziko thus speaks to the oneness of being; the ontological principle of the unity of being. There is no doubt that the “Eziko Sipheka Sisophula project is grounded in an ecological interdependence, and intergenerational spirituality constitutes an-interrelatedness and interconnectedness amongst humans and our social and environmental milieu” (Goduka, 2005, p.11).

A critical issue which Goduka (2005) mentions, but does not develop at length, related to Eziko as cultural process, is the place of women in African civilization and cultural experience. Goduka (2005, p.5) observes that within “Nguni traditions, activities that occur around eziko are usually performed by women”. Given the current dominance/ hegemony of patriarchy in Africa, one could argue that by constructing a theoretical framework based on the activities of women, African men are excluded and marginalized. This argument, however, is due to a lack of knowledge of African historical and cultural experience. This is what happens when one looks at African history and culture using a Eurocentric lens.

Diop’s (1974,1990a, 1991b) Two Cradle Theory which unpacks the African origin of human civilization, the cultural unity of Black Africa as well as the clash of Indo-European and African cultures, places matriarchal values and ideals at the centre of African cultural development. This theory is supported in the work of Afrocentric scholars such as Asante (1990, 1999) and Dove (1998). The theory posits that two cradles of civilization (Africa and Europe) created two modes of societal structures and values almost antithetical to each other. Africa, the southern cradle, where humanity began, produced matriarchal societies while Europe produced male-centred/patriarchal societies. Diop rejects Eurocentric evolutionist theories which posit that matriarchy is an inferior stage of human development.

He attributes matriarchy to an agrarian lifestyle in Africa and patriarchy to harsh nomadic conditions in Europe. Matriarchy highlights the complementarity of the female-male relationship, the nature of the feminine and masculine in all forms of life, understood as non-hierarchical. Women and men cooperate in all areas of social organization. The women are revered as mothers, the conduits for the reincarnation and spiritual regeneration of ancestors as well as the bearers of culture. Matriarchy was not forced on African men but accepted, supported and practised for its intrinsic value in human development. In the Indo-European context, the woman was viewed as little more than a burden that the man dragged behind him. Outside her function of child-bearing her role in nomadic society is nil...Having a smaller economic value, it is she who must leave her clan to join that of her husband, contrary to the matriarchal custom which demands the opposite (Diop, 1959/1990 p. 56).

The current debasement of women in African societies is a perversion of indigenous African civilization. It actually constitutes a degeneration of African culture and civilization precipitated by the invasion and conquest of Africa by European patriarchal chauvinists.

### **Eziko: The Emerging Research Methodology on Modimolle**

This section discusses the broad contours of the emerging research methodology on the history and heritage of Modimolle Mountain located in the jurisdiction of Modimolle Municipality. The research on Modimolle began before the researchers were introduced to the Eziko theoretical framework through workshops and other formal working- meetings with Professor Goduka and her team at Walter Sisulu University. The research started last year in July 2012 and has not yet been completed. The purpose of the discussion is to outline, broadly, changes in our thinking about research methodology in the light of our introduction to Eziko.

The Modimolle Mountain, according to indigenous South Africans, is a spiritual and sacred entity which has to be revered. It is the abode of ancestral spirits. It is believed that if

one climbed the mountain without performing appropriate rituals one would not return i.e. would die/perish. The myth (belief) is that those who climbed the mountain and disappeared were actually eaten by the gods. The Sotho name Modimolle translates to "God (Modimo) has eaten (o lle) them". Everything about the mountain- the rocks, plants, animals etc. -is sacred/spiritual. It is this spiritual tradition and history centred on Modimolle Mountain which is under investigation.

The research team is composed of five academics and three graduate research-assistants based at the University of Limpopo. The five academics are drawn each from the disciplines of History, Anthropology, African Languages, Geography and Archaeology. The graduate students are from Anthropology. All the academics have carried out research on similar projects.

It is important to define how the concept of a research methodology is used in this discussion. A research methodology, in part, refers to the assumptions that a researcher brings to a research project (Carroll, 2008). Assumptions are statements about phenomena which are accepted as valid without submission to tests of their validity. Such assumptions guide and constrain a researcher's methodology. The assumptions are usually derived from the researcher's worldview. The tenets of a worldview-ontology, epistemology, axiology, logic, cosmology, teleology, and ideology-constitute the sources of the assumptions. Research methodologies are, therefore, worldview-specific (Carroll, 2008). Since different histories and cultures produce different worldviews it is not surprising that researchers deploy different methodologies in research. Carroll (2008) insists that a researcher's worldview must be interrogated to understand its cultural implications on research projects about Africans.

In tackling the question of research methodology at the beginning of the Modimolle Project, one challenge which emerged was the difference in the assumptions of the researchers, coupled with the lack of clarity about the sources of the assumptions. This was partly due to the fact that the researchers had different disciplinary locations. Furthermore, the disciplines in which the researchers were educated are Eurocentric. None of the researchers were educated in the discipline of Africology (Afrocentric study of African phenomena) or IKS. Even though all the academics were relatively familiar with the literature on Africology it was not initially clear whether or not this should constitute the approach to be deployed in research. After a few presentations on questions of methodology only two researchers fully accepted the need to deploy Afrocentricity as articulated in the work of Asante (1991) and Mazama (2002).

The Afrocentric paradigm insists that research and study of African phenomena have to deploy the ideals and values of African culture. The other three academics seemed to agree. The critical issue, however, was that none of the researchers made any reference, during the presentations, to the valuable work being done from the perspective of the emerging indigenous paradigm (Goduka, 2005; Smith, 1999). Furthermore, discussions on methodology were carried out in the absence of the people of Modimolle who are supposed to benefit from the research. The few meetings the researchers held with the people of Modimolle were designed mainly to find out what the people of Modimolle expected to gain from the research effort, rather than to actively involve them on discussions and decisions on research methodology and design.

What emerges from the above is the dominance of conceptions of "researcher" and "research" rooted in the European worldview or colonial model (Smith, 1999; Goduka, 2005). The research team viewed itself as possessor of expert knowledge on research and the people as ignorant about the processes of knowledge production. There was a clear separation or dichotomy between the researchers (academics) and the researched (people of Modimolle). The team was the producer of knowledge and the researched, the recipients or consumers of expert knowledge. The researchers were the subjects and the researched objects of the knowledge production process. The people of Modimolle, in this model, were expected simply to provide raw data which would then be processed into knowledge by the researchers in the comfort of their offices at the university. After surrendering the raw data

no further or other role was contemplated for them. This model involves the exercise of power by the researcher over the community in which research is conducted.

Since introduction to Eziko, a reconceptualization of the notions of researcher and research has emerged, amounting to a process of decolonization. The critical issue to note is that the research team is “returning to the African source” in theory and practice. The research team is embracing the implications, for research, of the seven pillars of the Eziko theoretical framework as unpacked above. Given the fact that the people of Modimolle are African, rooted as they are, in African culture despite colonial depredations, the team is considering the following:

- Work to legitimize the African worldview as the only appropriate lens to investigate indigenous African phenomena.
- Hold ourselves responsible for uncovering racist notions that may be embedded in the hegemonic Eurocentric research methodologies we acquired in our colonial schools and universities.
- Deploy the pillars of the Eziko theoretical framework to construct a methodology for research. The methodology must reflect the holistic and relational worldview of indigenous Africans. The methodology must embody African spirituality.
- Jettison the traditional Eurocentric criterion of objectivity- creating distance between the researcher and researched - because it creates a dichotomy between subject (researcher) and object (researched) violating African ontological and cosmological principles of the unity of being.
- Ground research on the experiences and values of the community in which research is conducted. Community members must be the ultimate authority in determining what is true and are the final arbiters of the validity of research on their problems. Community members are necessary for the verification of knowledge claims.
- Avoid creating and sustaining divisions in the community in which research is conducted. Work to create harmony.

Further, we have begun to rethink the research process at Modimolle based on the following principles:

- The worldview of the people of Modimolle is African.
- It is this worldview which determines what constitutes a problem for them. The research problem must be their problem and not the researcher's problem. The people must be actively involved in the formulation of the research problem/s and research design.
- The research process and its outcomes must be owned by the community/the people of Modimolle.
- The human being is essentially spiritual. This does not, however, mean the neglect of the material aspect of life but it is to acknowledge that matter is spirit manifest. All indigenous research must reflect the primacy of the spiritual, the oneness of matter and spirit and the interconnectedness of all things.
- It is necessary to start from the position that self-knowledge is the basis of all knowledge and Africans know through symbolic imagery and rhythm. Symbols, rituals, and myths are valid and reliable indigenous African cultural modes of knowing.
- Knowing is both rational and supra-rational. Affect and intuition are valid modes of knowing.
- Indigenous epistemology and knowledge free us from all forms of colonial domination/extricate us from conceptual incarceration.

What is emerging are decolonising research perspectives rooted in the contextual and dynamic lived experiences and realities of indigenous Africans. Eziko undermines

epistemological racism: the view that the only valid knowledge is that produced through methodologies rooted in the European worldview. Eziko completely rejects this Eurocentric position. Goduka (2005) insists that our research methodologies must be constructed out of the lived experiences of indigenous African communities.

### **Challenges of Eziko in the Western Academy.**

In his Intellectual Warfare, Carruthers (1999) noted that those waging the war to liberate African culture are fighting on two fronts: (1) an international war against European intellectuals and (2) a civil war against the colonized African spokespersons trained by Europeans to undermine African freedom. This is the main challenge faced by Eziko Sipheka Sisophula. As part of the strategy to win this war, a critical mass of researchers rooted in the indigenous African worldview must be produced through the creation and funding of independent institutions equipped with the indigenous paradigm of research and pedagogy. It is also important to work towards interfacing IKS in higher education curricula to neutralize the impact of hegemonic Eurocentric education.

### **Literature:**

- Asante, M.K. (1980). *Afrocentricity*. Trenton: Africa world Press.
- Asante, M.K. (1987). *The Afrocentric Idea*. Philadelphia: Temple University Press.
- Asante, M.K. (1990). *Kemet, Afrocentricityand Knowledge*. Trenton: Africa world Press.
- Banks, W.C.(1992). The Theoretical and Methodological Crisis of the Afrocentric Conception. *Journal of Negro Education*. Vol.16, No.3, pp.262-272.
- Carroll, K.K. (2008). Africana Studies and Research Methodology: Revisiting the Centrality of the Afrikan Worldview. *The journal of Pan African Studies*, Vol.2, No.2 pp.4-26.
- Carroll, K.K. ( 2010). A Genealogical Analysis of the Worldview Framework in African-Centred Psychology. *The journal of Pan African Studies*. Vol.3, No.8, pp.110-134.
- Dei, G.S. (2012). Indigenous Anti-Colonial Knowledge as 'Hritage Knowledge' for Promoting Black/African Education in Diasporic Contexts. *Decolonisation: Indegeneity, Education & Society*. Vol1, 2012.pp.102-119.
- Diop, C.A. (1974). *The African Origin of Civilization: Myth or Reality*. New York: Lawrence Hall.
- Diop, C.A. (1990). *The Cultural Unity of Black Africa: The Domains of Matriarchy and Patriarchy in Classical Antiquity*. London: Kanark House.
- Diop, C.A. (1991a). *Civilisation or Barbarism*. New York: Lawrence Hill.
- Diop, C.A. (1991b). Origins of the Ancient Egyptians. in Van Seritima (Ed) *Egypt Revisited*. New Brunswick: Transaction Publishing.
- Dove, N. African Womanism: An Afrocentric Theory. *Journal of Black Studies*. Vol.28, No.5.
- Dixon, V.J. (1971b). African-oriented and Euro- American-oriented Worldviews: Research Methodologies and Economics. *Review of Black Political Economy*.Vol.7, No.2, pp119-156.
- Frye, C.S; Harper, C and Myers, L.T. (1983). How to Think Black: A Symposium in Toni Cade Bambara's The Salt Eaters. *Contributions in Black Studies*. Vol.6, No.1.The Blues Vision.
- Goduka, N. (2005). Eziko: Sipheka Sisophula. Nguni Foundations for Education/ Researching for Sustainable Development. A Theoretical Paper. *The South African Journal of Higher Education*. Vol.19. pp.467-481.
- Goduka, N. (2000). African/Indigenous Philosophies: Legitimizing spiritually centred wisdom within the Academy, in P. Higgs (Ed) *African Voices in Education*. Cape Town.
- Hilliard, A. (1997). SBA: *The Reawakening of the African Mind*. Gainsville: Makare Press.
- Kambon, K. (1992). *The African Personality in America: An African-Centred Framework*. Tallahassee: Nubian Publications
- Mahuika, R. (2008). Kaupapa Maori Theory is Critical and Anti-Colonial. *MA1 Review*, Vol.3, Article 4.

- Mazama, A.M. (2001). The Afrocentric Paradigm: Contours and Definitions. *Journal of Black Studies*. Vol.31, No.4, pp.387-405.
- Mazama, A.M. (2002). Afrocentricity and African Spirituality. *Journal of Black Studies*. Vol.33, No. 2, pp.218-234.
- Myers, L. J. (1987). The Deep Structure of Culture: Relevance of Traditional African Culture in Contemporary Life. *Journal of Black Studies*. Vol. 18, No. 4
- Myers, L.J and Speight, S.L. (2010). Reframing Mental Health and Psychological Well-Being Among Persons of African Descent: Africana/Black Psychology Meeting the Challenges of Fractured Social and Cultural Realities. *The Journal of Pan African Studies*. Vol.3, No.8.
- Nabudere, D.W. (2002).The epistemological Methodological Foundations for an All-Inclusive Research Paradigm for Field Building and Intersubjective Accommodation. Paper presented at the field building workshop by Africa Study Centre, Mbale in collaboration with the Social Science Research Council, held at Ridar Hotel, Kampala
- Nobles, W.W. (1986). Ancient Egyptian Thought and the Development of African (Black) Psychology. in M. Karenga & T. Carruthers( Ed) *Kemet and the African Worldview: Research, Rescue, and Restoration*. Los Angeles: University of Sankore Press.
- Richards, D. (1979). The Ideology of European Dominance. *Western Journal of Black Studies*. Vol.3, No.4, pp.249-260.
- Smith, L.T. (1999). *Decolonizing Methodologies: Research and Indigenous Peoples*. Dunedin: University of Otago Press
- Woodson,C.G.(1933). *The Miseducation of the Negro*. Washington, D.C: Associated Publishers.

# **The educational level population and its effect on both employment and unemployment in the European Union**

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**Eva Sapáková<sup>3</sup>**

## **Abstract:**

EU countries show a more or less different education levels their population. The data set of 27 countries covering the year 2011 and obtained from the statistical evidence Eurostat were used for the analysis of education in relation to unemployment or employment.

One of the work aims is to evaluate the population aged 25–64 who are a productive component in the countries according to the percentage achieved by secondary and tertiary education. Education is one of the main factors affecting the labour market, so the state interest is to promote the so-called lifelong learning. The group of countries closed to each other in terms of education were created using cluster analysis. As variables were considered two indicators for this purpose: the percentage of people with at least a completed full secondary education and the percentage of people who completed lifelong learning. Data indicators were transferred to the standardized variables zero and unit-level variability. The dendrogram was based on creating 5 groups, which were presented in the graph of clusters. Each group of countries was described in relation to the average of the two indicators and individual included countries were mentioned namely. While lifelong education is rather complementary, fundamental importance has secondary and tertiary education. From this perspective, the leading positions are occupied mainly countries central and eastern Europe, while Southern European Countries are located on the end of the sequence. The set of all 27 EU countries is characterized by each of the selected indicators summarized characteristics level and variability. There are described: arithmetic mean, median, standard deviation, variation coefficient, minimum and maximum. The calculations were performed simple form that should be noted. The size of the country has not been taken into account, so that each country had the same weight. The histogram was constructed for percentage indicator of people aged 25–64 with secondary and tertiary education submitting information on the distribution frequency. Furthermore, complex data are provided for the EU as a whole. The principal aim of this work was to demonstrate the education impact on both unemployment or employment, which was expressed using appropriate measures. In view of the data obtained from Eurostat, three groups were created according to the highest education level and within expressed unemployment and employment rates, both for individual countries and for the EU as a whole. The education level was determined by the International Standard Classification of Education (International Standard Classification of Education - ISCED, 1997) and based on the labour force survey. Three training levels were: pre-primary education, primary education and lower secondary education (levels 0-2), upper secondary education and post-secondary non-tertiary education (levels 3-4) and tertiary education (levels 5-6). Based on the analysis of variance was confirmed by a highly significant difference between the both groups so unemployment rate as the employment one. Processed bar graph convincingly documents that the greater

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degree of education of the population achieves this leads to a decrease in the unemployment rate and increasing the employment one.

### **Key words:**

EU countries, education level, unemployment, employment, cluster analysis, analysis of variance

## **Introduction**

A very important role in the process of social development can be attributed to the human factor, and one of the major priorities for the European Union is employment strategy including educational policy. Social development is unthinkable without the skills development of so-called human capital, which includes the knowledge and skills which people hold and which bring to the production process. Human capital, as confirmed in the labor market is an indispensable source of economic growth and social levels.

Labor force by their qualifications should meet the needs of the labor market representing not only the increase of the population's education but also lifelong education and the need for structuring workers. The higher education level of the population is demonstrated by the reduction of unemployment and thus higher employment levels.

This paper deals with the evaluation of educational attainment population in the EU countries and quantifying the relationship among education, unemployment and employment.

## **Materials and Methods**

Starting numerical material for analysis and evaluation of the education impact population on both unemployment and employment were obtained from the Eurostat website. The population in the 27 EU countries were subjected to investigation, and the data related to the year 2011.

Such indicators were chosen for the analysis:

- population percentage with at least complete secondary education,
- population percentage who completed life-long learning,
- unemployment rate at three levels of completed education,
- employment rate at three levels of completed education.

All these characteristics relate to the working age population (specifically the 25–64 year olds population) and are included in Tab. 1.

Tab. 1: Selected indicators for the aged 25–64 population in EU countries in 2011

| EU countries     | % At least secondary education 3–6 | % Life-long learning | Unemployment rate       |      | Employment rate |      |      |
|------------------|------------------------------------|----------------------|-------------------------|------|-----------------|------|------|
|                  |                                    |                      | Highest education level |      |                 |      |      |
|                  |                                    |                      | 0–2                     | 3–4  | 5–6             | 0–2  | 3–4  |
| 1 Belgium        | 71.3                               | 7.2                  | 12.1                    | 5.7  | 3.4             | 47.3 | 68.9 |
| 2 Bulgaria       | 80.2                               | 1.2                  | 25.5                    | 9.0  | 4.7             | 37.3 | 65.9 |
| 3 Czech Republic | 92.3                               | 7.5                  | 21.6                    | 5.7  | 2.6             | 40.4 | 71.7 |
| 4 Denmark        | 76.9                               | 32.5                 | 8.9                     | 6.0  | 5.0             | 62.0 | 77.7 |
| 5 Germany        | 86.3                               | 7.7                  | 13.9                    | 5.8  | 2.4             | 57.3 | 76.3 |
| 6 Estonia        | 88.9                               | 10.9                 | 26.4                    | 11.9 | 7.9             | 48.3 | 69.8 |
| 7 Ireland        | 73.4                               | 6.7                  | 21.7                    | 15.1 | 7.2             | 44.7 | 61.6 |
| 8 Greece         | 64.5                               | 3.0                  | 17.0                    | 17.7 | 12.8            | 53.6 | 56.7 |
| 9 Spain          | 53.8                               | 10.8                 | 26.4                    | 19.3 | 11.7            | 51.4 | 61.9 |
| 10 France        | 71.6                               | 5.0                  | 12.9                    | 7.4  | 4.9             | 55.0 | 70.1 |
| 11 Italy         | 56.0                               | 6.2                  | 9.4                     | 6.0  | 5.2             | 50.3 | 66.5 |
|                  |                                    |                      |                         |      |                 |      | 77.0 |

|    |                         |      |      |      |      |     |      |      |      |
|----|-------------------------|------|------|------|------|-----|------|------|------|
| 12 | Cyprus                  | 75.0 | 7.7  | 7.4  | 6.9  | 5.8 | 65.1 | 71.0 | 81.2 |
| 13 | Latvia                  | 87.7 | 5.0  | 27.5 | 16.9 | 6.9 | 46.7 | 63.3 | 83.4 |
| 14 | Lithuania               | 92.9 | 4.0  | 37.3 | 17.7 | 5.6 | 32.7 | 61.2 | 87.5 |
| 15 | Luxembourg              | 77.3 | 13.4 | 6.1  | 3.7  | 3.5 | 58.6 | 65.5 | 83.7 |
| 16 | Hungary                 | 81.8 | 2.8  | 23.1 | 9.6  | 3.9 | 36.5 | 62.1 | 78.4 |
| 17 | Malta                   | 31.1 | 6.2  | 7.4  | :    | :   | 51.2 | 76.3 | 86.4 |
| 18 | Netherlands             | 72.3 | 16.6 | 5.4  | 3.8  | 2.8 | 62.5 | 79.2 | 86.8 |
| 19 | Austria                 | 82.5 | 13.7 | 7.10 | 3.2  | 2.3 | 56.4 | 77.2 | 86.0 |
| 20 | Poland                  | 89.1 | 5.3  | 16.9 | 8.7  | 4.5 | 38.7 | 63.0 | 82.4 |
| 21 | Portugal                | 35.0 | 5.8  | 13.3 | 10.9 | 8.0 | 65.5 | 70.2 | 80.9 |
| 22 | Romania                 | 74.9 | 1.3  | 6.90 | 6.4  | 3.8 | 50.7 | 63.2 | 82.1 |
| 23 | Slovenia                | 84.5 | 16.2 | 12.7 | 8.2  | 4.7 | 45.8 | 67.4 | 85.5 |
| 24 | Slovakia                | 91.3 | 2.8  | 39.2 | 11.5 | 5.2 | 29.7 | 66.3 | 76.8 |
| 25 | Finland                 | 83.7 | 23.0 | 11.3 | 6.9  | 4.0 | 54.1 | 72.5 | 84.3 |
| 26 | Sweden                  | 82.0 | 24.5 | 11.0 | 4.6  | 3.9 | 64.4 | 81.1 | 86.9 |
| 27 | United Kingdom          | 76.4 | 19.4 | 10.4 | 6.1  | 3.7 | 55.7 | 75.7 | 82.7 |
|    | Total EU (27 countries) | 73.4 | 9.1  | 14.7 | 7.6  | 5.0 | 53.0 | 69.9 | 82.1 |

Tabular and graphical expressive means were used in the analysis and statistical methods according to the purpose and exploration objectives. The evaluation level and variability of selected indicators were used summary characteristics and frequency histogram. Division countries into groups was done on the basis of cluster analysis using method farthest neighbor in Euclidean distance. For the evaluation of the dependency unemployment and employment to education population was applied the analysis of variance simple classification with regard to the three education levels.

## Results

Visual conception of the education level the population of EU countries in 2011 provides Fig. 1.

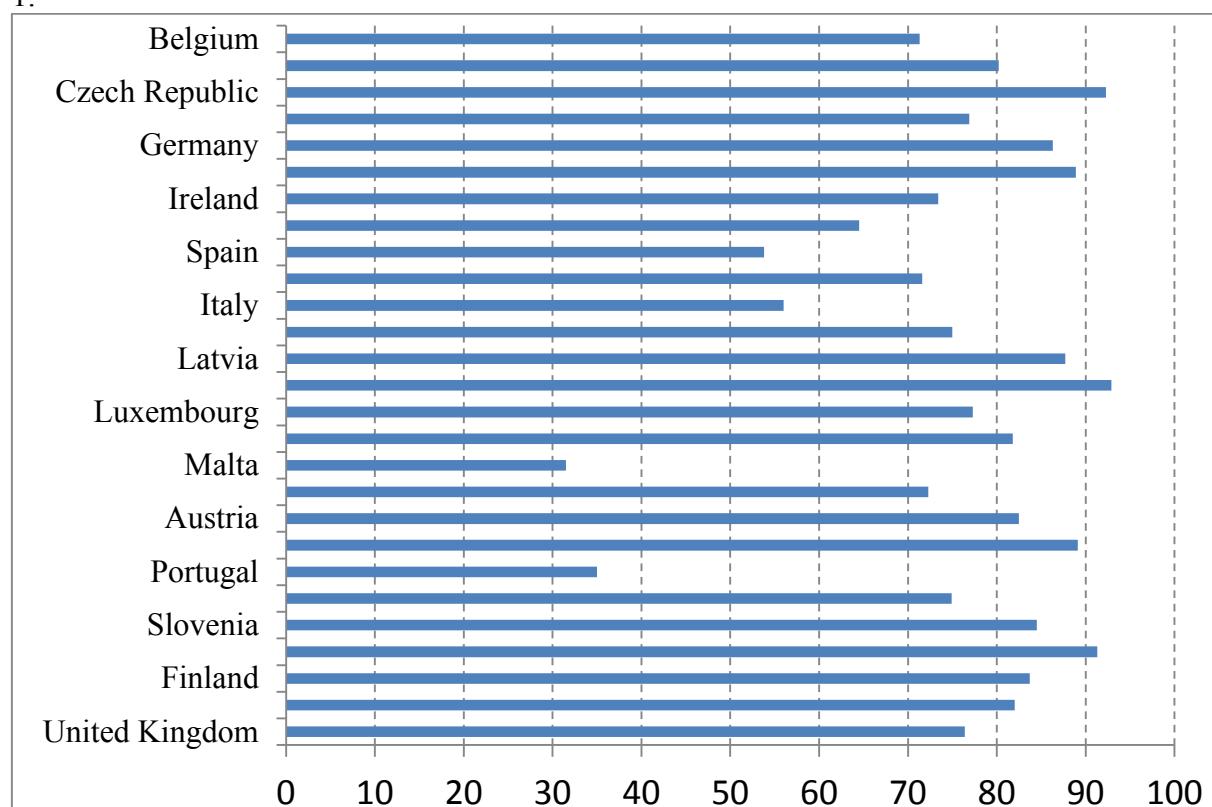


Fig. 1: Population percentage of the people aged 25–64 with at least upper secondary education

Recently, lifelong learning has gained in an importance, *inter alia*, with regard to retraining workers, although the priority has taken secondary and tertiary education. The groups of nearby countries were formed for both types of education. Before that the initial values of both indicators were to be converted to standardized values whose mean is zero and variance one. According to the dendrogram (Fig. 2) the distance would be taken into consideration and should create 3 clusters, but one of the clusters would contain 20 countries. Five clusters were selected to produce greater resolution presented on a graph of clusters (Fig. 3).

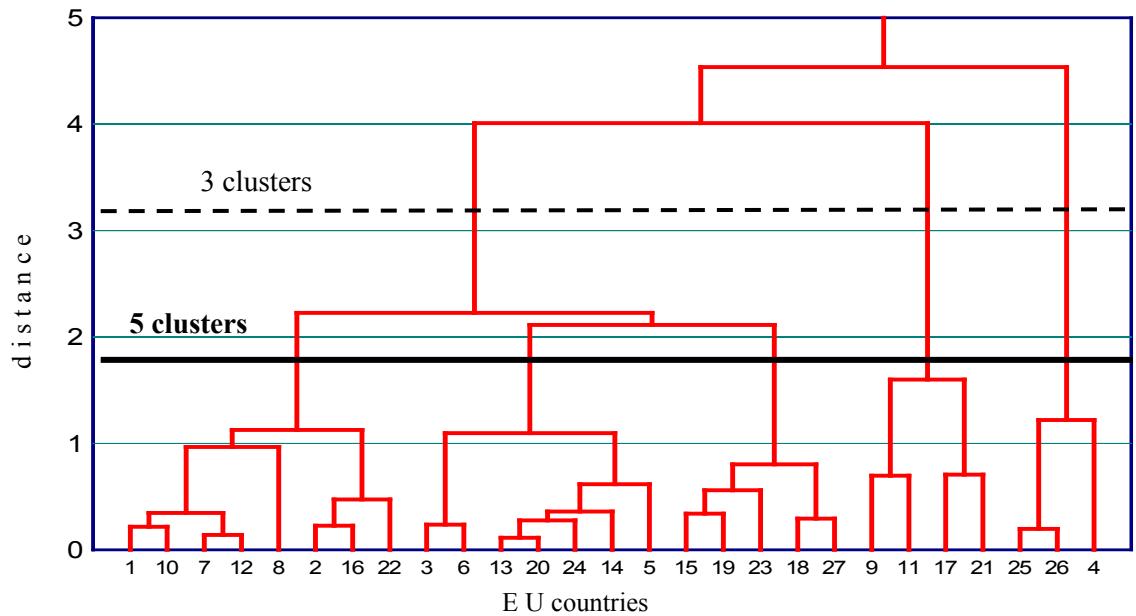


Fig. 2: Dendrogram EU countries according to education indicators

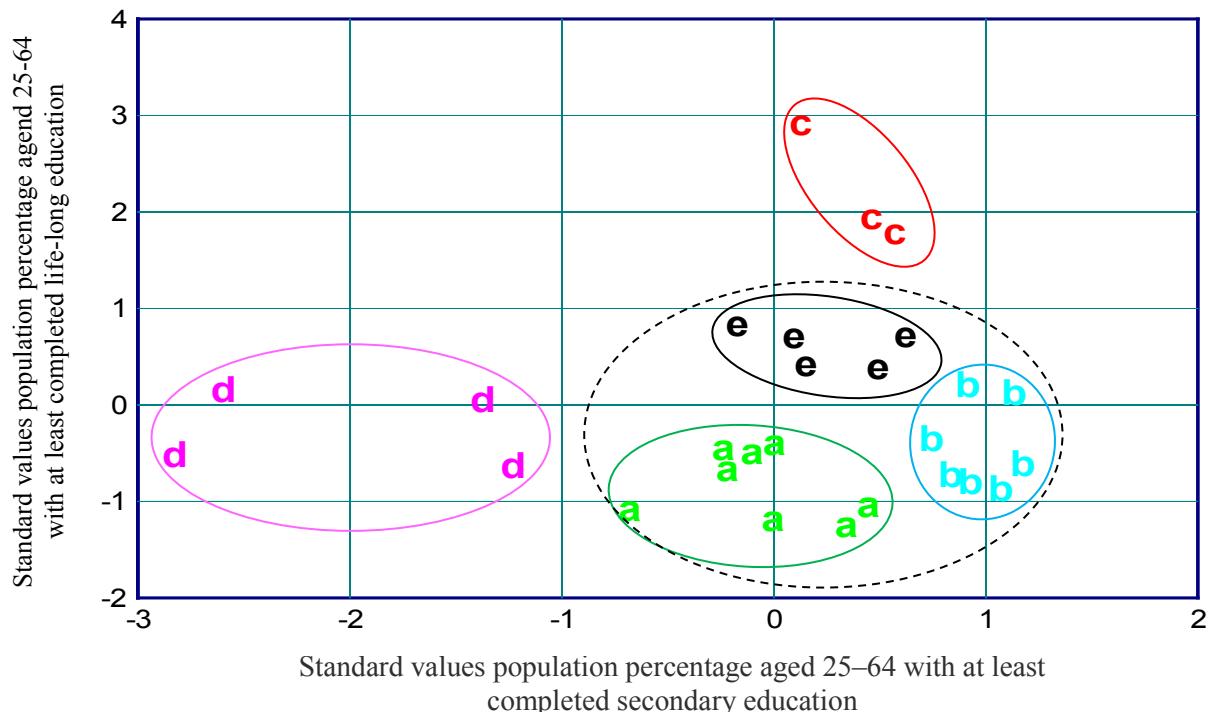


Fig. 3: Graph clumps EU countries according to education indicators

Division countries into clusters:

**Ad a)** 8 countries: average secondary and tertiary education, substandard lifelong education  
 1–Belgium, 2–Bulgaria, 7–Ireland, 8–Greece, 10–France, 12–Cyprus, 16–Hungary,  
 22–Romania

**Ad b)** 7 countries: above-average secondary and tertiary education, the average lifetime education  
 3–Czech Republic, 5–Germany, 6–Estonia, 13–Latvia, 14–Lithuania, 20–Poland,  
 24–Slovakia

**Ad c)** 3 countries: above-average secondary and tertiary education and lifelong education  
 4–Denmark, 25–Finland, 26–Sweden

**Ad d)** 4 countries: substandard secondary and tertiary education, the average lifetime learning  
 9–Spain, 11–Italy, 17–Malta, 21–Portugal

**Ad e)** 5 countries: average secondary and tertiary education, above average lifelong education  
 15–Luxembourg, 18–Netherlands, 19–Austria, 23–Slovenia, 27–United Kingdom

Fundamental importance is concentrated on secondary and tertiary education while lifelong learning is rather complementary. From this perspective, leading positions are occupied mainly countries in Central and Eastern Europe (cluster b), whereas at the end of the sequence are southern European countries (cluster d). Summary characteristics level and variability were determined to describe the whole set of 27 countries in terms of selected indicators (Tab. 2). They were calculated by a simple form, so that each country had the same value regardless of size.

Tab. 2: Characteristics evaluated indicators of EU countries in 2011

| Characteristics       | Population aged 25–64                  |                      |                         |        |                 |        |        |        |
|-----------------------|--|----------------------|-------------------------|--------|-----------------|--------|--------|--------|
|                       | % Secondary and Tertiary Education 3–6 | % Life-long learning | Unemployment rate       |        | Employment rate |        |        |        |
|                       |  |                      | Highest Education Level |        |                 |        |        |        |
|                       |  |                      | 0–2                     | 3–4    | 5–6             | 0–2    | 3–4    | 5–6    |
| The arithmetic mean   | 75.29                                  | 9.87                 | 16.25                   | 9.03   | 5.25            | 50.44  | 68.97  | 82.23  |
| Median                | 77.3                                   | 7.2                  | 12.9                    | 7.15   | 4.7             | 51.2   | 68.9   | 82.1   |
| Standard Deviation    | 15.40                                  | 7.65                 | 9.20                    | 4.65   | 2.54            | 9.76   | 6.31   | 3.62   |
| Variation Coefficient | 0.2045                                 | 0.7748               | 0.5661                  | 0.5146 | 0.4839          | 0.1935 | 0.0916 | 0.0440 |
| Minimum               | 31.1                                   | 1.2                  | 5.4                     | 3.2    | 2.3             | 29.7   | 56.7   | 74.1   |
| Maximum               | 92.9                                   | 32.5                 | 39.2                    | 19.3   | 12.8            | 65.5   | 81.1   | 87.6   |

The results showed that about three quarters of the productive population aged 25–64 in the EU reached an average at least of completed secondary education. The level was very high, it was more than 10% less in earlier years, even less 10 years ago. Among other things, it is a consequence of the transition to a new life-style applied especially in the young generation. Malta (31.1%) and Portugal (35.0%) showed very low level of education. Lifelong learning

was attended by about 10% of the evaluated population. The greatest variability occurred in lifelong learning ( $v = 77.48\%$ ), the person percentage with secondary and tertiary education showed much less variability ( $v = 20.45\%$ ). By comparison variability of unemployment and employment rates are big differences. While the coefficient of variation was of around 50% with the unemployment rates, it was possible to 10% with employment rates.

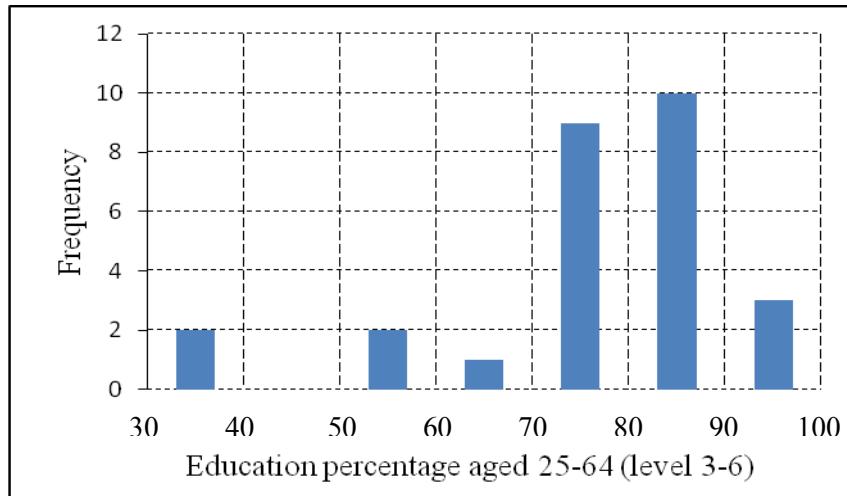


Fig. 4: Histogram percentage frequencies aged 25–64 with at least completed secondary education

The indicator percentage population, with at least completed secondary education, is the type described in division frequency histogram (Fig. 4). Distribution is right-sided, with by far the lowest reported values between 30-40 in 2 countries (Malta and Portugal). Modal interval located within the borders 80-90.

The challenge was to analyze the influence education level on unemployment and employment. Rough information is demonstrated on Fig. 5 and Fig. 6 processing of data pertaining to the EU as a whole.

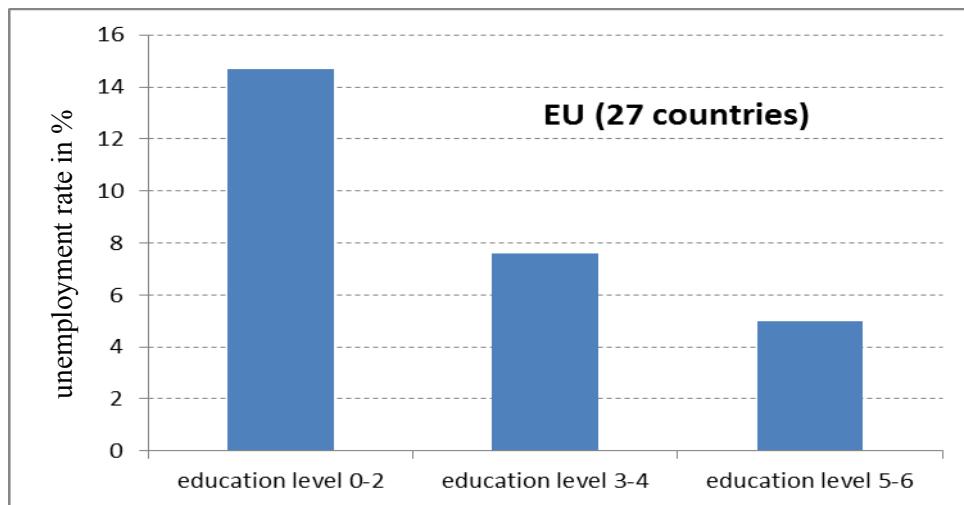


Fig. 5: Unemployment rate population aged 25–64 in the EU in 2011 according to the level of educational attainment

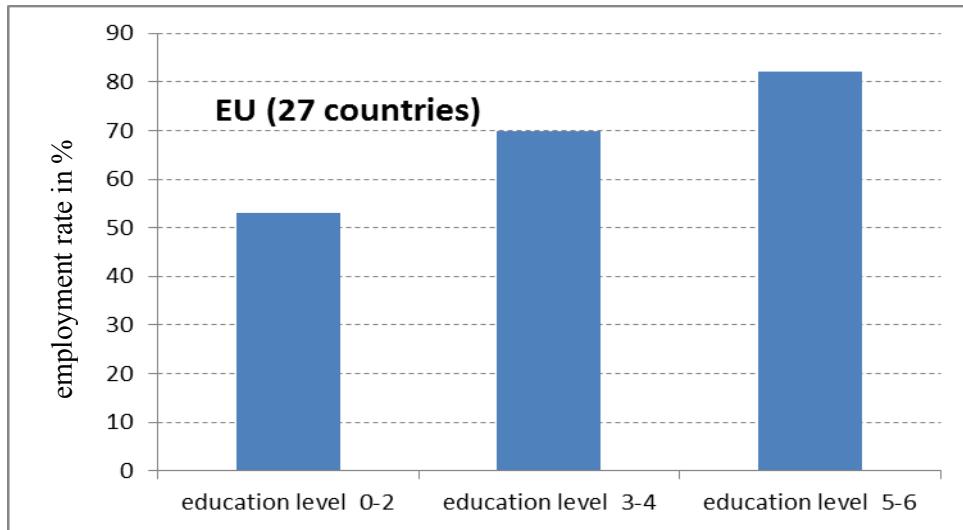


Fig. 6: Employment rate population aged 25–64 in the EU in 2011 according to the level of educational attainment

Obviously, the higher education level is reflected in lower unemployment and higher contrast in employment. The set of individual countries graphs confirmed the statement (Fig. 7 and Fig. 8).

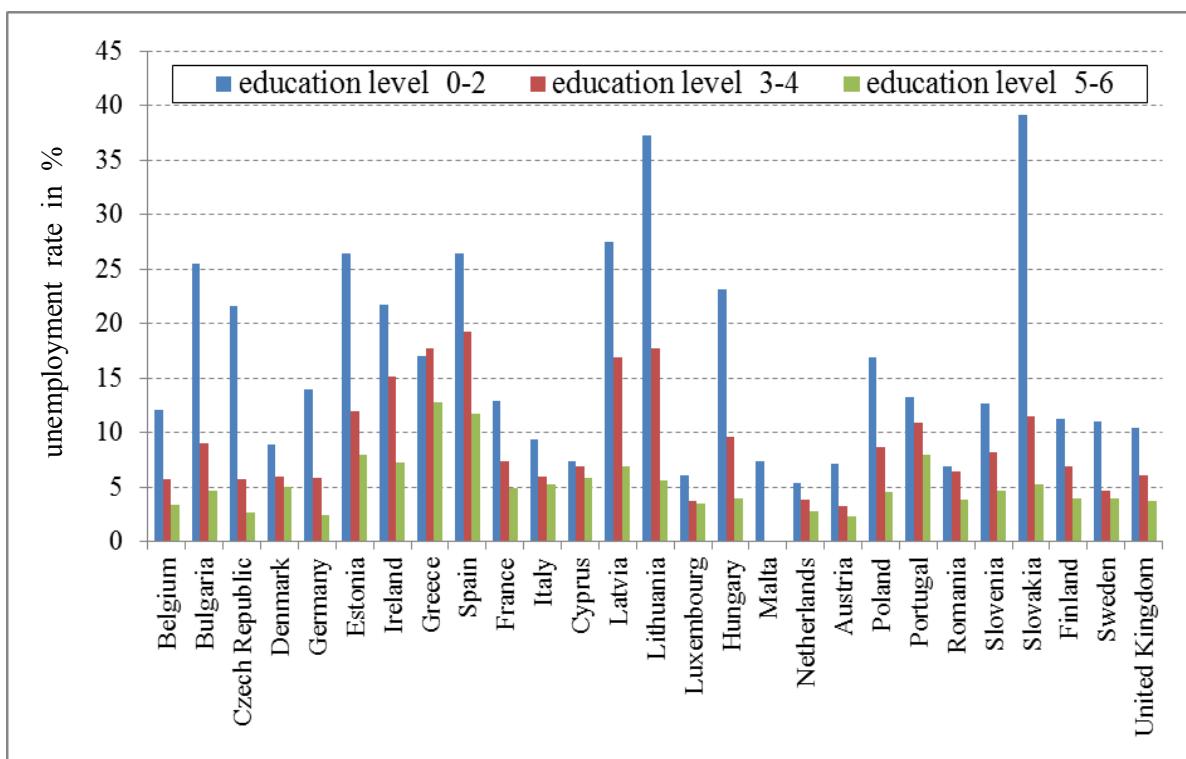


Fig. 7: Unemployment rate population aged 25–64 in the EU in 2011 according to the level of educational attainment

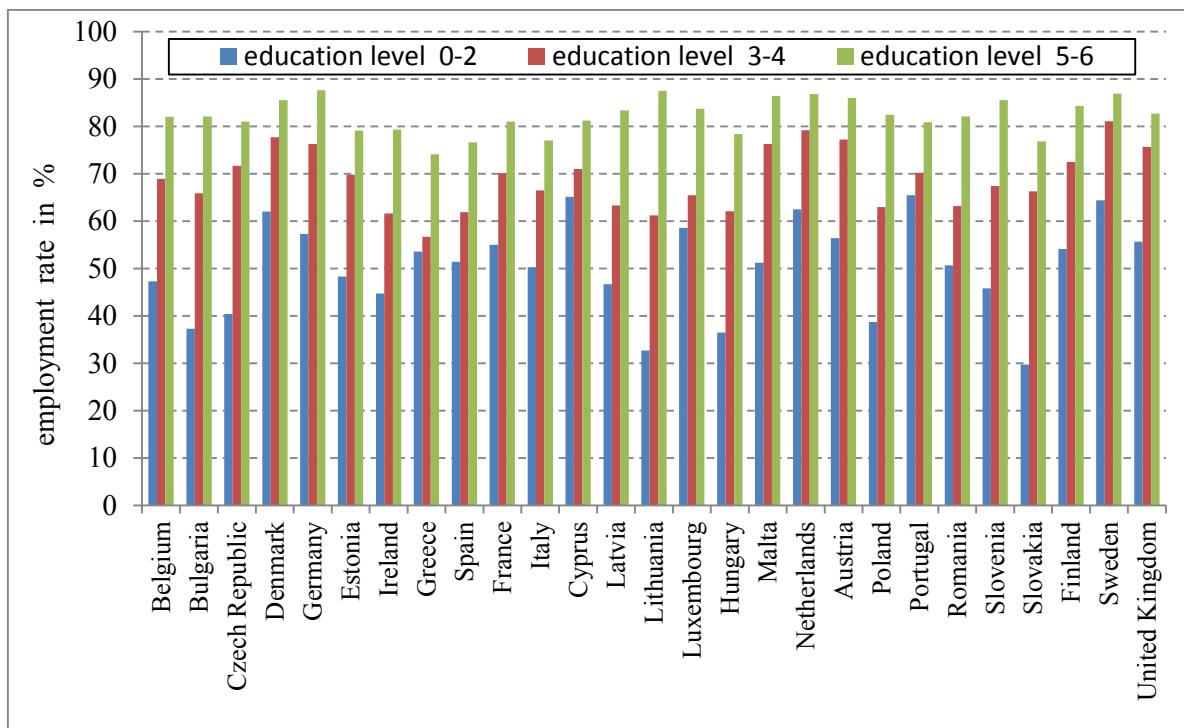


Fig. 8: Employment rate population aged 25–64 in the EU in 2011 according to the level of educational attainment

Graphical representation unemployment and employment rates was confirmed by the analysis of variance due to the influence of education level.

#### ANOVA - unemployment rate

$\alpha = 0,01$

| Variation source          | SS      | DF | MS     | F     | Value P  | F critic. |
|---------------------------|---------|----|--------|-------|----------|-----------|
| Groups (education levels) | 1735.63 | 2  | 867.81 | 22.19 | 2.68E-08 | 4.90      |
| Residue (country)         | 2932.55 | 75 | 39.10  |       |          |           |
| Total                     | 4668.18 | 77 |        |       |          |           |

#### ANOVA – employment rate

$\alpha = 0,01$

| Variation source          | SS       | DF | MS      | F      | Value P  | F critic. |
|---------------------------|----------|----|---------|--------|----------|-----------|
| Groups (education levels) | 13770.55 | 2  | 6885.28 | 134.19 | 5.62E-26 | 4.89      |
| Residue (country)         | 4002.30  | 78 | 51.31   |        |          |           |
| Total                     | 17772.85 | 80 |         |        |          |           |

The analysis of variance test procedure was used without set of chosen countries, so that the differences in the level of these rates by level of education were generally demonstrated with high significance, by which the dependence of unemployment and employment to education was confirmed.

## **Conclusion**

The education population is one of the main factors of social development. This reflects a fundamental impact on the socio-economic level and admits an irreplaceable role in the labor market. Therefore, the interest of the EU and its individual member states should support the education.

The education population in the EU is increasing, but differs in a significant way. In 2011, the productive part of the population aged 25–64, on average, 75,29% of people completed the secondary school diploma or rather tertiary education. A high level was proved, but with a large variability. Just over 30% was demonstrated in the case of two countries (Malta and Portugal). Set of 27 EU countries using cluster analysis was divided into 5 groups classifying individual close countries and evaluating with regard to the average attained.

The central interest was devoted to the influence of education on the labor market, and the education population was proved showing a highly significant impact on both unemployment and employment. The effect was proved the analysis of variance.

The documents describing the strategy education for sustainable development at national and international level were prepared within the EU, and also in the individual member states and were implemented through action plans. In the Czech Republic in 2001, a National Education Development Program was declared directing to improve the quality of human resources.

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## **Resources**

DUFEK, J., MINAŘÍK, B.: Statistická analýza reprodukce lidských zdrojů v zemích Evropské unie. [CD-ROM]. In *Reprodukce lidského kapitálu (vzájemné vazby a souvislosti)*, 1. Vyd. Praha: VŠE v Praze. 2011. ISBN 978-80-86175-75-1.

DUFEK, J., MINAŘÍK, B., MATYÁŠOVÁ, L.: Statistical analysis of the demographic development in the countries of the European Union. [CD-ROM]. In ICABR 2011, s. 1-17. ISBN 978-80-7375-603-1.

MAZOUCH, P., FISCHER, J.: Lidský kapitál – měření, souvislosti, prognózy. 1. vydání, Praha: C. H. Beck, 2011, 116 s. ISBN 978-80-7400-380-6.

MINAŘÍK, B., DUFEK, J., JADCZAKOVÁ, V.: Population age in the countries of the European Union. [CD-ROM]. In ICABR 2011, s. 18-30. ISBN 978-80-7375-603-1.

SVATOŠOVÁ, L.: Lidské zdroje jako předpoklad regionálního rozvoje. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 2007, 3: 157-162. ISSN 1211-8516.

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# **The impact of the economic globalization on the developing countries – selected aspects**

**Daniela Dvořáková<sup>1</sup>**

## **Abstract:**

The growing interconnectedness, interdependence and integration of businesses into a single economic system involve a number of accompanying phenomena which are especially visible in the developing countries. The contribution presents in the form of the scientific communication an analytical and evaluative overview of the main macro geographic shifts and related social impacts of the economic globalization on the developing countries. The contribution focuses on moving of production to the developing countries and its social consequences, the growth of importance and force of the multinational corporations, socio-economic concept - race to the bottom, the growth of social inequalities and social polarization.

## **Key words:**

economic globalization, developing countries, new international division of labour, multinational corporations, race to the bottom

## **Introduction**

Economic globalization represents more intense integration, interconnectivity and interdependence of the economic subjects in a single economic system. The driving force behind globalization is the globalization of economic activities, represented by linking of production and markets of different countries. The economic recession in the 1970s, together with the destabilization of the Bretton Woods system, caused the increase in economic interdependence, deregulation and liberalization. Firms, that wanted to survive in a new dynamic and competitive environment, had to apply new development strategies, which were characterized by the international expansion. Relocation of the part of the production process leads to the creation of a new international division of labour (NIDL). Economic globalization, however, does not entail only visible macro geographic shifts, but has also the social impacts, which are accompanying effects of these shifts. The paper is based on the study of a wide range of literature, data and electronic resources and it uses the theory and approaches of the economic geography and combines it with the sociological theory of the globalization. The contribution presents in the form of the scientific communication an analytical and evaluative overview of the main macro geographic and social impacts of the economic globalization.

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## **Moving of production to the developing countries**

Most of the production and services was situated till the end of the Second World War within the national states. Changes occurred after the Second World War, when the post-war reconstruction of Europe by foreign companies, the Bretton Woods Agreements and the creation of the International Monetary Fund and the World Bank became the basis of the global financial and monetary system. After the golden age of economic growth in the years 1945-1965 USA faced rising inflation and international trade deficit. The United States decided to resolve the situation by the dollar devaluation and by the abolition of the dollar's convertibility into the gold, thereby by cancelling the main pillar of the Bretton Woods system. In the years 1971-1973, a transition to a system of free floating exchange rates followed, which still exists. The economic recession in the 1970s, along with the abolition of the Bretton Woods system, caused the rise in the economic interdependence, deregulation and liberalization. Companies, that wanted to survive in a new dynamic environment, have responded to the new situation by creating new strategies and technologies that have been

characterized by the international expansion. The international expansion enables to reduce significantly the production costs.

The new strategies to reduce production and overhead costs include processes of outsourcing, offshoring, insourcing, uploading and the growing importance of supply chains. The outsourcing technology means ensuring individual tasks or services at lower cost, mostly by small suppliers (e.g. the German company released German accounts clerks and hire accounts clerks in India). The most radical cost reduction technology is a direct relocation of production, particularly of the entire factories and company's headquarters to cheaper and often less regulated countries - a process known as offshoring. These technologies represent lower costs for employee's wages, minimal or non-existent contributions to social and health insurance, asymmetric employment contracts and minimum or zero labour law protection of workers. Lack of environmental legislation allows the companies the use of practices hazardous to the environment.

Insourcing (sort of supra contraction) is on the contrary a way how small businesses expand their supply and distribution networks using a large specialized company that manages their logistics (e.g. hiring services UPC or DHL). Uploading represents a great competitive advantage, it allows displaying any content on the Web and making it available to millions of viewers for free. Supply chains are then the royal discipline of the global economy; they represent bridges between producers, traders and consumers and allow to the companies to transfer their liability on the suppliers.

As a result of the introduction of the new technological ways to reduce costs, a new international division of labor (NIDL) has been created. Industrial production, which was from the beginning of the Industrial Revolution concentrated in the developed countries has started to move to the periphery countries, especially to the newly industrialized countries of South and Southeast Asia and South America. Management functions, research and development, however, remained in the original core areas of the developed world. Cities characterized by the concentrations of headquarters of multinational companies, financial enterprises and by the market for the news in the world of technology and fashion, are called the globalizing cities. In a globalizing cities it is possible to record geographically social polarization, we find here inaccessible residential complexes as well as ghettos of immigrants and low-income groups. In developed cities of developing countries these ghettos pass in slums (Rio De Janeiro, Sao Paulo, Johannesburg, Mumbai, Jakarta). Slums are the centers of crime, violence, drugs and diseases.

In addition to setting up store chains, hypermarkets and supermarkets, which represent the most visible aspects of the economic globalization, corporations have begun to develop also in the service sector (finance, consulting and law firms, companies on the property market, media and advertising companies). Compared to the transnational organization of production, a new international financial system has been established in the recent decades. Current financial system is based on continuous 24 hours trading with stocks, currencies, commodities and other financial products through three largest financial centres in the world - in New York, London and Tokyo. Huge virtual and high risk financial flows are being called "the casino economy." This label signifies the virtual economy, where speculators with exchange rates, shares and other financial products relocate with high risk huge sums of money within the global economy (average daily turnover at the stock market has increased over the past 20 years hundred times). The value of the world export in 1998 corresponded to the turnover of five average days on foreign exchange markets.<sup>1</sup>

A key role in the development of economic globalization and the global casino played technological information revolution, which enabled trading independently of time and place. Trade in the global casino is set exclusively for the use of computer networks and telecommunications. Electronic transfers, virtual stores or home banking products represent the latest business products based on full using of information technologies .. The development of information technologies allows also flexible management of multinational corporations (MNCs) and managing their branches throughout the world.

### **Social consequences of the arrival of the multinational corporations to the developing countries**

The arrival of the multinational corporations counts irreversible shifts in the domestic economies towards global integration. The economic prosperity of the states is increasingly influenced by movements on the financial markets and by a number of external circumstances, which are beyond the control of national governments.

Speculators on the world markets affect the lives of millions of people. Financial capital is superior to the produce capital, which further enhances its global mobility. States compete with each other in attracting large companies and in providing them the most advantageous investment and tax conditions. In the "race to the bottom" the states are rivalling with each other by making concessions and deregulations in favour of the corporations regardless on their own citizens. The countries build at their own expenses infrastructure, industrial zones and offer to the corporations tax benefits. Corporations may abuse and enforce all these benefits by blackmailing governments and by interfering in their internal affairs. Corporations are often accused of corruption, particularly of bribery to obtain government contracts, necessary permits and licenses, they are accused of bribing government officials, of prohibited forms of lobbying or cooperation with undemocratic governments.

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<sup>1</sup> RAVENHILL, J. 2007. *Global Political Economy*. Canberra: Oxford University Press., ISBN 9780731531479.

Another criticism focused then on violation of the labor and environmental standards. Cheap labor force is often compensated by unsufficient protection of workers, child or slave labor. The company reduces its costs by using environmental destructive, but cheaper manufacturing processes and procedures. As an example might serve the activities of the oil giants Shell, Chevron or BP in less regulated developing countries. The spills of oil in Nigeria have ruined the livelihoods of thousands of Nigerian habitants and had led to the direct state of insecurity in the Niger Delta.<sup>2</sup> Four Nigerians and campaign group Friends of the Earth filed suits in 2008 in The Hague, where Shell has its global headquarters, seeking reparations for lost income from contaminated land and waterways in the Niger Delta region. The case was seen by environmental activists as a test for holding multinationals responsible for offences at foreign subsidiaries, and legal experts said other Nigerians affected by pollution might now be able to sue in the Netherlands. Finally a dutch court on January 30th, 2013 condemned Royal Dutch Shell responsible for a case of oil pollution in the Niger Delta and ordered it to pay damages in a decision that could open the door to further litigation. Shell however refused its liability. Similar situation occurred in Amazonia and was caused mainly by the oil company Chevron. The ecological balance in the region is being threatened by a growing interest of international companies which are indiscriminately exploiting the area's mineral, timber and oil resources. The indigenous inhabitants are now threatened by pollution, illness and desertification.<sup>3</sup> Same situation can be founded also in other developing countries which suffer from hard pollution caused significantly by the private companies. We can introduce these most frequent types of ecological destructive practices:

- 1.Textile factory pollution** – waste water is taken directly to the nature, unappropriate use of the employment protection which causes diseases and cancer ( textile factories in China, India (Punjab).
- 2.Mining pollution** – destruction of the ground water, deforestation of the rain forests (Ecuador, Indonesia)
- 3.Agriculture production** led by highly toxic pesticides, which have been even ban in Europe and USA ) cotton field in Punjab, bananas growth in Africa and Latin America, flower farms in Kenya)..
- 4.Unappropriate recycling of the electro waste** in developing countries- contamination of people, rivers, fields. Chinese town of Guiyu in Guangdong Province is the largest e-waste dumping ground for the world. The pollution has made Guiyu unable to produce crops for food and the water of river is undrinkable.<sup>4</sup> These events are happening regardless on predictions, that water scarcity will become the source of future wars and conflicts in developing countries.<sup>5</sup>

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<sup>2</sup> FRYNAS, G.J. 2012. Oil in Nigeria: Conflict and Litigation Between Oil Companies and Village Communities, 2000, Germany: Munster Verlag, 330 p., BBC, co Guardian,co. *Nigeria oilspills: Shell rejects liability claim* <<http://www.bbc.co.uk/news/world-africa-19905694>>. Accesed 2012 October 24.

<sup>3</sup> AMAZONIA: The Awajún people's struggle to protect their ancestral territory. <<http://perspectives.apps01.yorku.ca/2010/08/19/amazonia-the-awajun-peoples-struggle-to-protect-their-ancestral-territory/>>. Accesed 2012 October 26.

The use of these practises is enabled through expansion into the countries with the absence or only minimal environmental and consumer legislation.

Another important social consequence is the downloading of the job offer to the headquarters of the corporations. Small and medium-size businesses become uncompetitive with the advent of multinational companies or at least have big problems to remain on the market. Structural unemployment is the result of the mismatch between demand on the regional or local labour market and the skills of workers. The unemployed may be disqualified by lack of knowledge, but also by the costs of commuting and moving to regions with corresponding labour supply. Companies often prefer fixed-term contracts, prevent the existence and functioning of trade unions and maintain with employees substantially asymmetrical relations. Such appointments cause severe job insecurity and increased competition among individuals. Unemployment is also increased by technological innovation thus the people become redundant. Long-term unemployment significantly threatens self-assertion on the labour market and can lead to the undermining of social status and identity of the person in the society, outbursts of discontent, violence, extremism, street protests and even to the threat to democracy. It is a circular movement of reproducing social exclusion.

If the individualized and isolated individual is excluded from the labour market is after excluded also from other social circuits and from the civil society and its political participation is undermined. Along with the privatization of public services and reducing of the social network is the individual exposed fully and unprotected to the market influences.

P. Bairoch introduces six adverse social consequences of the globalization:<sup>6</sup>

1. Massive structural unemployment
2. Inequality in the distribution of benefits
3. The growth of employment insecurity
4. The decline of low qualified workers
5. The cancellation of public services
6. Reducing of the social network

According to Z. Bauman globalization increases the potential of technical and economic opportunities for the minority of people and their potential negative consequences for the majority. Exclusion affects the social life as a whole, threatens the social solidarity and competition reduces social solidarity.<sup>7</sup> P. Elkins points then out the context of the so-called high-risk contexts that are increasingly globalized. Global problems are mainly consequences of the industrial production of risks, especially due to the expansion of armaments with excessive capacity of destruction, further they represented consequences of the mass global poverty, the continued environmental destruction, repression of human potential and restricting of human rights. Absolute and relative poverty does not only cause hunger and diseases, but also the disintegration of the family and the rise in crime and violence. If the natural resources are converted from their primary purpose to serve as a devices of survival into the industrial raw materials, traditions' degradation occur, community is broken and forced migration outbreak, which creates further social and environmental problems.<sup>8</sup>

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<sup>4</sup> SPENCER, R. Chinese town where old presents go to die.  
<<http://www.telegraph.co.uk/earth/earthnews/3319968/Chinese-town-where-old-presents-go-to-die.html>> Accesed 2012 September 6.

<sup>5</sup> HERNANDÉZ, E., N. Water Security Conflicts: A Regional Perspective.  
<<http://smallwarsjournal.com/jrnl/art/water-security-conflicts-a-regional-perspective>> Accesed 2012 September 6.

<sup>6</sup> BAIROCH, P. The constituent economic principles of globalization in historical perspective: Myths and Realities, *International Sociology*, Vol. 15, No 2, June 2000, pp. 197-214, ISSN: 1461-7242.

Other major negative effects of economic globalization represent the widening of social inequalities, the gaping gap between rich and poor, both within nation states and among states. "For example, today the richest countries like the U.S., EU and Japan are hundreds of times richer than the poorest countries like Ethiopia, Haiti and Nepal. While 100 years ago, this ratio was 9 : 1. If the ratio of the GDP of Luxembourg - state with the highest per capita income on earth to the state with the lowest GDP -i.e., Guinea Bissau is 267: 1, then 30 years ago, shortly after the beginning of globalization this ratio between the richest and poorest country, i.e. . between the U.S. and the Bangladesh was 88:1. Billionaires of this world, about one thousand people, own together more than the poorest 2.5 billion people. By the contrast, in Africa, almost half of the population lives on less than \$ 1 per day..<sup>9</sup>

In response to the negative social effects of economic globalization the global civil society is strengthening, and new market and educational ideologies and strategies are formed - e.g. the concept of the corporate social responsibility, green economy or global education. Antiglobalization and alterglobalization movements arise and protest against globalization which is designed just for the profit of the minority and strong business actors and which is driven by the capital liberated from all limitations of the social responsibility. There are more and more frequent claims against globalisation which is characterized by unlimited speculation, unfettered financial transactions, which is formed by an narrow elite class and whose central ideology is neoliberalism, representing the free market, privatization, deregulation and atomistic individualism.

## Conclusions

This paper introduces the most important macro geographic and social impacts of the economic globalization. Due to the economic globalization, there are significant geographic shifts in the economic production. Factories and working opportunities have moved to the countries that have long been found in the industrial periphery. At the same time globalized cities arise, characterized by know-how centres and directorates of the corporations.. In the geography of the emerging metropolis, countries and globe, the social polarization may be recorded. Especially on the edges of the cities arise the ghettos of unsuccessful and immigrants. Differences between the rich and poor increase constantly. Capitalism is becoming more predatory and the hunt for profit is disengaged from all responsibility. Corporations of developed countries produce their products without any liability, often even with child or slave labour, as the key factor for consumer choice remains the price. But everything has its price. Products are cheaper but global pollution is increasing, developing states are suffering water stress because of the endless founding of the cotton fields or because of using more water for the industrial purposes instead of providing the sustainability of the region. Water security conflict occur and are predicted to become the source of the future wars. However, the consumers still pay the difference, as the amount of the development aid increases constantly as well as migration pressures and security expenditures.

<sup>7</sup> BAUMAN,Z. *Globalization. The Human Consequences*, New York: Columbia University Press, ISBN: 978-0231114295.

<sup>8</sup> ELKINS, P. *A New World Order*, London: Routledge, 1992, ISBN 0-415-92113-9.

<sup>9</sup> RAVENHILL, J. 2007. *Global Political Economy*.Canberra: Oxford University Press, p. 315., ISBN 9780731531479

Multinational corporations stand for a new kind of power, which is extracted from the influence of governments, while significantly forming their decision. Geographical flexibility allows corporations to move whenever the production to another country which offers more favourable conditions. Job insecurity, the need for maximum flexibility and maximum performance notes negatively the life of the individuals and is one of the important factors behind the family crisis in Western societies. Job loss brings a loss of prestige also in other areas. The family and values are subordinated to the hunt for profit and to the work engagement.

## **References:**

- AMAZONIA: The Awajún people's struggle to protect their ancestral territory.  
<<http://perspectives.apps01.yorku.ca/2010/08/19/amazonia-the-awajun-peoples-struggle-to-protect-their-ancestral-territory/>>. Accesed 2013 January 13.
- BAIROCH, P. The constituent economic priciles in of globalization in historical perspective: Myths and Realities, *International Sociology*, Vol. 15, No 2, June 2000, pp. 197-214, ISSN: 1461-7242.
- BAUMAN,Z. *Globalization. The Human Consequences*, New York: Columbia University Press, ISBN: 978-0231114295.
- BECK, U. *The power in the global age, A New Global Political Economy* , Polity, 2006, ISBN 9780745632315
- ELKINS, P. *A New World Order*, London: Routlegde, 1992, ISBN 0-415-92113-9.
- FRYNAS, G.J. 2012. *Oil in Nigeria: Conflict and Litigation Between Oil Companies and VillageCommunities*, 2000, Germany: Munster Verlag, 330 p., BBC, co Guardian,co. *Nigeria oilspills: Shell rejects liability claim* <<http://www.bbc.co.uk/news/world-africa-19905694>>. Accesed 2012 October 24.
- HERNANDÉZ, E., N. *Water Security Conflicts: A Regional Perspective*.  
<<http://smallwarsjournal.com/jrnl/art/water-security-conflicts-a-regional-perspective>> Accesed 2012 September 6.
- MACKINNON, D, CUMBERS, D. 2007 *An Introduction to Economic Geography, Uneven Development and Place*, London: Pearson Education Limited, 353 p.  
ISBN: 978-0131293168
- RAVENHILL, J. 2007. *Global Political Economy*.Canberra: Oxford University Press. 528 p,  
ISBN 9780731531479
- SCHOLTE, J.. A. 1997. „The Globalization of World Politics. In: *The Globalization of World Politics: An Introduction to International Relations*. Eds. J. Baylis, S. Smith. Oxford: Oxford University Press, 13-30, 1997,ISBN 0199297770
- SPENCER, R. *Chinese town where old presents go to die*.  
<<http://www.telegraph.co.uk/earth/earthnews/3319968/Chinese-town-where-old-presents-go-to-die.html>> Accesed 2012 September 6.

# An Emergent System for the Effective Management of Student Access and Throughout Rates

Valindawo M. Dwayi<sup>1</sup>

## **Abstract:**

Walter Sisulu University (WSU) introduced the exclusion policy in 2011 as a means of managing the escalating number of students who spend many years in the system without completing their courses of study. This policy was in part as a result of the institutional efforts to improve the throughput rates which were still below the norm at the time and against the limiting funding regime, which no longer funded higher education based on the number of registered students but also on projected success and graduation rates. That this policy was not necessary is not the subject of this paper but whether this policy, aptly called G 7, was adequate to manage effectively student success and graduation rates against the complex issues of student learning in an emerging economy, coupled with the value of academic development, is the focus of the analysis that I am attempting to provide in the subsequent sections of this paper. Three years after the advent of this policy, its implementation seems to surface how this newly merged university in South Africa is still grappling with how to manage student appeals against one critical issue, whether the university could be said to have been ready to handle the matter of throughput rates the way that WSU does by means of G7. What seems to be a contested issue is whether WSU made adequate sensitivity and responsibility to adopt such a mechanism without a clear support system as in the clearer and institutionally owned throughput implementation procedures, especially in the environment that is seriously challenges by socio-economic factors expressed as abject poverty, high unemployment and escalating inequality levels.

## **Keywords:**

Education, teaching, evaluation, poverty

These are the issues I am trying to address in the subsequent sections by analysing how the two versions of the institutional throughput strategy indicate the emergence of the new system of managing teaching and learning at WSU. The paper revolves around the research question, what could be the key considerations in managing student access for success without defeating the ideals of the transformative agenda of higher education and in the context of the human resource development strategy. The paper tries to answer this question by describing how student access for success, based on a chosen case of WSU, is measured and assessed in the South African university system as part of the new dispensation of linking quality with student enrolment planning and finance management. In this description, the limitations of focussing only on the exclusion policy, against many factors that determine throughput rates, are briefly outlined to argue the need for a comprehensive throughput strategy in order to intervene in the current impasse of increased student access but low throughput rates. Secondly, I review the two version of the

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institutional throughput strategy to highlight the need for a comprehensive and effective approach to the matter of managing student access for success, where success must be measured by means of the successful placement of students in the labour market, more so given the context of WSU.

## **Higher Education and Student Performance Indicators**

The G7 Rule/Exclusion Policy at WSU has brought some crisis during registration time and 2013 was not exempted from this continuing situation, based on the following circular from the Office of The Administrator, 1 February 2013,

*"The Office of the Registrar will facilitate the establishment of a standardized framework for the Appeals Process in all faculties. Students who were not informed last year that G7 applies to them can still lodge appeals through the relevant Faculties. The December results will in future be communicated to all students before the end of the year so that if the rule G7 applies they will be notified timeously; (WSU, 2013b).*

The following two clauses constitute subsections of WSU G7 (WSU, 2013a, 51-52):

G7.1. A student who does not obtain the required number of credits to proceed to the following level of study, as prescribed in the rules of progression of the relevant programme, will not be readmitted to the University on academic grounds.

G.7.2. A full-time student who fails a course twice will not be readmitted to that course provided that the Head of Department (HOD) may, if the course is a a prerequisite or a final course needed for the degree/diploma purposes, require the student to satisfy other specific academic requirements before allowing the student to register for the third time.

In the backdrop of this G7 one can draw from Scott, Yeld & Hendry (2007) who identify huge disparities in the whole higher education sector, with the national trends in student academic performance indicating that only 15% of students graduate on time in a three year qualification; 25% of students are able to complete their programmes after 5 years of registration; 35-45% after 5 to 7 yrs; 50% never complete at all; and only 5% of the African youth constitute such completion rates. Considering that South Africa, as the emerging economy, has only 10% of its 18-24 year olds participating in higher education, which translates into a shortfall of 90 000 students, against a compelling case of 50% drop out rates annually in year 1, four million unemployed youths, with about 60 000 of those being graduates, this then poses a very hazardous situation if not addressed accordingly. This picture poses a serious challenge in explaining the inefficiency patterns at such universities as WSU.

**Table 1: Three Year Performance Targets for WSU as approved by The Ministerial Statement on Student Enrolment Planning 2012**

| Performance Indicator  | National target | 2011 baseline | Target 2012 | Target 2013 | Target 2014 |
|--|-----------------|---------------|-------------|-------------|-------------|
| Success rate (the ratio of full time equivalent diploma and degree credits to full time equivalent enrolments) | 80.0%           | 60.0%         | 68.0%       | 73.0%       | 75.0%       |
| Graduation rate (the ratio of headcount graduates to headcount enrolments)                                     | 25.0%           | 18.0%         | 18.0%       | 18.0%       | 22.0%       |

Table 1 above indicates the performance targets for WSU over a three year period (2012 to 2014) based on the ministerial approved student enrolment planning 2012. While the national targets are clearly set at 80.0% and 25.0% respectively for student success and graduation rates, it is clear that WSU will still struggle to achieve these targets based on the 2011 baseline indicator. Part of this institutional planning process is therefore the ministerial commitment of R75 million for 2012-2014 in the form of a teaching development grant to WSU, which is 5.5% share of the national allocation over the same period, for improving the current performance. One of the assumptions of the WSU enrolment planning is that student success and graduation rates will improve as a result of this funding, hence the indicated targets.

On the other hand, the sector view is that there are possible unintended consequences if these ministerial targets and commitments are not addressed accordingly and thus managed effectively, namely,

- Increased student access, without improving the performance of the sector will contribute to the loss of almost a quarter of a million students from every years intake;
- The pressure for throughputs (expressed as G7/Exclusion Policy) will continue to pose the danger of conscious or unconscious acceptance of the current performance patterns; the lack of belief in improving learning; and the lack of convincing strategies for effective management of teaching and learning; and
- Failure in addressing both points will be defeating the aspirations of young people who would like to realise their potential through higher education, which is the first principle of the White Paper III (DoE, 1997) for the transformation of higher education in South Africa.

### The Need for Social Responsiveness

The South African government's medium term strategic framework<sup>2</sup> (2009-2014) identifies the following three (from five) priorities, all of which have linkages to the challenges of human resource development, with immediate implications to the value and purpose of a university:

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<sup>2</sup> Medium Term Strategic Framework, [www.thepresidency.gov.za](http://www.thepresidency.gov.za)

- a. The transformation of the economy to create decent work and sustainable livelihoods.
- b. The implementation of a comprehensive rural development strategy, agrarian reform, and measures to ensure food security.
- c. The provision of universal, affordable education, which empowers our people and promotes development.

At a provincial level (Eastern Cape), where WSU is located, the review of the ten year plan (Provincial Growth and Development Plan (PGDP) (2004-2014) by the Eastern Cape Socio-economic Consultative Council (ECSECC) reveals that the developmental challenges in the province still persists, and unfortunately along female gender, black population and rural communities. The review states that

*"while there have been improvements in some key socioeconomic indicators since 2004, the PGDP has not yet had the desired impact on the lives and wellbeing of people in the Eastern Cape. While poverty has reduced marginally, nearly seven out of 10 people are still living in poverty. Service delivery indicators such as water and sanitation show positive movement, but there are massive backlogs across a wide range of socio-economic measures<sup>3</sup>".*

These developmental imperatives then have a direct bearing to WSU which needs to be innovative about, and responsive to, its local challenges; a community engaged university which is embedded in the social-cultural developmental aspects of its community. Such responsiveness should be addressed by means of the quality of the knowledge the university generates; the habits of critical thought it institutionalizes and inculcates in its graduates, and the values of openness and democratic governance it promotes and demonstrates (Sawyer, 2002). Against the performance targets as outlined above, the issue of organizational efficiency in general and the effective management of teaching and learning, in particular, become the imperative.

## Throughput Management Strategy, the Emergent System

The reasons for low throughput rates in higher education are well documented, namely by Berg and Hoffman (2005), at international level, and by Scott, Yeld and Hendry (2007), at local level. The WSU Throughput Management Strategy was first conceptualised in 2006/07 as part of the academic development attempts to provide a comprehensive bouquet to support student access for success. Central to its conceptualisation was Volbrecht and Boughey (2004:58) description of academic development as 'an open set of practices concerned with improving the quality of teaching and learning in higher education and training', which also needs to be addressed within the sphere of institutional policy and strategy. In fact, Scott, 2009, (21-49) maintains that the primary challenge of academic development is to continue 'strengthening the academic and professional foundations of its work, at the same time as taking forward the educational development agenda in concrete forms'.

Therefore, the next two subsections outline how the WSU Throughput Management Strategy, which was also designed along the systems process approach (Banathy, 1992), would serve as an institutional change management model for improving teaching and learning and thus constitute the emergent system for the effective management of

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<sup>3</sup> Assessment of the Eastern Cape Provincial Growth and Development Plan, [www.ecsecc.org](http://www.ecsecc.org)

throughput rates. The systems process model was used as a frame of reference to describe and analyse the institutional flows with regard to input-throughput-output variables that manifest in current throughput and graduation rates at programme/course level, and thus serve as profiling indicators (for programmes/curriculum, staff and students) that require some form of intervention. Also informing the strategy formulation were the relational aspects of the model within the systems model of change (Felkins, Chakiris, and Chakiris, 1993), whereby change is framed as a holistic, homeostatic process that involves many interdependent components, cyclical patterns, and multiple conceptual relationships of effective resource utilisation, alignment and unity of systems, and thus the transformation of teaching and learning as the ultimate results.

### **WSU TMS Version 2011/12**

The WSU TM Version 20011/12, developed in 2006/07, emerged at the time when WSU, newly merged in July 2005, was developing from the fragmented and ad hoc approach of legacy institutions to the integrated approach by means of linking academic development to higher education planning and development.

**Diagram 1: WSU Methodology for Improved Student Throughputs**

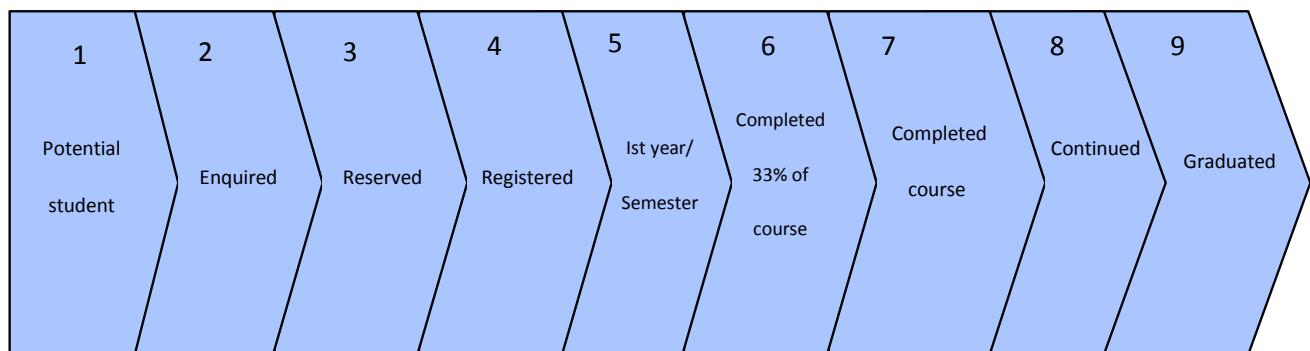


Diagram 1 above on the WSU Methodology for Improved Student Throughputs portrays the integrated activities that ideally characterize how the student navigates his/her learning years from entry to the university and up to graduation. The strategy was designed around two critical questions that seek to link the ideal student learning journey with the institutional value chain:

- a) What are the value enhancers for, versus value inhibitors in student access, progression and graduation as the learner embarks on the journey to and through WSU programmes?
- b) What could thus be the institutional access, retention and throughput recommendations that should shape both the student learning journey and the business value chain?

Through this approach, it was felt that student access for success need to emerge particularly as a result identifying key structures/elements at each point of the learning value enhancement processes. Towards answering these critical questions, the Centre for Learning and Teaching Development, which was the driver of this strategy, started a WSU

Nuffic-NPT Project4, (WSU, 2012), which was implemented at this university between 2007/08 to 2011/12. Through this project, key university structures embarked on institutional research activities in line with the need for the institutional responsiveness to the labour market, by,

- Firstly, identifying what are the potential value inhibitors to the quality of student learning, and according to the discrete phases of student learning journey along the key points in the business value chain.
- Secondly, identifying how to translate those inhibitors into value enhancers.

From this approach, the following three higher education research studies were undertaken,

- a) The throughput study sought to identify and explain how students are progressing in the system by identifying the critical factors in student performance.
- b) The tracer study sought to identify and explain when and what happens to the general WSU learner after her/his completion of university studies.
- c) The employer study tried to assess the perceptions and experiences of the WSU potential employers about the quality of WSU programmes after they have recruited the students.

In this approach, and apart from the tracer study, which is yet to be completed, the throughput study would give input about the current student performance results while the employer study in particular would give input of the outside world about the quality of student learning. Both studies would provide a critical input for the academic programmes and support services, by identifying, for instance, which part of the curriculum and which courses should be changed or further developed in line with value inhibitors. These analyses gave input about the objectives of academic programs and made clear where changes were necessary. Especially the employer study demonstrated that students needed different skills than were trained at WSU. The changes of learning objectives were made effective in the curriculum and are now being implemented in the modules, especially in the School of Engineering. During the NPT project this was followed by several other workshops on doing these kinds of studies, but also on how to interpret the information gathered from these studies on curriculum development level, management level and teaching level. Through these project activities, the different phases of student learning and the business value chain could be further crystallised, which led to the revision of the strategy into Version 2014/15.

### **WSU TMS Version 2014/15**

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1. *The WSU Nuffic Project 2011/12, code named NPT ZAF 237/267, was funded by the Netherlands Organisation for International Cooperation in Higher Education (NUFFIC). The project goal entailed capacity building of the Centre for Learning and Teaching Development and the Faculty of Science, Engineering and Technology to be able to design and implement innovative and responsive academic programmes for improved throughput rates at Walter Sisulu University (WSU).*

Appendix A provides a snap shot of WSU Throughput Management Strategy, Version 2014/15. This version, adapted from the Gates Foundation's System for Student Success Model, portrays not only the potential hazards to student learning journey and along the business value chain, but also the key variables that can become value enhancers and also what could be the mechanisms for sustaining those value enhancers. Those inhibitors at progression, completion and employment phases of the chain were derived from the throughput, tracer and employer studies as briefly explained above, while those of the prior phases indicate the WSU experience as also applies in the South African situation in general. What is key about the Preparation and Employment Phases of the chain is that they complete the input-output phases of the systems process model as also briefly outlined above, with the requisite monitoring and reporting of these phases both inputting to the rest of the phases, especially the Progression and Completion Phases. Also, the Preparatory and Employment Phases indicate the role of the community in determining the quality of students that register at WSU programmes, and how WSU, in turn, needs to be responsive to such communities by improving the quality of her programme offering, which should be career-oriented, and thus contribute to the regional development of the local communities. This systems process approach has a strong bearing then not only in terms of students, but also the curriculum, pedagogy and the role of academic leadership and management, which are described below as the momentum strategies of the framework. These elements constitute what I am proposing as the necessary conditions for the proper implementation of G7/Exclusion Policy at WSU.

a) *Element 1: Student Data Management System*

WSU cannot afford to have 50% of her first year students dropping out during their first year (read Section II) above. What needs improvement as part of this element, and also as reflected in the Preparatory and Connection Phases of the Value Chain, are the following key activities,

- i. Clarifying what the university already knows about its potential and first year students.
- ii. Improving the student profiling systems and linking those to the institutional management system that must also be decentralised to the coal face of teaching and learning. Both student at risk and high risk course must be identified as part of informing immediate interventions, all at student, delivery and programme levels. Credit requirements for students must be clarified upfront, including the regular explanation by means of continued academic advice.
- iii. Specific evaluative data should include the following categories, strict monitoring and tracking of student performance; evaluation of teaching and programme reviews, management of the quality of assessment tasks, all related aspects for the necessary interventions for improving student success.

The student data management system should then serve as the basis for the next three momentum strategies.

b) *Element 2: The Quality of Student Engagement*

The quality of student engagement should constitute the main feature of the Progression and Completion Phase, which according to the systems process model, are the

throughput/transformative elements of the inputs into outputs. Engagement here then refers to the actual learning and teaching interactions, assuming that the quality of curriculum and its delivery, including the necessary support systems, are in place. As a momentum strategy, WSU needs to adopt student centred learning with clear commitments to outcomes based education and problem based methodologies. The developmental needs of the Eastern Cape Province should constitute the basis of the curriculum whereby students are then trained important aspects of critical citizenship and thus can add value in developing the local communities. Use of technology would thus be very important, especially that WSU needs to strategically position herself as the constructive member of the knowledge economy through the quality of the graduates it should produces.

c) *Element 3: Community Relevance/Responsiveness*

Linked to the quality of student engagement would therefore be community responsiveness as the important element in the throughput management system. Given the WSU context, students should not just complete their studies but be able to find or create jobs; they should be able to realise their potential through higher education. WSU cannot afford to contribute towards the current 60 000 graduates who are unemployed (read Section II above). As a momentum strategy, community responsiveness could entail adopting and consolidating such mechanisms by ensuring that there are advisory boards in all academic programmes; that each academic department has community engagement projects, particularly with the local high schools and in gate keeper subjects like science, engineering, technology, mathematics and accounting; that each academic programme is not simply based on the needs of the local community but is also familiar with the standards of the industry and thus can develop the required attributes for employers. These requirements would then have a strong bearing on the quality of academic leadership and management for each of WSU programmes.

d) *Element 4: The Quality of Academic Leadership and Management*

An all encompassing momentum strategy for the effectiveness of the first three would therefore be the quality of academic leadership and management. Critical issues here would be the ownership of student performance data and the identification of the intervention programmes where such performance is not according to programme plans; the corrective action plans for the design and delivery of the curriculum in terms of target norms and standards; the funding of educational research projects to fill in the gaps as described in the case of the NUFFIC-NPT project above, etc. Academic leadership and management as the agency for academic development would be very instrumental whereby their mandates and responsibilities are clearly articulated to the expected performance standards for the whole university.

Moore and Lewis (2003, 13) highlight that the key question in managing higher education today is whether it is possible to marry effective management and intellectual collegiality in the project of institutional adaptability generally. Moore, (2005:98) observes that there is a need for skilled forms of academic management at middle management levels....who are able to steer initiatives from an informed position, and who are able to negotiate the institutional conditions needed for reforms to succeed". According to Fullan & Scott, 2009, higher education and training needs practical reasoning/responsible judgement, the ability to apply change knowledge for teaching and learning and evidence-based inquiry, through integrating the collegial, developmental and advocacy cultures of the academy. In order to do this, the principles of being a visionary, empowerment and a learning leader are very critical (Locke, 2004) for successful academic leadership and management.

With these elements in mind, the current version of the WSU Throughput Management Strategy needs to be developed within the ideals of critical and humanistic values for each of WSU students. From the academic management and leadership point of view, it also needs to be seen as a symbolic manipulation of educational processes for improved throughputs, particularly how this strategy derives from institutional values for a responsive university within the national social reconstructive agenda.

## **Conclusions and Recommendations**

As explained in this paper, the WSU Throughput Management Strategy, emerging from a multidimensional way of addressing student success and graduation rates, seeks to build on the integrated educational philosophy of empowerment and self determination. Such a philosophy needs to be clearly defined along the institutional business value chain, with students' quality of learning experience to be realisable by means of a clear program of action. The programme of action needs to be emergent from the levels of academic disciplines and delivery programmes before it is realisable by means of institutional targets of 2014 as required by the national Ministry of Higher Education and Training.

While resource provisioning (the amount of R75 million that the ministry of higher education allocates to WSU for 2012-2014 as a means of improving the current success and graduate outputs) serves as the necessary condition for improving the current success and graduate outputs, such a condition could perhaps be sufficient only when individuals and the collectives in such institutions as WSU are able express their leadership in order to translate the current funding into demonstrable success. The matter of implementing G7/Exclusion Policy should not be treated in purely mechanistic and rational methods, given the complexity of the developmental issues at hand. The success of implementing the current Exclusion Policy, and thus the WSU Throughput Management system, should be measured against the actual programme completion and employment rates, given the socio-economic challenges facing the ordinary WSU student. That is where the value of educating the ordinary WSU learner should emerge, in the completion and employment phases. Therefore, the specific momentum strategies as outlined in this system needs to be considered as important elements of managing teaching and learning; the proper management of the four aspects of student data management system, student engagement, community engagement and academic leadership and management.

## **LIST OF REFERENCES**

- Assessment of the Eastern Cape Provincial Growth and Development Plan, [www.ecsecc.org](http://www.ecsecc.org)
- Banathy, B. (1992). A systems view of education: Concepts and principles for effective practice. New Jersey: Englewood Cliffs.
- Berg, M.N. & Hofman, W.H.A. (2005). Student success in university education: A multi-measurement study of the impact of student and faculty factors on study progress. *Higher Education*. (50) 413-446.
- DoE (Department of Education) (1997). White Paper III: A Programme for The Transformation of Higher Education. Pretoria
- DoE (Department of Education) (2001). National Plan of Higher Education. Pretoria
- Felkins, P.K., Chakiris, B.J. and Chakiris, K.N. (1993). Change Management: A model for organizational performance. Quality Resources, New York.

Fullan, M. And Scott, G. (2009). Turnaround leadership for Higher Education. John Wiley & Sons, California.

Locke, W. (2004). Integrating Research and Teaching Development Strategies: Implications for Institutional Management and Leadership in the United Kingdom. Higher Education Management and Policy, Vol. 16:3: OECD

Medium Term Strategic Framework, [www.thepresidency.gov.za](http://www.thepresidency.gov.za)

Moore, R, (2004). Quality as Adaptive Capital: Exploring the Implications for Middle-level Management Capacity. In: H. Griesel (Ed) Curriculum Responsiveness: case studies in higher education. Pretoria: SAUVC.

Moore, R. and Lewis, K. (2002). Curriculum Responsiveness: The implications for Curriculum Management. Pretoria: South African Universities Vice-Chancellors Association. pp. 1-21.

Sawyer, A. (2002). Challenges facing African Universities. Selected Issues. Unpublished Study Presented at the 2002 ASA (African Studies Association) Conference. p.34

Scott, G. Coates, H., Anderson, M. (2008). Learning Leaders in times of change. Academic Leadership Capabilities for Australian Higher Education. University of Western Sydney and Australian Council for Educational Research.

Scott, I. (2009). "Academic development in South African Higher Education." Bitzer, E. (ed) Higher Education in South Africa. A Scholarly Look Behind the Scenes. SUN Media, Stellenbosch.

Scott, I., Yeld, N. & Hendry, J. (2007). A case for improving teaching and learning in South African higher education. Higher Education Monitor No. 6. Pretoria: Council on Higher Education. <http://www.che.ac.za/documents/d000155/index.php>

Volbrecht, T. and Boughey, C. (2004) "Curriculum responsiveness from the margins? A reappraisal of Academic Development in South Africa." Griesel, H. (ed) Curriculum Responsiveness: Case studies in higher education. SAUVC, Pretoria.

WSU (Walter Sisulu University), (2007) Nuffic NPT 237/267 Project 2011, Mthatha

WSU (Walter Sisulu University), (2013a). General Prospectus 2013, Mthatha.

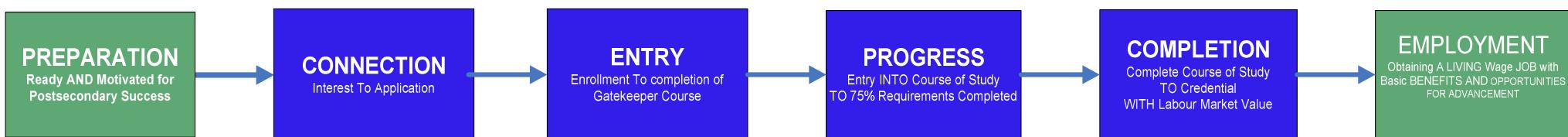
WSU (Walter Sisulu University), (2013b). Internal Memorandum, Office of The Administrator, Mthatha

## Appendix 1

Value Inhibitors

- Drop out of high school
- Chronically behind grade level with insufficient pass mark towards university entrance requirements
- Little or no exposure to postsecondary education as a financial option and potential benefit
- Low value placed upon educational attainment by family, other role models
- Do not apply to University
- Delayed entry to University
- Poor career counselling leads to under enrolment, poor matching and failure to obtain financial aid for which they qualify
- Poor academic preparation
- In university, 60% referred to developmental education, only 30% ever take subsequent university level courses
- Fail to enrol/pass Gatekeeper courses per academic programme(i.e. entry-level Mathematics and English)
- 75% of low-income students need to combine work and university education; work more than 20 hours/week, schedule changes
- Part-time enrolment may mean slow progress, loss of momentum
- Life happens/complex lives means many disruptions, stop out or drop out
- Limited advising leads to credit (and debt) accumulation not matched to degree attainment
- Leave with credit needed for degree except for collage level math
- Transfer without credential
- Credential doesn't garner family-supporting wage job or isn't "stackable" to career that does
- No network with employers
- Insufficient job search, resume writing, interviewing skills
- Lack off dependable transportation or supportive service such as child care
- Lack of mentoring or coaching during the job search process and along a career path

Student Progression



- |   |  |   |   |  |
|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>High school and postsecondary curriculum alignment including dual enrolment and access to AP/IB programs</li> <li>Career, collage, and financial aid counselling</li> <li>SATAP prep</li> <li>Coaching towards high academic expectations</li> <li>Job shadowing/internship opportunities</li> </ul> | <ul style="list-style-type: none"> <li>Consistent university and career ready standards</li> <li>Foster university-going norms supported by peers and trusted adults</li> <li>Increase understanding of university requirements, application and financial aid processes/improve information, matching and financial aid products</li> <li>Dual enrolment/early university- high school(on-ground, online options), AP credit</li> <li>Take university placement exam in high school</li> <li>Enrolment directly from high school</li> </ul> | <ul style="list-style-type: none"> <li>Diagnostic assessment and placement tools</li> <li>Mandatory "intrusive" advising, attendance, life skills courses, declared courses of study linked career pathways</li> <li>Improved academic catch-up (prevention, acceleration, supplemental instruction, concurrent enrolment, contextualization, and competency-based digital prep)</li> <li>Aggressive financial aid application support</li> <li>Course redesign to go further, faster, cheaper</li> </ul> | <ul style="list-style-type: none"> <li>Innovative programs to incentivise optimal (e.g. high intensity, continuous) attendance</li> <li>Leverage technology to make real-time feedback, intensive advising, accelerated, flexible, and student-centered learning more available</li> <li>Intentional, accelerated, competency-based programs of study leading to credentials in high-demand fields like SETMA and health care</li> <li>Provide emergency aid to deal with unexpected life events</li> </ul> | <ul style="list-style-type: none"> <li>Enrolment in One-stop system</li> <li>Paid internships and local hiring incentives</li> <li>Supervisory training</li> <li>Career and financial coaching toward job retention and advancement</li> <li>"Soft skills" training for resume preparation, job search, and interviewing</li> <li>Industry partnerships with postsecondary to re-enter employment pathways.</li> </ul> |
|---|--|---|---|--|

Momentum Strategies,

Student data System  
(From Day 1 to completion)

Student Engagement

Leadership Focused on Completion  
(Faculty, administration, trustees)

Community Partnerships  
(From readiness<sup>139</sup> to gainful Employment)

# **An assessment of hospitality management students' experiences of Work-Integrated Learning(WIL):The case of Walter Sisulu University(WSU), South Africa**

**Nombeko Dwesini<sup>1</sup>**

**Vikelwa Nomnga<sup>2</sup>**

## **Abstract:**

This exploratory research assessed hospitality management students' experiences of Work-Integrated Learning(WIL) while placed in different hotels across South Africa. The context of the research is the hospitality management academic department (Buffalo City Campus) at Walter Sisulu University(WSU) in South Africa. While there is a considerable body of work on Work-Integrated Learning (WIL) in general there is however very limited research specifically on how hospitality management students experience the WIL program. Both the qualitative and quantitative approaches to research were utilized to collect data from students returning from industry. Questionnaires with open-ended and close-ended questions were distributed to thirty-nine hospitality students. The results of this research clearly showed that students have both positive and negative experiences of WIL. It is hoped that the findings of this project will contribute in improving the WIL program in this department. This small- scale study will later on be rolled out to other Hospitality Management Departments in the other two campuses (Mthatha and Butterworth) of Walter Sisulu University.

## **Key words:**

Work-Integrated Learning, hospitality management, students' experiences

## **Introduction**

This exploratory research assessed students' experiences of Work-Integrated Learning(WIL) within the National Diploma: Hospitality Management at Walter Sisulu University(WSU), South Africa. This research project focused on hospitality management students that had just completed their WIL programs. Both the qualitative and quantitative approaches to research were utilized to collect data from students returning from industry. Questionnaires with open-ended and closed-ended questions were distributed to eighty (80) hospitality students. Our efforts to assess students' experiences of WIL was intended to understand how hospitality students experienced learning in the workplace; the challenges they encountered within the work environment; and how they believe their training experiences should be improved. The findings of this study revealed that students have both positive and negative experiences of the hospitality WIL program. It is hoped that the results of this research project will enable the hospitality management department to improve the quality of its WIL program.

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## **Background to the study**

Walter Sisulu University is a comprehensive university that resulted from the merger of two former technikons (Border Technikon and Eastern Cape Technikon) and a traditional university (University of Transkei). In line with its vision which focuses on innovative education, research and community partnerships that are responsive to local, regional, national, and cognizant of continental and international development priorities WSU offers some academic programs that are designed to incorporate periods of required work that integrate with classroom study. This institution has made a clear commitment to implementing and supporting WIL programs that enhance the employability of its students as well as building links with employers.

The National Diploma in Hospitality Management is one of academic programs with a compulsory component of WIL. Spowart suggests that (as cited in Keating, 2012) the vocational nature of hospitality management is ideal to utilize WIL as a method of transferring classroom activities to the workplace. McGlothlin Jr.(2003), agrees that the importance of WIL being part of a curriculum in a field such as hospitality management cannot be overemphasized (as cited in Keating). Students that are registered for the national diploma: hospitality management have to undergo two(2) six(6) months periods of training during which they are placed in hotels throughout South Africa. The first six months is spent in industry during the second semester of the second year of study. The second six months is done in the second semester of the third year or final year of study. The first training is called Module B and trainees are to work in the kitchen, restaurant and housekeeping of the hotel. During the second training which is termed Module C students spend their time at the front office and at the housekeeping department of the hotel.

## **Work-Integrated Learning(WIL)**

The term Work-Integrated Learning(WIL) and Experiential Learning are sometimes used interchangeable in South Africa. At Walter Sisulu University the two concepts mean the same thing. WIL or EL refers to a strategy of applied learning (learning integrated with work) which involves a structured educational programme that combines productive relevant work experience with academic study and “professional reflection” (Council of Higher Education[CHE], 2010). Students are required to undergo a period of on-the-job training as part of their national diplomas. In this way students are given the opportunity to effectively integrate the theory gained in the classroom with the practice and the responsibility of the workplace.

The Work-Integrated Learning Research Unit, based at the Cape Peninsula university of Technology in South Africa uses the concept “work-integrated learning” to describe an approach to career-focused education that has much in common with work-based learning (WBL). What distinguishes WIL from WBL is the emphasis on integrative aspects of such learning. WIL could thus be described as an educational approach that aligns academic and workplace practices for the mutual benefit of students and workplaces (CHE).

WIL is an invaluable experience as it offers students an essential bridge between the theory gained in a university classroom and the realities that occur in the social and physical context of the workplace. The rationale for WIL at WSU is to enhance the students' learning experiences and ensure 'work-ready' graduates. In essence WIL is a partnership between the university the student and the employer. The students are central in this partnership. Consequently it is important to understand how they experience this kind of learning.

WIL from the perspective of students is about job readiness and is a gateway to lifelong learning (Anonymous, 2011). Students are expected to learn not only the technical skills of the chosen profession but also workplace cultural and other transferable skills such as communication, organization, teamwork, etc. that are directly relevant to their employability as well as their ability to have a successful and fulfilling career (Anonymous).

## **Literature Review**

While there is considerable body of work on Work-Integrated Learning(WIL) in general there is however very limited research specifically on how hospitality management students experience the WIL programs. This exploratory research fills this gap. Riley and Ladkin, 1984; Ladkin and Riley, 1996 (as cited in Westhuizen and Kesa, 2010) assert that some of this research has focused on issues relating to career paths and career development. Furthermore Westhuizen and Kesa contend that a key issue in this research has been to attempt to determine the various factors which influence length and development. Casado (1992) focused on the expectations of students on entering employment (as cited in Westhuizen and Kesa). He found in general that students were quite realistic about the realities of the organization. Westhuizen and Kesa assert that findings in their study point to the need to place greater emphasis on the types of expectations students have prior to the placement and more specifically on the impact this would have on future expectations of the industry. There is a limited amount of literature which focuses on students' perspectives in the hospitality management field which justifies this research project. Moreover this project enables the hospitality students to reflect on their experiences of the workplace. Weisz and Smith (2005) argue that reflection on experiences should be central to any WIL program as this facilitates deep learning for students and equips them for the future.

## **Methodology**

A questionnaire with open and closed-ended questions was used to collect data from students returning from experiential learning(industry). The questionnaire comprised of questions which required responses on a 5 point Likert Scale where respondents were asked to rate their levels of agreement (from strongly agree to strongly disagree) to various issues being investigated. Respondents were asked to add narrative comments about their experiences to provide deeper and richer meaning. Recommendations were also sought for future WIL program development. The questionnaire was first piloted to four students and thereafter distributed to the rest of the population. A total number of 39 students participated in the study. Questionnaires were distributed to 30 students who completed their first training (Module B) and to 15 who had completed their second training(Module C). This research sought to gain data about the following issues:

- Whether roles and responsibilities were clearly explained to trainees in the workplace
- Whether trainees were integrated as part of the work team
- How trainees experienced supervision
- Whether trainees experienced any personal development during the training period
- Whether there was an alignment between what they learnt at the university and what was required of them in the workplace
- What challenges did trainees encounter whilst on training
- What students believed should be done differently to improve their experiences of WIL

The students for Module B completed the questionnaires themselves and Module C students were interviewed telephonically by the researchers since they had completed their studies and were not around the university at the time the research was undertaken. Of the population of 50 Module C students 15 responded and of the 30 Module B students 24 responded to the questionnaire.

## **Research findings**

The results from the questionnaires were analyzed using excel and responses were summarized using percentiles. The findings are reported below. Students' feedback about their experiences of WIL were both positive and negative. Students stated that the WIL program met their expectations but there were a few areas of concern. Students need to know exactly what is expected of them if they are to achieve the desired outcomes.

## **Roles and responsibilities**

Regarding roles and responsibilities 66.67% of all Module B students strongly agreed that roles and responsibilities were clearly articulated and explained to them in the workplace while 4.17 % agreed to the statement and 20.83 % disagreed with the statement.

Among Module C students 80% strongly agreed that their roles and responsibilities were clearly articulated and explained to them in the workplace and 33% agreed to the statement. Only 6.67% strongly disagreed with the statement. In their comments the majority of students indicated they received induction on the first week of their training. Among comments received were the following:

Respondent: Everything was explained to us at the beginning of the training and we were given the roster. The only problem is that the roster was not followed. We were sometimes asked to do other people's jobs. Working hours were not normal. I did not have much to say because I wanted to finish the training and graduate.

Another student explained that at the end of the first week they slept at the hotel for one night. The employer wanted them to experience what the guests are experiencing.

Another comment from a respondent who disagreed with the statement:

We were treated like slaves and they were always complaining about the stipend they were paying us. Supervision

When asked how they experienced supervision 45.83% in Module B strongly agreed their workplace supervisors were approachable and available while 37.5% agreed to the statement. 3% were undecided and 4.17% strongly disagreed with the statement.

A respondent who disagreed with this statement: My supervisor had favorites among us. She liked to criticize and make you feel unwelcome. She did not act professionally at all.

In the case of Module C 73.33% strongly agreed and 26.67% agreed that their supervisors were approachable and available. None of Module C students disagreed with this statement.

Respondent: My manager was available all the time. He asked me to call him even if he is off duty if I'm experiencing a problem. All of them were very encouraging. Even if your supervisor is not around someone else would assist you. Everyone was involved in our training including the general manager. I think this is because I did my training in a small hotel.

## **Personal development**

When respondents were asked if they have developed the given attributes during WIL placement they gave the responses in the following table:

|                                      | Module B |       | Module C |        |
|--------------------------------------|----------|-------|----------|--------|
|                                      | Yes      | No    | Yes      | No     |
| Interpersonal communication          | 100%     | 0%    | 100%     | 0%     |
| Self-confidence                      | 100%     | 0%    | 93.33%   | 6.67%  |
| Independent judgment                 | 95.83%   | 4.17% | 93.33%   | 6.67%  |
| Application of theoretical knowledge | 91.67%   | 8.33% | 86.67%   | 13.33% |
| Professionalism                      | 75%      | 25%   | 93.33%   | 6.67%  |
| Desire to continue in this field     | 87.5%    | 12.5% | 86.67%   | 13.33% |

Comments from Module B respondents were:

Now I am more confident that I want to be in the hospitality field more than ever before. I have developed how to communicate with the customers. Before the training I was shy but now I've developed self-confidence and know how to be professional when dealing with customers.

This respondent believes he has developed all the attributes listed in this question.

Respondent: I don't even want to continue with this field because most of the time people think you are a slave. They take advantage of you.

Comments from Module C respondents:

I'm now working in the hospitality industry. Getting a job within a short space of time explains that I acquired the skills required to work in this industry.

Another respondent : At the moment I have a part-time job in this industry. Even if I don't get a job I can start my own catering business.

### **Alignment between what was learnt at university and what is required in the workplace**

All respondents (100%) from both categories responded in the affirmative when asked if they saw an alignment between what was taught in class and what was required of them in the workplace. Comments were:

With regards to the front office everything I learnt in the classroom was real in the workplace. The guest would come in and swear at you and you need to be calm because the customer is regarded as being always right.

### **Performance appraisal**

On the question of performance appraisal all respondents reported that employers do not sit down with them at the end of every month and discuss their performance with them as required. They say supervisors only sign the logbooks at the end of the training period. Respondents say this disadvantages them because they need to get feedback on their performance whilst still on training so they can have time to improve. They say supervisors do encourage them but in very informal ways. One trainee said it would be appreciated if they would get something like sleeping one night at the hotel or even getting a voucher or a certificate of excellence in recognition of your good work. Comment: Feedback was given orally and informally. It has never been in writing.

### **Work-Preparedness Program(WPP)**

The majority of respondents indicated that the Work-Preparedness Program they received prior to leaving the university for WIL helped them a great deal.

Comments: By the time I arrived at the workplace I was alert. I knew what to expect. I knew my rights and therefore would know if I was abused. Part of the WPP we received dealt with student abuse and sexual harassment while on training.

When asked whether respondents experienced difficulties during training the following responses were received:

| Module B |     | Module C |        |
|----------|-----|----------|--------|
| Yes      | No  | Yes      | No     |
| 67%      | 33% | 46.67%   | 53.33% |

Responses show both groups (Module B & Module C) experienced difficulties whilst undergoing training. However more respondents from Module B experienced difficulties than did respondents from Module B.

Respondent: My only difficulty was my supervisor's bad attitude. She did not treat me well. There was lack of communication between management and staff. As trainees we had to find our way around the workplace.

Respondents from Module C: Managers did not have time to look at our work. They heard only from staff members about our performance. I wish they could also be close to us so they know exactly where our shortfalls are.

Another comment: It becomes very stressful to have to look for a place to stay in a place that you don't know. Sometimes you feel compelled to take the placement even if you don't know where you will stay because you want to graduate.

### **How can the WIL experience be improved?**

Respondent: The university should keep on checking on students at least once a month. I also appeal to the department of hospitality at WSU to please remove housekeeping from Module C because it takes a lot of our time which would be utilized for the front office. Most of hospitality graduates look for work in the front office when they finish their studies. So we would like to get more experience in this area.

Another respondent: The university should monitor training by visiting the workplace frequently. There needs to be more interaction between the university and the hotel.

Also the sequence of the rotation is very important. We should start at housekeeping then front office and finally night audit.

Respondents raised the issue of accommodation as the greatest challenge they experienced. They also stated that they feel abandoned by the university when no one from the university contacts them during the first few days or weeks of their training to check how they are settling in.

A suggestion arising from this challenge was that the university could charge students more for WIL registration to cover accommodation expenses for maybe the first week of

their training and pay that money to the hotel. They say it is very difficult to get accommodation in a place you don't know during the first few days of arrival at the hotel.

### **Conclusions and recommendations**

The purpose of this study was to shed light on how hospitality students experienced Work-Integrated Learning(WIL) while placed at different hotels across South Africa. The results of this research clearly show that students have both positive and negative experiences of the WIL program.

#### **Positives**

It is encouraging to hear that all students feel WIL improved their skills generally. Also we found some evidence that students were able to apply the knowledge and skills they acquired in the classroom in their job practices in the workplace. This shows WSU has achieved its objective of linking theory with practice. Students found the preparation they received from the university prior to the training valuable. They are also grateful to the institution and employers for providing them with opportunities for personal development.

#### **Negatives**

However the results revealed some areas of concern that need to be addressed. About 20.83% of students stated that they did not receive induction on arrival at the workplace. These students cannot be expected to do well when they were not welcomed and given the direction on what they are expected to do in the workplace.

The study also reveals the students do not receive enough support from both the university and the industry. In their comments they call for the university to intervene regarding the problem of accommodation.

Evidence shows that trainees had different experiences which could partly be attributed to the fact that they did training in different hotels. For instance some supervisors were supportive and others were not. Finally, now that the views of students have been elicited the next step is for the Hospitality Department at WSU to attempt to address the gaps identified in this study.

#### **Recommendations**

The university should have more interaction with the hotels during the students' training period. As one student advised academics do not need to be there physically. They can frequently communicate with the students and supervisors by telephone or e-mail so that if there is a problem it can be resolved before it escalates.

The university must emphasize the importance of induction and performance appraisal to the employers. It is crucial that students get feedback whilst still doing training so that they can improve their performance.

## **References**

- Anonymous. (2011). Transition to work for onshore international students in Australia: a literature review on the effectiveness of Work Integrated Learning (WIL) models.
- Council of Higher Education. (2010). Universities of Technology- Deepening the Debate. Kagisano No. 7. February, 2010. South Africa: Pretoria.
- Keating, K. (2012). Mentorship of hospitality management students during Work-Integrated Learning. *Asia-Pacific Journal of Cooperative Education*, 13(2), 89 – 102.
- Spowart, J. 2006. Hotel school students' views of their preparation for work-integrated learning: An exploratory study. *Asia-Pacific Journal of Cooperative education*, 7(2), 10 – 15.
- Weisz, M. & Smith, S. (2005). Critical changes for successful cooperative education, in Higher Education in a changing world, *Proceedings of the 28<sup>th</sup> HERDSA Annual Conference*, ( pp.605 – 615). Sydney, 3-6 July, 2005.
- Westhuizen, P. H. and Kesa, H. 2010. Work-Integrated Learning in higher education: Partnerships, a continuing evolution. *Proceedings of the International Research Symposium in service management*, ( pp. 24 – 27). Mauritius, 24 - 27 August, 2010.

# **The implementation of problem-based learning as a preferred teaching methodology: an action-research view<sup>1</sup>**

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**Graham Wright<sup>3</sup>**

## **Abstract:**

The adoption of Problem-Based Learning (PBL) was laudably mandated by the WSU Senate due to the recognised benefits of the PBL methodology as used in the Faculty of Health Sciences at Walter Sisulu University (WSU) over a number of years.

The largest problem for the staff of the School of Tourism & Hospitality (SCOTH) of WSU was that there was a distinct lack of knowledge concerning, firstly, the theory behind the PBL methodology, and secondly, the practicalities of how and when this methodology was to be introduced to the cohort of students. In addition, there was some doubt concerning the adoption of a new and very different learning style by the student body.

Accordingly, a decision was taken that PBL would be introduced to all the 1st year students at the Buffalo City (BC) Delivery site as part of their Lifestyle Management (LSM) offering. This particular approach was thought to offer the best option for a successful introduction of PBL, together with best chances of successful academic recovery if a fallback position was found to be necessary. Given that the facilitator of the subject would be intimately involved in the conception, the presentation of subject material, the collection of support material and of the rewriting of the support material, the evaluation and the ultimate reflection on its success, the progress of the initiation of PBL would be treated as an Action-

Research project and would be logged and notated as such. Following a review of applicable literature and the ensuing analysis, this paper seeks to provide a documented history of the academic foundation to the decisions referred to above, and some insight into how the challenges experienced to date have been met. Progress to date is assessed and some reflections of the acceptance of the PBL methodology are put forward. A tentative plan for future progress is offered together with some proposals on the overcoming of anticipated challenges.

## **Key words:**

Implementation, action-research, teaching, problem-based learning

## **Introduction or “Down the Rabbit Hole”**

Walter Sisulu University (WSU) is a comprehensive university formed from the merger of three institutions originally founded under the (then) apartheid-regime of the Republic of South Africa. Subsequent to the first elections in 1994 with a universal franchise for all South Africans, a new structure was crafted for the tertiary sector of the Education ministry. A number of institutions were merged to take advantage of economies of scale, logically to restructure the sector and to synthesise strategically the strengths of individual institutions while simultaneously compensating for their (perceived) weaknesses. In due course, the

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<sup>1</sup> 5072 words

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University of the Transkei (UNITRA), Eastern Cape Technikon (ECT) and Border Technikon (BT) were merged to form a single ‘comprehensive’ university offering degrees traditionally found at a university and the certificates and diplomas as previously offered by the more technically oriented Technikons.

As might be expected, the merger of three such different educational institutions with quite different qualification and programme mixes was not without challenges. However, with the challenges came a number of benefits. One of these benefits was the adoption of Problem-based Learning (PBL) as the teaching methodology to be preferred throughout WSU. PBL had previously been adopted as a best practice by the medical faculty of UNITRA. In due course, the Senate of WSU mandated that this methodology be to be adopted throughout the university.

This mandate was not without its own set of challenges. In addition to what can best be referred to as “academic inertia” (that is, reluctance to change what had been successful in the past), it became apparent that not only was “research”, per se, almost unknown particularly to the staff members of the former Technikons, changes to teaching methodologies were both unwelcome and unwanted. While there was little doubt that the teaching staff of the former technikons were professionally, trade- and technically-qualified and equipped to facilitate the learning of their students, few if any of them had teaching qualifications. As such, they tended to reproduce that which they had received themselves. The results of such teaching methods were predictable, and perhaps more importantly, repeatable. A degree of comfort had been achieved. To some extent, the same applied to the academic staff of the (former) UNITRA. Although UNITRA had formerly taken on board the activities of the Transkei Teaching College, many of the staff at UNITRA were also without teaching qualifications, although not to the same extent as the staff of the former technikons. Once again, teaching methods had only little evolved from what was originally taught to the academics to what was now been taught by those academics. Again, there was a reluctance to change a working methodology.

The School of Tourism and Hospitality (SCOTH) forms a part of the Faculty of Business, Management Sciences and Law of WSU. Originally a part of the BT sited in BC, it now comprises three delivery sites distributed over some 330 km and has adopted the relevant programmes of the ECT also. Taken as a whole, SCOTH now has over 750 students at various levels, offers diplomas at 3 delivery sites and currently (2013) offers a degree programme at BC. As SCOTH had received the mandate to introduce PBL as a teaching methodology, it became necessary that a pilot course, an initial “run”, of PBL methods should be run as a pilot offering. The subject chosen for this was a 1st year offering, “Lifestyle Management” (LSM). LSM had, to some extent become a “portmanteau” subject in that it had become the home of those academic outcomes that should be taught to new students, but had no logical home in the more traditional academic subjects. For example, personal hygiene, academic literacy, HIV/AIDS (and the avoidance thereof), nutrition, money management and many other issues together aimed at facilitating academic success and minimising the student dropout rate were all facilitated under the very broad heading of Lifestyle Management. Although a registered offering with the ensuing requirement of passing the subject before graduation, it carried no academic credit loading.

After some discussion, and given that the facilitator of LSM, the author, was known as an ‘early adopter’ of new technology and processes, the decision was made that LSM should be the laboratory for the introduction of PBL. Bearing in mind that the facilitator was intimately involved in the said introduction, given that the whole process was to be documented and logged in order to promote subsequent best practise, it was decided to treat the whole project as an Action Research project. Not only would the process be recorded and written up, but also it was thought likely that a number of academic articles would be byproducts of the process. Thus, not only would the learning processes of the student body be facilitated, new skills would be achieved by the academic staff and, as a bonus, a research output could simultaneously be achieved. It was therefore necessary to take the first, very tentative steps.

## **Learning Needed or “The Pool of Tears”**

Only a little was known within SCOTH concerning PBL. Somewhat more was known concerning Action Research. It became necessary to rapidly research the content of both disciplines such that they could be applied for the benefit of the student cohort.

## **What is Problem-based Learning?**

PBL has been used by medical schools for many years. Overton (2012) (and many others) acknowledge that PBL probably started at the McMaster University in Canada in the 1960's. Many medical schools adopted the PBL methodology as it had the best of all credentials – it worked. It worked well! Indeed, it was the very success of this methodology at the WSU Faculty of Health Sciences that led WSU to adopt it as the preferred teaching methodology, university-wide. PBL is currently being adopted by many disciplines, and not just at WSU. For example, Stenden University at Port Alfred very successfully uses PBL as their preferred teaching method. It must be noted that, to begin with, there was been some disagreement over whether or not PBL was a suitable method of education for use by higher education. However, it has become more and more obvious that the preponderance of evidence is weighing the balances down on the side of PBL (Major & Palmer, 2001; Savin-Baden, 1960; Perrenet, Bouhuys & Smits, 2000).

Even with this in mind, it is necessary to query why PBL should be adopted in the first place. Perhaps the best reasons for the adoption of PBL are that it enables students (the primary customers):

- To learn to embrace complexity;
- To find relevance in their learning as it applies to the programme they are following;
- To be prepared for the type of problem-solving they will be expected to use in the work-place; and
- Enhances their capacity for creative and responsible real-world problem solving.

Again, it must be emphasised that PBL is very, very close to what the end-users (the employers) of our products (the students/graduates) require from them. Henry (undated) has it that the similarities between PBL and what it is the employers need form a very close fit.

He gives as examples:

- A willingness to share information and ideas;
- The commitment to work in teams;
- A responsiveness to change;
- The sense of ownership with work and ideas;
- A willingness to take calculated risks, without unwarranted fear of consequences;
- Multicultural experiences and or the ability to communicate in multiple languages;
- The ability to communicate clearly and honestly with peers, with teachers, with administrators, and with experts from other organizations (sic);
- An understanding of business strategy and how to create shareholder value; and
- A commitment to continuous learning and skill development.

## **What are the outcomes of PBL?**

Dreyfus & Dreyfus (1980) offer that, if it is presumed that Problem Based learning is being used correctly, that it is being adopted enthusiastically by the student and facilitated effectively by the lecturer (facilitator, mentor or coach), then the student should move progressively upwards through the seven stages of competence:

The stages are those of being:

- 1. Student

- 2. Novice
- 3. Advanced learner
- 4. Competence
- 5. Proficient
- 6. Expert, and finally
- 7. Master.

The learner can be expected to achieve:

- Greater recall of knowledge,
- Better retention of material learned'
- Interdisciplinary learning;
- Appreciation of the interlinked nature of the tourism industry,
- Research capabilities at a level appropriate to the stage of competence,
- Augmented integration of different areas of knowledge,
- Development of lifelong learning skills,
- Team working skills,
- Improved communication abilities,
- Greater problem-solving abilities,
- Improved motivation of students
- Increased throughput rates for the university,
- Increased student/student interaction, and
- Enhanced student/staff interaction,

All leading to anticipated rewards in terms of better university working relations.

### **How does PBL differ in practice from current pedagogy?**

As may be realised, PBL is very different to the existing methods of material presentation.

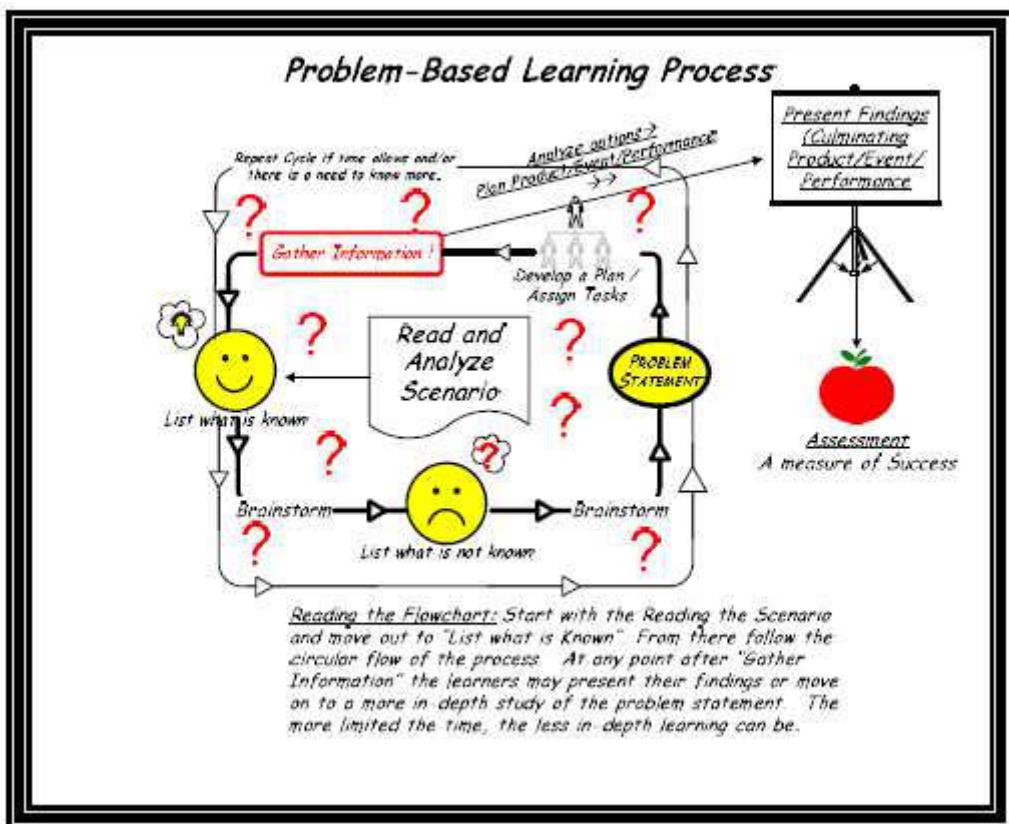
Unfortunately, PBL has an insatiable thirst for time and resources. Further, Overton (2012) is quite emphatic that the content covered using PBL may not allow the amount of material that would be presented to the students in lectures to be similarly presented to small groups.

In terms of visualising the PBL Process, Henry (undated) gives the following (Figure 1) as a schematic presentation of the work process. He also notes that there is room in the small groups for both personality clashes and for individual indolence. Henry cautions that not all students adapt readily to PBL and that some time (and reinforcement) may be needed before all students realise the depth of commitment to the process that they are expected to display.

As can be readily seen, the process is somewhat circular in that it is often not until the student(s) seem to be making progress that they realise that there is a gap (or another gap) in their knowledge base that needs to be filled.

Once that particular gap has been filled, another solution may present itself – or at least, it might, if yet another learning-lack to be filled had not been discovered.

And so on.



**Pic. 1 - Problem- Based Learning Process (adopted from Henry, (Undated))**

### What can help the implementation of PBL?

The student must understand clearly that they are not being left alone to muddle along as best they can. This mendacious accusation will undoubtedly be levelled by those students who are struggling, but it must be countered at every opportunity.

As a staff member, it will quickly become plain that PBL requires a very different kind of input from the lecturer, probably less formal, but by no means less arduous. The staff member truly becomes a facilitator of learning, a mentor, a coach. Questions are to be encouraged and in-depth resolution of problems and challenges must be accommodated. At the same time, care must be taken that the staff member does not become the “go-to guy”, the dispenser of resources or knowledge. The students must do the work themselves – guided by their mentor.

Meticulous record keeping must be the order of the day. A class of 60 is likely to break down into 5 groups of 12 and each group will form its own working team. Each team will need separate, detailed and accurate record to be kept of the progress it makes and of any formative assessments.

Moreover, as the “ill-structured” problems change, so too will the composition of the groups formed to deal with them. To some extent, random selection supervised by a staff member has much to recommend it for otherwise cliques or gangs will form that tend to look inwards and can become very selfish in their attitudes.

### Specifically then, what are the advantages?

- Motivation: PBL has the students become more engaged in learning because they are hard-wired to respond to challenge and because they start to feel they are empowered to have an impact on the outcome of the investigation (Henry, undated).

- Relevance And Context: PBL offers students an obvious and immediate answer to the questions, "Why do we need to learn this information?" and "What does what I am doing in school have to do with anything in the real world" (Henry, undated)? They can see the applicability of their learning to what they will need post-qualification.
- Higher-Order Thinking: The ill-structured problem scenario calls for critical and creative thinking by suspending the guessing game of, "What's the right answer the teacher wants me to find?"
- Learning How To Learn: PBL promotes metacognition and self-regulated learning by requiring students to generate their own strategies for problem definition, information gathering, data-analysis, and hypothesis-building and testing, comparing these strategies against and sharing them with other students' and mentors' strategies (Henry, undated).
- Authenticity: PBL engages students in learning information in ways that are similar to the ways in which it will be recalled and employed in future situations and assesses that learning in ways that demonstrate understanding and not mere information acquisition (Henry, undated).

## **What is Action Research?**

Action Learning and Action Research (ARAL) are two similar processes, with very similar names with, it is suggested, very similar meanings. Revans (1980) is often referred to as perhaps the best-known practitioner and certainly as one of those who fought to have ARAL accepted as a reputable academic discipline. Dick (1997) is prolific author and that has published widely, on-line and off-. His material, in particular, was also re-read avidly.

### **For example, one source has that**

Action Learning is an educational process whereby people work and learn together by tackling real issues and reflecting on their actions. Learners acquire knowledge through actual actions and practice rather than through traditional instruction. Action learning is done in conjunction with others, in small groups called action learning sets. It is proposed as particularly suitable for adults, as it enables each person to reflect on and review the action they have taken and the learning points arising. This should then guide future action and improve performance (Wikipedia, 2013).

### **The same source has that**

Action Research Action research is a research initiated to solve an immediate problem or a reflective process of progressive problem solving led by individuals working with others in teams or as part of a "community of practice" to improve the way they address issues and solve problems. It sometimes called participatory action research.

Action research involves the process of actively participating in an organization change situation whilst conducting research. Action research can also be undertaken by larger organizations or institutions, assisted or guided by professional researchers, with the aim of improving their strategies, practices and knowledge of the environments within which they practice. As designers and stakeholders, researchers work with others to propose a new course of action to help their community improve its work practice (Wikipedia, 2013).

### **There are a number of commonalities.**

For example,

- Action Learning has that people work together in small groups, while Action Research has that people work in teams or as a "community of practice";
- Action Learning refers to an "educational process" that is followed, while Action Research refers to a "learning process";

- Action Learning calls for “tackling (...) issues”, while Action Research refers to the need to “solve problems”; and finally
- Action Learning calls for people to acquire knowledge through actual actions and practices, whereas Action Research calls for the involvement and participation in organisational change.

These four examples suffice to demonstrate that the overlaps between the two definitions allow the terms to be applied almost interchangeably, depending upon the desired outcome of the process adopted. There are some authorities who believe that the distinction is no longer worth maintaining (Frank, 1997). In many cases, the “Action Research” process leads inevitably to “Action Learning”. The converse is equally true, in that the desired learning process can only be achieved by some form of research undertaking, even if, initially, this is undertaken at a quite simplistic or superficial level.

## **Procedural Adoption - The Caucus Race and A Long Tale**

If it can be accepted that small, self-managed groups best undertake PBL, then it can equally be recognised that ARAL is particularly well suited to PBL, both as a monitoring mechanism and as a means of facilitation.

Unfortunately, while the theories are clear and understandable, the practical implementation of the learning process is far from being either clear or simple. The problems arising from the implementation of PBL can be subdivided into three very-imprecise categories:

- 1. Facilities;
- 2. Faculty; and
- 3. Students.

### **Facilities**

Many of the facilities required for the efficient running of WSU require large venues such that large numbers of students can be addressed at the same time in a process sometimes referred to as “massification”. To this end, ever-larger venues have been provided in order to take advantage of the possibility of having a single member of staff teach the same things to many students at the same time. Given that PBL is most appropriately learned by small groups meeting in well-equipped venues, there would appear to be a mismatch of requirements.

There is another challenge that has to be met. Some of the venues, particularly in BC, are not adequately secured after normal hours. Some of the student body flatly refuses to come to the premises after darkness fearing, possibly accurately, for their physical safety. How this challenge is to be met remains to be seen.

### **Faculty**

As discussed previously, the staff of the former technikons (in particular) were not required to be particularly-well academically qualified. A teaching qualification was not a requirement, and the lack thereof was not seen as a reason to prevent the staff member from teaching.

With the merger into a comprehensive university, it became necessary for staff to upgrade their qualifications to a minimum of a Master’s degree. Many staff members happily undertook such studies. However, once again, the lack of a teaching qualification was not seen as disbarment from teaching. Given that many of the faculty were attempting to gain higher qualifications – and in some cases, coming across “research” as a required output for the first time – the requirement for teaching qualifications was not emphasised.

It follows that when new and unfamiliar methods of imparting knowledge to students were required, the lack of familiarity and, perhaps, the reluctance to see the benefits of the

new methods, led to a great deal of resistance and avoidance. In some case, it was hoped that by adopting an ostrich-like refusal to deal with the issue, the subject might be allowed to lapse and would therefore not have to be dealt with at all.

## **Students**

It is no secret that the student body of WSU, in the main, comes from the areas formerly known as Ciskei and as Transkei. These areas now form part of the region known as the Eastern Cape. This region is under-resourced and poorly administered. In particular, the Department of Basic Education stumbles from crisis to crisis with an inevitable effect on the education available to the students under their care. This tends to mean that the students arrive at university poorly prepared for tertiary study. In very many cases, the student body is unfamiliar with information technology, resources centres are largely an unknown quantity, more than a single author writing about a subject is almost unheard of and individual, critical thinking has only rarely been a requirement.

With this in mind, it follows that before PBL can be initiated some time and effort has to be made to ensure the students, collectively and individually, are familiar with problemsolving techniques (see Ellis, 2012), the (sometimes-obscure) requirements of academic literacy (Ellis, 2013), teamwork techniques, and even simple communication skills. For example, some time had to be devoted to defining the difference between criticism and critical thinking. Dick (1996) believes that the present, already determined by its past, is hard to change. One important adjunct to this the subject's own behaviour. Dick goes on to say, "by act of will you can change your own behaviour". Just such a change is required of the student body.

This is not to be understood to mean that the students are unable to take up the challenge. Given the disadvantages that they started with, their ability to respond to educational challenges has been rewarding.

## **The Way Forward - Alice's Evidence**

To date, the process of initialisation of PBL in the classroom has been somewhat akin to the trip that Alice took when she fell down the hole into Wonderland. Nevertheless, like Alice, the author has found the discovery process often alarming, extremely interesting, frequently frustrating, and sometimes amusing. Ultimately, however, lucky Alice woke up to find she had been dreaming. That is not a likely outcome for the adoption of PBL at SCOTH.

## **Facilities**

With the co-operation of the respective Heads of Department of SCOTH, it was possible to reschedule the freshman cohorts of the BC Hospitality and Tourism programmes to take place at the same time. This gave a class of 110 young people. Again, and this time with the co-operation of the staff of other departments and Schools, scheduled venues were changed and changed again until a single venue was made available for classes of this size. Concurrently with these arrangements, plans were put into place to make available "space" for 11 groups of 10 people each. In some cases, this means that four groups will have to work, hopefully peacefully, in the same large classroom. The practicalities have still to be finalised.

A major challenge is the access to ICT facilities. It is known that many of the students are not from wealthy families and do not have ready access to appropriate technology. At the same time, many of the students do have access to a mobile phone offering some access to the internet. To this end, and until wider access to technology is possible, use is made of the Facebook application, not only to facilitate communication, but also to provided some (but by no means all) of the research material necessary.

WSU provides each student with an email address and access to the "Blackboard" learning material. Once again, this process is hampered by the lack of access to technology in the first place and the lack of familiarity with technological equipment in the second place.

## **Faculty**

The majority of the staff of the School are quite content to allow the author to take up the learning process as best it can be done. They, quite naturally, hope to benefit from someone else's learning – and to avoid the mistakes that are almost certain to be made. This view was understood and accepted when the challenge was first accepted.

Nevertheless, a number of staff members have indicated their interest and have offered their support, tacit and more practically. They have indicated that they await with interest the support materials that will result from the process, and the documentation of the process itself.

However, a further challenge has presented itself in that the planned initialisation of PBL had to be delayed when the staff of the university chose to wander down the road of industrial action. This meant that for a number of days there was no teaching whatsoever taking place. This lost time will definitely have to be recovered. This will mean negotiation with the student body, presenting a number of alternatives, so that they may not only see the benefits of making up the lost time, but may choose the, to them, most palatable alternative.

## **Students**

To date, PBL has not impacted directly upon the students. They are being given a number of techniques that will, it is believed, facilitate their adoption of PBL methodology when it is demanded of them. Academic literacy is being taught and exemplified, problemsolving techniques are being discussed; time management is being required and demanded of them, decision-making methods are being chewed over and group leading and reporting techniques are being worked upon (see Dick & Dalmau. 1997). Management skills are being encouraged.

PBL, and its potential, its advantages and its responsibilities has been discussed very superficially, almost in passing, on a number of occasions. This was deliberately done to familiarise the students with the terms and their usage before they are obliged to adopt them as a personal credo. Some of the students have started to ask, "when?"; the vast majority seem to have adopted a "sufficient unto the day the evil thereof" attitude.

## **The facilitator**

To date, two academic papers have been written, one has been presented, another is due to be presented.

A primer or guide to PBL and aimed at those teaching without teaching qualifications has been crafted. It has been favourably reviewed by experienced PBL practitioners and is due for School-wide circulation before the end of June 2013. Supporting notes have been drafted for the benefit of the student body. The first edition of these has been circulated. The second part of these, illustrating decision making techniques and problem-solving methods, will be distributed together with the first of the group assignments before the end of April 2013.

## **The immediate future - Adieu Alice**

The immediate process is not without challenges. Primarily, the student body has to be convinced of the worth of PBL and must be assured that they are not being abandoned to work without supervision and input. They must be convinced that they are not being fobbed off to work (and to fail) by themselves.

Secondly, it is well known that people resist change. This is true also of young people. They must be persuaded that this change to the very familiar "sage on a stage" method of education delivery is for their ultimate (and indeed, their immediate) benefit.

Thirdly, small group work requires the application of self-discipline. It will be interesting to see if this is demonstrated.

Fourthly, small group work offers the students a myriad of opportunities to do as little as possible. While every opportunity to minimise such chances will be taken, it will be very

interesting to see if the small group leaders are willing to discipline their non-performing group members.

In general, the immediate and short-term future is not without interest. Certainly, challenges can be anticipated and will be resolved as they arise. Further opportunities for the documentation of the PBL initialisation and of the resolution of the said challenges will be sought.

### **Literature:**

- Dick B. 1996. Managing change. Accessed at [http://www.uq.net.au/action\\_research/arp/change.html](http://www.uq.net.au/action_research/arp/change.html), visited 28 02 2013.
- Dick B. 1997. Choosing action research. Accessed at [http://www.uq.net.au/action\\_research/arp/choice.html](http://www.uq.net.au/action_research/arp/choice.html), visited 05 01 2013.
- Dick B, Dalmau T. 1997. Discussing the undiscussable: a workbook for improving group effectiveness and openness. Accessed at <http://www.aral.com.au/resources/dtuwb.html>, visited 15 02 2013.
- Dreyfus SE; Dreyfus HL. 1980. A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition. Washington, DC, USA. Storming Media.
- Ellis M. 2012. Problem Solving for Newbies. Unpublished.
- Ellis M (Ed). 2013. Technical requirements for SCOTH assignments & necessary referencing techniques. Buffalo City, EC, SA. Walter Sisulu University
- Frank HD. 1997. Redrawing the boundaries: Can action research and action learning be seen as parts of a single system? Some Initial thinking. Forum Two, Action Research and Critical Systems Thinking. Hull. The University.
- Henry JP. Undated, Problem-Based Learning. Educational Information and Resource Center. NJ, USA, viewed at [www.greenschoolsforteachers.wikispaces.com/.../problem+based+learning+](http://www.greenschoolsforteachers.wikispaces.com/.../problem+based+learning+). Accessed, 28 February 2012.
- Major CH, Palmer B. 2001. Assessing the Effectiveness of Problem-Based Learning in Higher Education: Lessons from the Literature. Academic Exchange Quarterly, Volume 5, Issue 1.
- Overton T. 2012. Problem based learning: An introduction. Accessed at [http://www.heacademy.ac.uk/assets/ps/documents/primers/primers/ps0087\\_problem\\_based\\_learning\\_mar\\_2005.pdf](http://www.heacademy.ac.uk/assets/ps/documents/primers/primers/ps0087_problem_based_learning_mar_2005.pdf), visited 29 February 2012
- Perrenet C, Bouhuys PAJ, Smits JGMM. 2000. The Suitability of Problem-based Learning for Engineering Education: Theory and practice. Teaching in Higher Education, Volume 5, Issue 3.
- Revans, RW. 1980. Action Learning. London. Blond & Briggs.
- Savin-Baden M. 1960. Assessing the Effectiveness of Problem-Based Learning in Higher Education: Lessons from the Literature. Buckingham, UK. Open University Press.
- Unknown author. Action Learning, accessed at [http://en.wikipedia.org/wiki/Action\\_learning](http://en.wikipedia.org/wiki/Action_learning), visited 20 02 2013
- Unknown author. Action Research, accessed at [http://en.wikipedia.org/wiki/Action\\_research](http://en.wikipedia.org/wiki/Action_research), visited 20 02 2013.

### **Abbreviations:**

|        |  |
|--------|--|
| ARAL   | Action Research and Action Learning                                      |
| BC     | Buffalo City (Buffalo City Metropolitan Area, Eastern Cape, South Africa |
| BT     | Border Technikon (formerly, Ciskei Technikon)                            |
| ECT    | Eastern Cape Technikon (formerly, Transkei Technikon)                    |
| LSM    | Lifestyle Management   |
| PBL    | Problem-based Learning   |
| SCOTH  | School of Tourism and Hospitality  |
| UNITRA | University of the Transkei   |
| WSU    | Walter Sisulu University   |

# **Development assistance for Africa - different donors' approaches**

**Monika Erbenová<sup>1</sup>**

## **Abstract:**

Many African countries belong to least developed ones in the world. The attention of a developed part of the world is aimed to both an effort to stimulate the African development and a great potential the continent has. The development assistance is a tool to help the economic and social progress as well as to gain as much as possible from such a development. In the paper there are analyzed the approaches of traditional African donors represented by European countries on the one hand and China as an emerging donor on the second hand. Factors of providing European and Chinese development assistance are mentioned including institutional and political aspects, followed by a comparison of the two approaches in terms of starting points for the mutual cooperation, rules, conditions, strategies, transparency and channels for providing the development assistance.

## **Key words:**

Development assistance, Africa, tradition donors, China

## **Introduction**

African continent is still becoming more and more attention from the rest of the world. Until recently mainly major developed players of the world economy have showed their interests in African affairs and its development. The closest partners came primarily from Europe. The reason for it was clear – strong historical and economic ties between European countries and their colonies on the African continent. As there are new players growing and arising in the world economy, European countries have to face their competitive strength not only in a field of international trade and investment but also in a question of global development practices, providing development assistance aid and efforts for having more international influence than ever before. People's Republic of China<sup>2</sup> belongs among these new players in development issues.

Till now PRC has been known much more for the development assistance which it has received as being a developing country itself. Nowadays the situation is changing. As China wants to become one of the most important players within the world economy, ensure a support among developing countries for its activities within international organizations and ensure the raw materials needed for its own amazing development growth, it tries to show much more visibly that it cares also about the development of other developing countries. The fact that China itself is still highly developing is a big advantage for China – its aim is to show to the rest of the developing world that there is also a different way to reach a positive economic trend than the European ideology shows.

This paper is focused on different approaches of above mentioned two donors – European Union (EU) as a group of traditional donors for African countries and China as a country which becomes to be more and more visible also in a field of providing development

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<sup>2</sup> Hereinafter PRC or China

assistance in Africa. The purpose of the paper is to describe the Euro-African and Sino-African relations connected to development assistance. In the paper the institutional and ideological environment is mapped, followed by the comparison of European and Chinese approach to providing development assistance.

The paper consists of three chapters. First two describes factors of providing European and Chinese development assistance to Africa. Institutional, contractual and ideological background is mapped. In the third part of the paper the comparison of these two approaches is done. It focuses on analyzing European and Chinese strategies for Africa, starting points for the mutual cooperation, conditions and requirements on which the two donor sides insist to realize a development cooperation, transparency of the processes and provided volumes and channels to provide development assistance and differences in its European and Chinese classification

### **Factors of providing European development assistance to Africa**

Most of the developed countries are criticized for the lack of clarity in the providing development assistance and a too high number of entities that provide development assistance, and programs, under which developing countries can obtain the resources. EU is in this respect no exception. That was also the reason why the EU has set a special institution for providing development assistance - Development and Cooperation - EuropeAid. The main goal of this institution is to simplify the communication of the EU with the developing world in the field of development cooperation, including providing development assistance. EuropeAid has thus become a central point for cooperation with developing countries on development projects. EuropeAid is responsible for a creation of a single European development policy and development assistance to countries around the world. The main objective of the EU development policy is the poverty reduction and establishing an environment for a sustainable development (EuropeAid, 2012).

The European effort to create a unified and comprehensible concept for development assistance, however, dates back to the period after the Second World War. The European Development Fund (EDF) was created already on the basis of the Treaties of Rome in the second half of the 50s' of the 20th century. It is responsible for providing technical and financial support to the poorest regions of the world – developing countries in Africa, Caribbean and Pacific (ACP). Determination of these regions was logically based on historical ties that European countries had to their previous colonials. Later, the scope of the EDF activities spread to other regions. EDF is always designed for a limited period, usually for five years. The current plan covers a period of 2008 - 2013 and operates with a budget of 22 682 million EUR. Most commonly used instruments of EDF are grants and favourable loans for private companies (EDF, 2007).

Most EU members are also member countries of the Organization for Economic Cooperation and Development (OECD), which created its own special institution for monitoring and international organization of development assistance - Development Co-operation Directorate - Development Assistance Committee (hereinafter DCD-DAC). This international organization has been operating for over fifty years. DAC's mission is to promote development cooperation and to contribute to sustainable development. That should force developing countries to become relatively independent on their richer and more developed donors. The DCD-DAC's main aim is to increase the effectiveness of providing development assistance and aid to developing countries in field of their development. This International Forum includes 24 countries that appear on the top positions in statistics of provided volumes of development assistance. Among them we can find 15 EU countries (OECD, 2012). Member countries committed to unify their practices, procedures and policies in order to achieve a synergy coming from common rules and aims. DCD-DAC monitors the global development and creates rules for its support. Its main tasks are to control the effectiveness of development assistance and to create a meaningful development policy. It

played a major role in setting the Millennium Development Goals and in defining of the Paris Declaration on Aid Effectiveness (OECD, 2012).

EU has provided development assistance based on several internationally recognized treaties. Its scope is not only providing development assistance, but it also sets rules for international trade and investment activities among the EU (or EEC) and the ACP<sup>3</sup> countries. These agreements also involved activities of EDFs in individual periods. The first treaty of this nature was an agreement signed in July 1963 in Yaoundé, Cameroon. The treaty was followed by a similar one - Yaoundé II. The main focus of these agreements was the export of manufactured goods produced in developing countries to countries of the European Economic Community. A major weakness of these contracts was a low attention to the main orientation of African developing countries. Most of them, respectively most of their economic activities are focused on agricultural production. Therefore most of them could not gain effectively from the treaties which benefits were related to industrial production and subsequent trade with industrial goods (Sultana, 2011, p. 66). After 1975, these treaties were followed by four successive Lomé agreements. The major benefit for developing countries was the non-reciprocal preferential treatment from the side of European Union's members. This applied to most of exports from African countries to the European Economic Community. Over the time, political and social requirements for business and activities connected with the development assistance began to play an important role. Greater emphasis has been put on human rights, a promotion of democratic systems, good governance, women's status in a society, environmental protection, food sovereignty and strengthening regional cooperation. Although there are disputes about how seriously these aspects are compared to the business and investment issues and European interests on the African continent, for sure they have become crucial for the successful Afro-European cooperation. Presently the Cotonou Agreement is the valid document which sets the conditions and rules for cooperation between EU and developing world. It was signed on 23rd June 2000 in Cotonou, Benin's largest city. Until now, it was a double reviewed (in 2005 and 2010). The agreement is valid until 2020. There are three main pillars of the agreement: development cooperation, trade and politics (EuropeAid, 2012). Obviously and very logically the development cooperation is understood as a crucial condition for further economic relationships including trade, investment etc.

### **Factors of providing Chinese development assistance to Africa**

The basic Chinese document, which is crucial for Chinese behaviour within international relations and of course also in a field of providing development assistance, is The Five Principles of Peaceful Cooperation from 1954. Obviously this set of rules is based on the regime of that time, which is in many aspects different from the current political situation.

There are many variants of reasons for formation of these pillars, which became important for following international cooperation. Generally we can say that the rules for international negotiations are based on the Sino-Indian negotiations regarding a Tibet issue. The original document was signed on the 29th June 1954 by Chinese, Indian and Burmese Prime Ministers Zhao Enlaiem, Jawaharlal Nehru and U Nu. These rules ensured China the sovereign status in Tibet and in 1955 they were accepted on Asian-African Conference in Bandung (Indonesia) as an international document within the "Declaration on Promotion of World Peace and Cooperation" (Ministry of Foreign Affairs of the People's Republic of China, 2000).

The document (Five principles of peaceful co-operation) includes following rules: (1) mutual respect, territorial integrity and sovereignty, (2) mutual non-aggression, (3) mutual non-interference in the internal affairs, (4) equal benefit of both partner's sides, (5) peaceful coexistence (Xinhua, 2005). These principles have been a guideline for providing Chinese development assistance as well as Chinese foreign direct investments outflows. In particular,

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<sup>3</sup> Group of developing countries of Africa, Caribbean, Pacific

the requirement for recognition of a state sovereignty, mutual non-interference in the internal affairs (for example issues of human rights or elections within a state system) and the aspect of benefit for both parties have been for Chinese system of providing development assistance extremely important and have played the important role today as well as in the past.

Another important set of rules are Chinese Eight Principles for Economic Aid and Technical Assistance to Other Countries from January 1964. It contains following articles (China.org.cn, 2011):

- The Chinese government always bases itself on the principle of equality and mutual benefit in providing aid to other countries. It never regards such aid as a kind of unilateral alms but as something mutual.
- In providing aid to other countries, the Chinese government strictly respects the sovereignty of recipient countries, and never attaches any conditions or asks for any privileges.
- China provides economic aid in the form of interest-free or low-interest loans, and extends the time limit for the repayment when necessary so as to lighten the burden on recipient countries as far as possible.
- In providing aid to other countries, the purpose of the Chinese government is not to make recipient countries dependent on China but to help them embark step by step on the road of self-reliance and independent economic development.
- The Chinese government does its best to help recipient countries complete projects which require less investment but yield quicker results, so that the latter may increase their income and accumulate capital.
- The Chinese government provides the best-quality equipment and materials manufactured by China at international market prices. If the equipment and materials provided by the Chinese government are not up to the agreed specifications and quality, the Chinese government undertakes to replace them or refund the payment.
- In giving any particular technical assistance, the Chinese government will see to it that the personnel of the recipient country fully master the technology.
- The experts dispatched by China to help in construction in recipient countries will have the same standard of living as the experts of the recipient country. The Chinese experts are not allowed to make any special demands or enjoy any special amenities.

China's policy for Africa is based mainly on The Five Principles of Peaceful Cooperation (China's African Policy). The need of the acceptance of one-China policy by African partners is emphasized. African countries, which want to be considered as Chinese partners, currently cannot have formal diplomatic relations with Taiwan and must promote the unification of the territory under mainland China. All the rules mentioned in this document are valid for both the political relations as well as for issues of economic nature. Except of the issue of development assistance there are also strong affects for investment activities and international trade. The policy shows several times the importance of the fact that both PRC and African countries are developing economies. Solidarity, mutual benefit and common development are the critical principles of mutual cooperation. According to the Chinese government's statements by the cooperation in a field of development China wants to contribute to the maintenance of world peace, stability and prosperity. The document again and again emphasizes a straight relationship between China and African countries, which brings benefits to the both parties, and north-north nature of Sino-African relationship (Ministry of Foreign Affairs of the People's Republic of China, 2006).

## **Comparison of European and Chinese approach to providing development assistance to Africa**

### **Starting points for the cooperation**

Europe is very closely connected with African countries, which is based on shared history due to the colonization. During several centuries European practices were brought on the African continent so the nature of the African culture and character of the economies of individual African countries and regions have been changed significantly. The European activity on the African territory was one of the strongest aspects of considerable technological and economic progress, on the other hand it was also connected with slavery, implementing of new systems, which quite often did not correspond with local cultural, political and economic habits, and more or less straightforward exploitation. Nevertheless despite number of negative experience with European domination on the African continent and the successfully executed independence of African countries gained mainly in the 60s of the 20th century, European countries keep their leading role and are economically firmly tied to their previous African colonies.

The position of China on the African continent is completely different. In contrast with traditional ties of the European countries to Africa, Sino-African relations do not have such a colourful history. At first sight, it might be even perceived that Sino-African cooperation is a completely new phenomenon. However, this is not the case. If we ignore former contacts of courtesy, China has its closer relations with African countries since the formal establishment of PRC, i.e. from the middle of 20th century. Nevertheless the strongest progress of the cooperation is significant in the last two decades indeed.

### **Conditions and requirements**

Another big difference between European and Chinese development assistance is the conditionality and requirements put on providing the aid. EU countries as OECD members (hence the DCD-DAC countries) have quite a lot requirements for providing development assistance – those are most often reforms leading to the democratization of the state systems of the developing countries or respect to human rights. On the other hand basic political requirement for developing cooperation between China and other developing countries is having official diplomatic relations with the PRC and recognition "One China Policy". China is often criticized for such a modestly given rules and requirements. The critics claim that this Chinese approach undermines the efforts of developed countries leading to respect to human rights and the maintenance or establishment of democratic systems in the developing world. We cannot forget that China itself is not a democratic country and the issue of human rights is a frequent topic of anti-government demonstrations and activities out of China. Therefore it cannot be expected that a country that does not recognize certain values, will promote them in others countries and even put emphasis on them in case of putting any requirements for mutual international cooperation.

The Chinese view on human rights is also interesting. PRC has stated that it is important to respect universal human rights and freedoms. On the other hand it says that when talking about human rights the situation in each country from the perspective of different values, level of development, social and historical ties should be taken into consideration. Individual countries should have the right to choose their own approaches and models of the promotion and protection of human rights (Beijing Declaration of the Forum on China-Africa Cooperation, 2009). But that is in a contrast with the basic idea of respect to the universal human rights and freedoms - if each country should be allowed to determine its own values according to their own standards, there will be no universal values.

### **Transparency and classification of development assistance**

Transparency is one of the often discussed lacks of Chinese development assistance. While DCD-DAC member states, i.e. also the EU countries, are obliged to report to OECD detailed volumes of their development assistance, location and its form, China does not

disclose this information publicly nor provides such information to any international organization. Transparency is perceived as a basic condition for the effectiveness of development assistance. The developed world is convinced that only if the individual donors will share the information, it is possible to plan the development assistance effectively, to measure its benefits and only such a system can result in greater synergies for all the providers and recipients of development assistance (Grimm, 2011, p. 2).

The fact that information related to the Chinese development assistance is not provided by Chinese public institutions can have several reasons. First Chinese government itself cannot quantify such figures. The main reason for this would be the low rate of Chinese differentiation between development assistance and investment.<sup>4</sup> Secondly, Chinese own population may not understand providing high volumes of development assistance because of the fact that China itself is a developing country and the used resources would be publicly perceived as a lost. Another possible reason could be the competition among countries that receive the Chinese development assistance. Currently, leaders of recipient countries do not know how much from the total Chinese aid goes directly to their countries and how much to their neighbours. The finding that neighbouring states have closer relationships with China in terms of received development assistance could cause China problems in international relations (Lancaster, 2007, p. 2).

Both China and EU have also a different classification of development assistance. While the EU follows the methodology and terminology of the OECD, China defines its own forms of development assistance. For example following flows are included in the Chinese conception, but does not figure in the statistics of OECD (EU): military assistance, subsidized loans for joint ventures, or construction of sports halls. On the other hand erasing debts, costs of foreign students studying in China or administrative costs of a development projects are taken into consideration in case of OECD (EU) and do not figure among Chinese Development Assistance (Grimm, 2011, p. 7)

### **European and Chinese strategies for Africa**

An important element in the Euro-African dialogue is organizing Euro-African summits. First of them was held in Cairo in 2000, but much more important was the second one held in Lisbon in 2007. Negotiations continued at a summit in Tripoli in 2010.

Developing assistance is one of the important topics that are discussed at the meetings (Lisbon Declaration, 2007). Negotiations have two spheres, which are closely related – political issues and the development. Traditional positions of Europe and Africa are disturbed and the classic layout donor-recipient is modified during such summits into a system of equal partners. Possible misunderstandings could arise from different goals of the two sides. While the primary interest of the EU seems to be the political one, economic issues play much more important role for African countries (Carbone, 2011, p. 29).

Lisbon summit is connected with establishment of the Joint Africa-EU Strategy. It defines long-term political orientation between the two continents and is based on common beliefs and general principles (Africa-EU Strategic Partnership, 2012). The aim of this strategy is to improve relations and strengthen cooperation, promotion of development and industrialization, human rights and democracy, regional integration and multilateralism (Council of the European Union, 2007).

Two action plans for 2008-2010 and 2011-2013 were constructed at the meetings in 2007 and 2010. The emphasis was put except above mentioned on keeping of peace, the Millennium Development Goals, climate changes, energy security, migration and support of the science (Joint Africa EU Strategy, 2011).

The effect of the summits, common policies and action plans is questionable. We can see clear benefits in terms of closer political relations. Unfortunately economic impacts are

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4 Development aid is often tied to the trade promotion projects, providing of Chinese developing aid use to be exchanged for low prices of African raw materials.

less visible. An important question is if the whole idea of cooperation based on common policies will cross its institutional borders and will have significant positive impacts on development in African countries. Criticism towards European donors, that their development assistance does not meet defined goals and misses the effect, is getting stronger (Bach, 2010, p. 6).

Also Sino-African relationships have their institutional background - Forum on China-Africa Cooperation (FOCAC). This international forum was established in October 2000 on the first conference in Beijing. This meeting brought the institutional framework for mutual cooperation. Representatives of forty-four African countries, seventeen representatives of regional and international organizations and three top Chinese representatives<sup>5</sup> were present in Beijing.

FOCAC's goal is to keep peace and develop the partnership on the basis of equality and mutual benefit. China identified developed countries as major factors in establishment most of inequalities between the developed and the developing world and unfair distribution of benefits arising from international activities, and puts emphasis on being a developing country and developing partner for the rest of the developing world.

Cooperation with Africa based on such a broad institutional model is quite exceptional. However, the PRC has similar experience from other regions with the organization of its international activities. There are similar conferences and summits taken place - with regions such as Pacific, Caribbean, Arab countries or with Portuguese-speaking countries (Herman and Davies, 2009, p. 6).

Regarding the issue of Chinese development assistance, the Beijing Summit in 2006 was important. There the volume of Chinese development assistance for African continent was declared. China promised to double development assistance till 2009 (Forum of China-Africa Cooperation, 2006). This statement has been discussed many times, because nobody had given the statistical information about the amount of Chinese development assistance. Neither the African countries themselves do not know how much funding goes to Africa as a whole. PRC considers such information strictly confidential and does not disclose them publicly. Except of internal reasons for this approach there may be certain fear of potential competition and tensions between recipient countries. So the promise regarding doubling the development assistance is in this terms misleading.

In Beijing summit China also promised to erase debts of African countries that have diplomatic relations with the PRC (maturing by the end of 2005) to contribute by that to their debt relief (Forum of China-Africa Cooperation, 2006).

## Channels

European countries use to provide development assistance by several different channels. These include multilateral international organizations (World Bank, UN agencies, EU agencies) as well as bilateral agreements between individual countries. In addition to these, development assistance flows in developing countries also by various Non-Governmental Organizations (NGOs).

China has a different approach. It recognizes the development assistance only at the intergovernmental level and it understands the development assistance as a tool of help of one country (one government) to the other country (second government). NGOs are never used by China in such a case. On the other hand, however, the Chinese state and private companies are often engaged in the implementation of individual projects (providing development assistance is usually tied to the realization of large commercial contracts). The recipient countries more or less appreciate the fact that NGOs are not involved in the process - the price of received development assistance is not increased by commission fees paid to consultants from such non-governmental organizations (Opoku-Mensah, 2009, p. 9). Receiving countries also appreciate the Chinese system for its clarity in this way - a wide

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5 Including the president of PRC Jiang Zemin.

range of European providers of development assistance and the types of European is often confusing for the recipients.

### **Conclusions:**

Development assistance is for many African countries an important source of financial or other help to progress its development and social-economic situation. We can determine two groups of donors – traditional and new ones. In this paper the difference between the approaches of EU countries (traditional donors with historical ties on African countries) and China (representative of new and challenging donors developed from dynamically developing countries) were analyzed.

European development assistance for Africa is based on several agreements between EU and countries of ACP - Yaoundé I and II, Lomé and Cotonou. All the European activities in this field are influenced by its membership in OECD and in its special institution for monitoring and international organization of development assistance - Development Co-operation Directorate - Development Assistance Committee. There has been founded also a directly European institution – EuropeAid. Besides others it is responsible for setting rules for providing the development assistance. European Development Funds have been also developed, always for a given period.

Sino-African relations do not have such a strong background. The rules not only for providing the development assistance are given by Five Principles of Peaceful Cooperation, China's Eight Principles for Economic Aid and Technical Assistance to Other Countries and Five Principles of Peaceful Cooperation. China's African Policy was created.

There was analyzed a number of differences between the two approaches. First of all there are completely different donor's expectations and so also the conditions and requirements. Because of EU being a part of OECD and China being completely independent without much stress to make the statistics and financial statements clear, there are also many differences in classification of the development assistance and transparency of its providing. EU and PRC also work differently with various channels - multilateral international organizations, bilateral agreements, various Non-Governmental Organizations (NGOs).

Strategies of the two African donors differ in many ways, but both relationships are based on summits and special strategies declared. EU-African relationship is based on Euro-African summits from which the Lisbon summit was the most important – it was connected with establishment of the Joint Africa-EU Strategy. Also the European action plans are developed. On the other hand Sino-African relationship is based on building of Forum on China-Africa Cooperation (FOCAC). Beijing Summit in 2006 was the one with the greatest importance.

Above mentioned different approaches to providing the development assistance bring Africa an option to choose a partner for its economic and social development and become more independent (even when talking about providing development assistance). Existence of the two different philosophies gives Africa more choices and puts it in the position of the one who can decide about its future.

### **Literature:**

- Africa and Europe in Partnership (2012). *Africa-EU Strategic Partnership*. Retrieved February 10, 2013, from <http://www.africa-eu-partnership.org/africa-eu-strategic-partnership>
- Bach, D. (2010): The EU 's 'strategic partnership' with Africa: Model or Placebo?. *Garnet Working Paper*
- Carbone, M. (2011). The European Union and China's rise in Africa: Competing visions. *Journal of Contemporary African Studies*

- Council of the European Union (2007). *The Africa-EU Strategic Partnership: A Joint Africa-EU Strategy*. Retrieved February 10, 2013, from [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/er/97496.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/er/97496.pdf)
- EuropeAid – Development and Cooperation, European Commission (2012). *The Cotonou Agreement*. Retrieved February 25, 2013, from [http://ec.europa.eu/europeaid/where/acp/overview/cotonou-agreement/index\\_en.htm](http://ec.europa.eu/europeaid/where/acp/overview/cotonou-agreement/index_en.htm)
- European Development Fund (2007). *Europa, summaries of EU legislation*. Retrieved March 12, 2013, from [http://europa.eu/legislation\\_summaries/development/overseas\\_countries\\_territories/r1210\\_2\\_en.htm](http://europa.eu/legislation_summaries/development/overseas_countries_territories/r1210_2_en.htm)
- Forum on China Africa Cooperation (2009). *Beijing Declaration of the Forum on China-Africa Cooperation*. Retrieved March 14, 2013, from <http://www.focac.org/eng/ltda/dyjbzjhy/DOC12009/t606796.htm>
- Forum on China-Africa Cooperation (2006) *Beijing Action Plan (2007-2009)*. Retrieved February 5, 2013, from <http://www.focac.org/eng/ltda/dscbzjhy/DOC32009/t280369.htm>
- Grimm, S. (2011). Transparency of Chinese Aid: An analysis of the published information on Chinese external financial flows. *Centre for Chinese Studies*
- Herman, H. and Davies, M. (2009). The EU and China: Prospects for Partnerships in Democracy Building in Africa. Stockholm. *International Institute for Democracy and Electoral Assistance*
- China.org.cn (2011). *Foreign Aid Policy*. Retrieved February 14, 2013, from [http://www.china.org.cn/government/whitepaper/2011-04/21/content\\_22410897.htm](http://www.china.org.cn/government/whitepaper/2011-04/21/content_22410897.htm)
- Joint Africa EU Strategy (2010): *Action Plan 2011-2013*. Retrieved March 2, 2013, from [http://www.africa-eu-partnership.org/sites/default/files/doc\\_jaes\\_action\\_plan\\_2011\\_13\\_en.pdf](http://www.africa-eu-partnership.org/sites/default/files/doc_jaes_action_plan_2011_13_en.pdf)
- Lancaster, C. (2007). The Chinese Aid System. *Center for Global Development*
- Lisbon Declaration (2007). *EU Africa Summit*. Retrieved February 8, 2013, from [http://www.africa-eu-partnership.org/sites/default/files/eas2007\\_lisbon\\_declaration\\_en.pdf](http://www.africa-eu-partnership.org/sites/default/files/eas2007_lisbon_declaration_en.pdf)
- Ministry of Foreign Affairs of the People's Republic of China (2000). *China's Initiation of the Five Principles of Peaceful Co-Existence*. Retrieved February 14, 2013, from <http://www.fmprc.gov.cn/eng/ziliaozhongguo/3602/3604/t18053.htm>
- OECD – The China-DAC Study Group (2012). *Development Co-operation Directorate (DCD-DAC)*. Retrieved February 5, 2013, from [http://www.oecd.org/document/63/0,3746,en\\_2649\\_34621\\_44173540\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/63/0,3746,en_2649_34621_44173540_1_1_1_1,00.html)
- Opoku-Mensah, P. (2009). China and the International Aid System: Challenges and Opportunities. *Research Center on Development and International Relations, Aalborg University, Denmark*
- Sultana, T. (2011). The EU's Development Assistance to Africa: The China Factor. *Journal of European Studies*. 2011-03-29
- Xinhua (2005). *Backgrounder: Five principles of peaceful coexistence*. Retrieved March 12, 2013, from [http://news.xinhuanet.com/english/2005-04/08/content\\_2803638.htm](http://news.xinhuanet.com/english/2005-04/08/content_2803638.htm)

# **Strategies to enhance agro-tourism competitiveness: A Uruguayan perspective**

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**Cornelia, Häufele<sup>3</sup>**

## **Abstract:**

The main purpose of this article is to assess the competitiveness of Uruguayan rural tourism sector against its main competitors from Argentina and Brazil, as perceived by Uruguayan stakeholders on the supply side. The article will also evaluate the potential of Uruguay as a rural tourism destination in attracting German tourists. Two different questionnaires were administered, one to Uruguayan rural tourism stakeholders and another one to potential German tourists in Germany. The findings indicate that the main strengths of Uruguayan rural tourism offer, compared to Argentina and Brazil, are the hospitality and friendliness of local people; the natural and cultural attractions; and the country's security and safety. Main weaknesses identified were the poor management of several destination components that are key to create a successful tourism destination and poor management of the 'demand conditions' component of Dwyer and Kim's (2003) integrated model.

## **Key words:**

Rural tourism, competitiveness, Dwyer and Kim's (2003) framework, German tourists, Uruguay.

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## **Introduction**

Uruguay is a relatively small country on the south-eastern part of South America, with an area of 176,215 sq. km (Mackinnon, Bentancur, and Sanchez, 2009). It has a population of 3.3 million habitants and receives around two million tourists each year. Despite the global financial crisis, international tourists visiting Uruguay have increased by 15% - from 1,824,340 to 2,098,780 - between 2008 and 2009 (Gallardo, 2010).

Tourism is a relatively new industry that has grown rapidly becoming one of the world's largest providers of employment and contributing 9.1% of the world gross domestic product (GDP) (Camtur, 2008; Valdez, Cruz & Velasco, 2010; World Travel and Tourism Council, 2011). There are many types of tourism. Rural tourism could be understood as any tourism service or product supplied in rural areas that is linked to agricultural activities. The fact that tourism products can only be consumed "in situ", means that the revenue generated by the tourism sector is kept within the tourist receiving destination (Ferreira and Estevão, 2009). However, many tourist destinations lose revenue to other countries' economies and therefore the "leakage effect" must also be taken into consideration (Mill, 2002).

Tourism - if conducted in a sustainable way - can provide an alternative for local or national development by improving income levels, employment and tax revenues in the tourist receiving country (Barbosa, Oliveira and Rezende, 2010). All these benefits make rural tourism an attractive option to develop rural areas in Uruguay. For instance, a farm that diversifies into rural tourism creates on average three more workplaces compared with a non-diversified farm. Moreover, in the case of rural tourism in Uruguay, the degree of leakage is small as the attractiveness of the offer relies on what Uruguay has to offer (Mackinnon, Bentancur, and Sanchez, 2009).

It has to be noted that the tourism sector has become very competitive and therefore organizations need to successfully use their resources to develop appealing and competitive tourism products in order to attract domestic and international tourists (Cracolici, Nijkamp and Rietveld, 2006). Consequently, Uruguayan rural tourism establishments would only attract international tourists if they manage to develop a tourism product that delivers at least the same level of quality than that offered by their counter rivals from Argentina and Brazil (Crouch and Ritchie, 1999). In general, it can be said that Uruguayan rural tourism offers are linked to agro tourism, cultural tourism, sport tourism, tourism in local communities, eco-tourism, and culinary tourism. Currently, more than 100 rural establishments including wineries, guest ranches, rural hotels and rural bed and breakfast are registered at the Ministry of Tourism and Sport (MINTUR, 2011). They offer a wide range of activities such as participation in or observation of rural activities, trail-rides, horse-riding, fishing, bird watching and nautical activities (Federici, 2011; Quintana, 2010).

Whereas in many other countries rural tourism is one of the leading touristic activities, in Uruguay its importance has been neglected for a long time. Rural tourism in Uruguay was initially originated as a business initiative from a group of Uruguayan farmers with entrepreneurial skills looking for additional sources of income. They realized that some Uruguayan farms would meet the requirements to compete in this relatively new form of

tourism (Bentancur, 2008). However, it took a lot of time, for the government to realize the potential of rural tourism. In fact, for many years the Ministry of Tourism was mainly focused on developing coastal tourism. Only recently the government has recognised that there was potential to develop other forms of tourism such as rural tourism, thermal tourism, and city tourism (Brida, Lanzilotta and Risso, 2008). Alternative forms of tourism are less influenced by the seasonality and would reduce the strong dependency that Uruguayan tourism has on Argentinean and Brazilian summer tourists that opt for a beach holiday along the south-east coast of the country. Rural tourism could represent a way of overcoming seasonality by offering tourists a different tourist product that can be consumed all year around and not only during the summer months. However, it should be taken into account that a consumer looking for a summer holiday might not be attracted to a rural holiday offer. Therefore, Uruguay should try to develop these two different tourist markets, understanding the preferences of each market and delivering an appealing product offering for each market.

The Uruguayan Chamber of Tourism has played an active role in fostering the development of alternative forms of tourism and trying to position the rural tourism sector as a major source of tourism (Camara Uruguaya de Turismo Magazine, 2010). A successful marketing strategy pursued by the Uruguayan government has been to develop a country's brand, under the name of 'Uruguay Natural', to promote the country's image abroad as an idyllic tourism destination with plenty of natural and 'unspoilt' surroundings. The tourism sector has benefited enormously from this marketing strategy which has contributed to attract a higher number of international tourists looking for holidays in less developed countries. The destination brand 'Uruguay Natural' was launched in 2003 and the number of tourists has continuously increased ever since (Campanella, 2010). Also, the Uruguayan government has recently been granted a five million dollar loan to promote and enhance the rural tourism sector within six Uruguayan provinces located in the Uruguay River corridor (Inter-American Development Bank, 2011).

In light of the rapid development of rural tourism during the past few years, and the Government efforts to promote and enhance the rural tourism offer in Uruguay, it becomes imperative to assess the competitiveness of the Uruguayan rural tourism sector. In fact, this is a good moment to try to develop this industry by taking advantage of an improvement in reputation of Uruguay as a tourist destination. Uruguay is ranked 58 out of the 139 destinations assessed by the Travel and Tourism Competitiveness Report 2011. More importantly, Uruguay was listed as one of the top ten tourist destinations in the Americas for the first time (Blanke and Chisea, 2011; WEF, 2011). However, there is very limited research done on the competitiveness of Uruguay as a rural tourist destination in attracting foreign tourists (Mackinnon, Bentancur, and Sanchez, 2009). The objective of this study is to partially fill this gap by assessing how competitive Uruguayan rural tourism is and evaluating if Uruguay represents an attractive market for German tourists looking for agro tourism and farm holiday destinations. The German market was chosen because it is one of the top tourist generating countries and one of the biggest spenders in international tourism (The World Tourism organization, 2010). Moreover, most tourists - from outside South America - selecting Uruguay as a tourist destination come from Germany, USA and Australia (Peralta,

2012). If Uruguay aims at further increasing the number of tourists coming from developed countries it must understand the competitiveness of the sector and the needs and perceptions of potential tourists. This study will assess the potential of Uruguay as a rural tourism destination in attracting German tourists. It is interesting to note that both, nature-based tourism as well as adventure tourism has been steadily growing in Germany for the past few years. Demand for these forms of tourism is expected to remain high as people who work and live in cities seek natural experiences and look for unique and exotic destinations. Existing research indicates that many German tourists are willing to accept a limited tourism infrastructure in order to be able to enjoy a unique and authentic experience (Arlt, 2006).

## Competitiveness

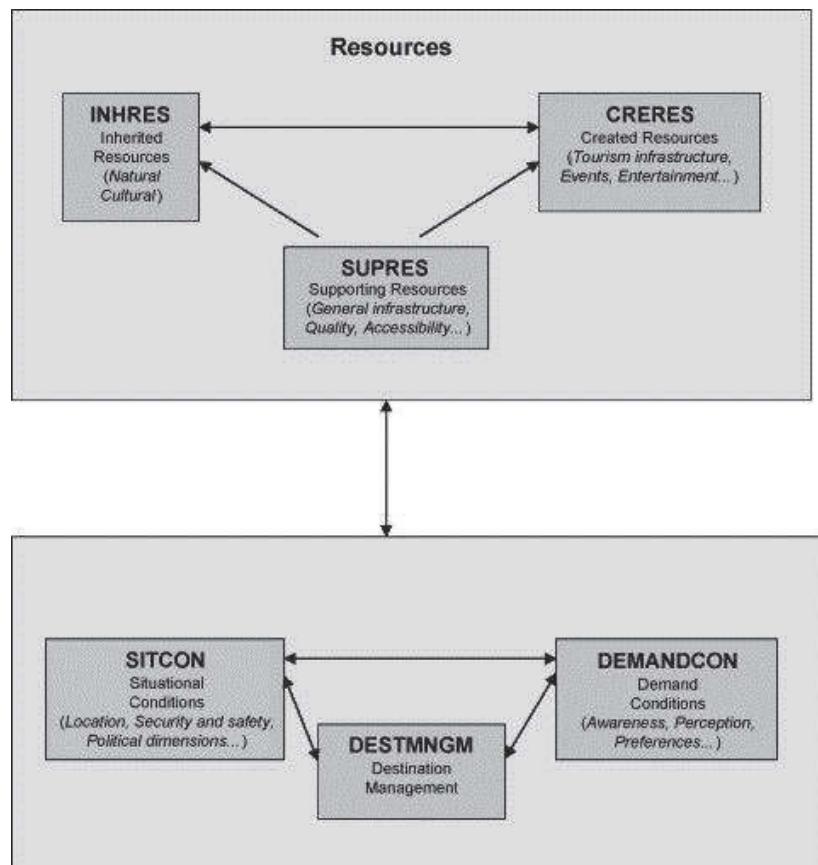
To assess the competitiveness of a tourist destination it is important to consider the principles of comparative and competitive advantage and how they interact with each other (Wilde and Cox, 2008). The interplay of these two factors plays a major role in achieving a successful position within a very competitive industry such as tourism (Ferreira and Estevão, 2009). A country, company or region has a comparative advantage when they can produce a product /service at a lower opportunity cost than a competitor. Comparative advantage results from different factor endowments such as human resources, physical resources, knowledge resources, capital resources, historical and cultural resources, infrastructure and tourism superstructure (Cracolici, Nijkamp and Rietveld, 2006). Comparative advantage in tourism strongly influences consumers' destination choice. For instance, the existence of some resources such as natural attractions will determine a destination's competitive situation. Natural endowments may form a source of comparative advantage; however, the way that organizations add value to these resources will give some organizations a competitive advantage over competing tourists' destinations (Crouch and Ritchie, 1999).

As a response to the continuous development of different types of tourism and changes in tourism demand, Crouch and Ritchie (1999) developed a 'Conceptual Model of Destination Competitiveness' to analyse the competitiveness of tourism destinations. The model is based on the theories of comparative advantage (Smith, 1776; Ricardo, 1817) as well as on two of the most popular strategic models 'Porter's Five Forces' and 'Porter's Diamond' (Valdez, Cruz and Velasco, 2010). This model is integrated by five elements: qualifying and amplifying factors; destination policy; planning and development; destination management; core resources and attractors; supporting factors and resources. It focuses on long-term economic prosperity and incorporates economic, ecologic, social, cultural and political aspects of the destination country (Ritchie and Crouch, 2003).

Dwyer and Kim (2003) and Dwyer, Mellor, Livaic, Edwards and Kim (2004) also developed a holistic model to help identifying the underlying variables of a country's tourism competitiveness. Dwyer and Kim's (2003) 'Integrated Model'- as shown in Figure 1 - aims to improve Crouch and Ritchie's (1999) model by developing a framework that reflects a more realistic relationship between the major elements of destination competitiveness. To achieve this, the different factors involved in destination competitiveness were reclassified. For example, the 'Integrated Model' makes a distinction between inherited (endowed) and

created resources and incorporates ‘market ties’ in supporting factors instead of being listed as core resources and attractors.

**Figure 1: Dwyer and Kim’s Integrated Model of Destination Competitiveness**



Dwyer and Kim’s (2003) integrated model of tourist destination competitiveness was empirically tested in Australia, Korea and Slovenia (Gomezelj and Mihalic, 2008). The findings from these studies could be used to inform strategic decisions taken by tourism stakeholders to foster destination competitiveness. The authors of these studies suggested that further research should be conducted to identify the relative importance of the different determinants of competitiveness within the context of specific destinations and specific visitor market segments (Gomezelj and Mihalic, 2008) and the importance of different elements of destination competitiveness in increasing the number of tourists from different market segments (Dwyer and Kim, 2003). By unveiling the determinants that define the competitive position of rural tourism in Uruguay and by understanding the customer profile of potential German rural tourists this paper has addressed some of these gaps.

Similar to Crouch and Ritchie’s (1999) model, Dwyer and Kim’s model incorporates the micro and macro perspective to identify the underlying key success factors of a destination’s comparative and competitive advantage using both subjective and objective measures. The latter includes variables such as visitor numbers, tourist expenditure, market share, employment, whereas the former include variables such as the richness of culture and heritage or the quality of the tourism experience. The revealed weaknesses of a tourist destination could be addressed by industry and government strategies.

Other scholars such as, Cracolici, Nijkamp, and Rietveld (2006) looked at the impact of resource efficiency on the competitiveness of a tourist site. These authors suggest that in order to achieve competitive advantage the economic efficiency of the tourist destination needs to be compared to the efficiency of a single company within that destination. The idea is to develop strategies to optimise the use of input factors involved in the generation of outputs.

The model to be employed in this research must be capable of explaining the success of tourism destinations in attracting international tourists. The general conceptual model of destination competitiveness developed by Crouch and Ritchie (1999) and further refined (Ritchie and Crouch, 2003) is the model that best meets these requirements. This model was selected for several reasons. First, this model has been widely reported in the tourism literature and has been the basis for a large number of other research studies into destination competitiveness. Second, the model is based on at least eight years of research and has been refined and developed over an extensive period of time. Third, the model has a holistic approach that makes it suitable to be applied to any destination and tourism market. This particular aspect of the model makes it very attractive to conduct –for the first time - an exploratory research of the competitiveness of the Uruguayan agro tourism industry. Fourth, Dwyer and Kim's (2003) framework allows the assessment of destination competitiveness to be evaluated over time in respect to particular types of travellers or by comparison to a particular competitor destination. Therefore, this model will inform the data collection process as well as the analysis of primary data.

## **Methods**

A positivist, deductive approach was deemed the most appropriate approach to address the objectives of this research. The application of a well-known framework to the Uruguayan rural tourism sector has helped to identify the competitive position of Uruguayan firms within the selected industry. Two structured questionnaires were developed to collect the data, one administered to Uruguayan key rural tourism stakeholders, and another one to potential German tourists. A total of 185 questionnaires were completed. To establish validity, questionnaires were scrutinized by a panel of experts in the field. Prior to data collection, both questionnaires were pre-tested (using a pilot test) on a total of 20 additional participants and some corrections were made. Because none of the questionnaires contain socially sensitive items the impact of social desirability bias was not considered.

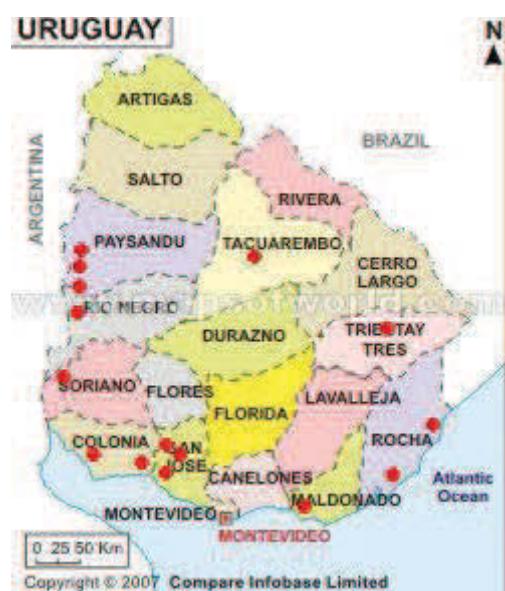
The first questionnaire was administered to 76 Uruguayan rural tourism stakeholders with knowledge or experience relevant to the topic. This research strategy recognizes that gathering data from rural tourism stakeholders who have spent time addressing the challenge of what makes a destination competitive, can provide an invaluable starting point for an analysis such as this. Three groups of experts were targeted: owner-managers of rural tourism establishments (64%) - mainly tourist farms and ranches - rural tourism associates (22%) and the remaining 14% were tourist agencies managers. The sample was integrated by 55% men and 45% female participants. The sample size is the suggested to get results that are representative (with 95% confidence level) of the universe of Uruguayan rural tourism farms.

To make the results more robust it was decided to collect data from other two stakeholders with expertise in the topic as described above.

Participants were required to make judgements regarding the importance of the main factors and sub-factors detailed in the Crouch and Ritchie model of destination competitiveness. Respondents were asked to rank different Uruguayan competitiveness parameters against a five-point Likert scale, comparing Uruguay against its main competing tourist's destinations: Argentina and Brazil. The data was then categorised within the six categories of the 'Integrated Model'. The collected data was transferred GenStat for statistical analysis. This data analysis tool is suited to the aims of this study which aimed to identify the importance of the attributes of destination competitiveness.

Figure 2 below shows the location of the tourist establishments and geographic areas where the questionnaire was carried out. The criteria used to determine the sampling frame (for selecting the tourist establishments) was based on: existence of a homepage, website quality, total product offer, activities in the surrounding area, price, location and proximity to main roads. The chosen tourists' farms are distributed all over the country and therefore it could be said that the results are a fair representation of the rural tourist industry in Uruguay.

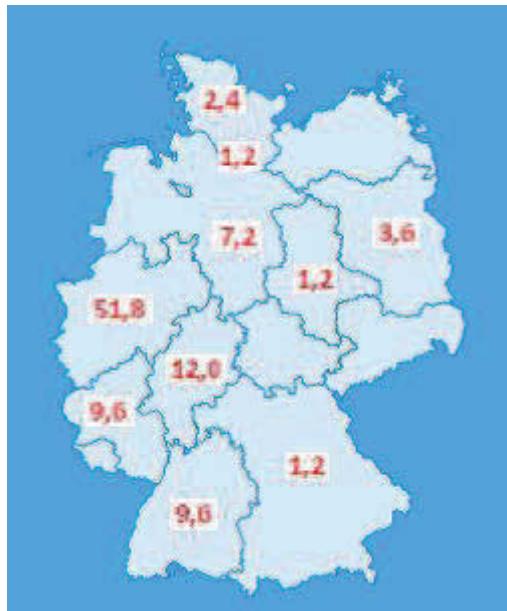
**Figure 2: Rural tourism establishments where the questionnaires was carried out**



The second questionnaire was administered to a convenience sample of 109 potential German tourists. This is a non-probability sample and therefore the findings could not be generalized to the entire German population. However, the study used the right sample size in order to get results that are representative of potential tourists attending "The Equitana fair" with a 95% confidence level. The sample is not truly random because this research is only interested in the population of German tourists that are interested in rural tourism. Therefore, the questionnaire was intended to collect the required data to examine the preferences and customer profile of potential German tourists looking for rural holidays in developing countries such as Uruguay.

This questionnaire had two main parts. The first part aimed at revealing the attractiveness of Uruguay as a rural destination and the second part looked at the general characteristics of German tourists. The Equitana equestrian fair event, held in Essen Germany was recommended by travel agencies - supplying services to people interested in rural tourism - as the most suitable event to collect data from potential German tourists interested in rural tourism. It is a nine days event attracting over 207,000 visitors, located in Germany's most economic and populous region (Reed Exhibition, 2011).

**Figure 3: Geographic origin of German participants by state (in percentage)**



## Results

### I) Competitiveness of the Uruguayan Rural Tourism sector

In this section, the data collected from questionnaire one is presented against the main six competitiveness determinants suggested by Dwyer and Kim (2003).

#### *Inherited resources*

Results from this study indicate that Uruguay as a rural tourism destination is well positioned compared to its South American competitors (overall grade 3.95 out of 5) in most of the attributes within this group (Table 1). Whereas *natural inherited resources* are graded with an overall mean score of 4.20, *culture and heritage* only attained an overall mean score of 3.71.

The highest rating in this group of indicators was assigned to the *country's unspoiled nature* (4.70) whereas the lowest scored was assigned to the *level of cleanliness and sanitation* with only 3.80 points. For these two factors a low standard deviation (0.41/0.45) indicates a high level of agreement between the respondents. However, a high standard deviation of 0.93 indicates that respondents did not agree about the attractiveness of the Uruguayan climate. This might be related to the different locations of targeted rural tourism establishments. The climate in Uruguay varies across different parts of the country.

**Table 1: Inherited resources**

|                               |  | Mean        | SD          |
|-------------------------------|--|-------------|-------------|
| <b>Natural</b>                | Attractiveness of Climate to German tourists | 4,00        | 0,93        |
|                               | Cleanliness/Sanitation                       | 3,80        | 0,41        |
|                               | Marvels of Nature                            | 4,20        | 0,77        |
|                               | Flora and Fauna                              | 4,40        | 0,61        |
|                               | Unspoiled Nature                             | 4,70        | 0,45        |
|                               | National Parks                               | 4,10        | 0,70        |
| <b>Overall</b>                |  | <b>4,20</b> | <b>0,65</b> |
| <b>Cultural/<br/>Heritage</b> | Historic Sites, Heritage and Museums         | 3,71        | 0,80        |
|                               | Artistic and architectural Features          | 3,43        | 0,49        |
|                               | Traditional Arts                             | 3,89        | 0,77        |
|                               | Variety and Quality of Cuisine               | 3,93        | 0,59        |
|                               | <b>Overall</b>                               | <b>3,74</b> | <b>0,66</b> |

In the group of *culture and heritage resources*, a mean score of 3.43 in *artistic and architectural features* suggests that Uruguay is rated similarly to its direct competitors. A standard deviation of 0.49 indicates a high level of agreement between respondents.

### ***Created resources***

There was much agreement among respondents about a slight superiority of Uruguay's created resources compared to its counter rivals from Argentina and Brazil (Table 2). Within this dimension most of the indicators depicted similar values. However, results indicate that Uruguay's main strengths lie in its *airport efficiency and quality* as well as its *nature based activities*. Nonetheless, standard deviations indicate that respondents are more in agreement with the value of nature based activities compared with *airport efficiency and quality*.

Within this group of indicators, *recreational activities* such as special events and festivals that take place in Uruguay are rated above average, with a mean score of 3.86. This suggests that Uruguay is more competitive on this area than the competitor destinations. The standard deviation reveals that most participants share this opinion.

Although created resources look promising for the future of Uruguayan rural tourism sector, standard deviation divergences need to be considered and therefore results should be interpreted with appropriate caution.

**Table 2: Created resources**

|                               |   |             | Mean        | SD |
|-------------------------------|---|-------------|-------------|----|
| <b>Tourism Infrastructure</b> | Airport Efficiency/Quality                                    | 4           | 0,85        |    |
|                               | Tourist Guidance and Information on Rural Tourism Attractions | 3,25        | 0,73        |    |
|                               | Local Tourism Transportation Efficiency/Quality               | 3,43        | 0,98        |    |
|                               | Visitor Accessibility to Natural Areas                        | 3,64        | 0,89        |    |
|                               | Food Service Facilities                                       | 3,93        | 0,7         |    |
|                               | <b>Overall</b>  | <b>3,66</b> | <b>0,83</b> |    |
| <b>Range of Activities</b>    | Waster based  | 3,43        | 0,82        |    |
|                               | Nature based  | 4           | 0,65        |    |
|                               | Adventure Activities  | 3,43        | 0,82        |    |
|                               | Recreational Activities                                       | 3,86        | 0,64        |    |
|                               | Sports Facilities   | 3,71        | 0,8         |    |
|                               | <b>Overall</b>  | <b>3,69</b> | <b>0,75</b> |    |
| <b>Shopping</b>               | Diversity of Shopping Experience                              | 3,79        | 0,86        |    |
|                               | Quality and Variety of Shopping Items                         | 3,64        | 1,11        |    |
|                               | Value for Money in Shopping Items                             | 3,29        | 0,88        |    |
|                               | <b>Overall</b>  | <b>3,57</b> | <b>0,95</b> |    |
| <b>Entertainment</b>          | Entertainment Quality/Quantity                                | 3,71        | 0,72        |    |
|                               | Nightlife   | 3,64        | 0,83        |    |
|                               | <b>Overall</b>  | <b>3,68</b> | <b>0,76</b> |    |
| <b>Special Events</b>         | <b>Overall</b>  | <b>3,86</b> | <b>0,76</b> |    |

Regarding the *special events and festivals* that take place in Uruguay the competitive situation is rated slightly better (3.86) than in competing countries. The standard deviation reveals that most participants share this opinion.

### ***Supporting factors***

Uruguay is considered to be more competitive than its direct rivals in most of the supporting factors, with most attributes rated higher than 3, as shown in Table 3.

The rating of supporting factors (Table 4) indicates that the main competitive advantage of Uruguay as a rural tourist destination lies in the *hospitality from residents towards tourists*, which contributes to a positive experience while staying in Uruguayan farms. Supporting factors together with inherited resources have the highest average mean scores of 3.97 and 3.95 respectively, suggesting that these are the two main determinants of Uruguay's favourable competitive situation. The vast majority of respondents agreed with the significance of these competitiveness determinants, which is reflected in the relatively low levels of standard deviation (0.66) for each factor. Whilst some supporting factors are perceived as good or very good compared to competing countries, the *quality and quantity of training programs* to enhance service quality has a low rating, with a mean score of 3.15. A standard deviation of 0.36 - the lowest in this research - indicates that there is large

agreement among participants. This indicates that this is an area where adjustment needs to be made to improve the competitive position of the sector.

Some supporting factors, such as *electricity supply* or *medical facilities*, show high standard deviation values (above 1). These results may be affected by the existing differences between geographical areas where this research was carried out. In Uruguay services are not uniform across all areas of the country. Some provinces are more developed than others and therefore they have better access to services.

**Table 3: Supporting factors**

|                               |   | Mean        | SD          |
|-------------------------------|---|-------------|-------------|
| <b>General Infrastructure</b> | Accessibility of Destination                        | 3,50        | 0,73        |
|                               | Health/medical Facilities to serve Tourist          | 3,43        | 1,05        |
|                               | Financial Institutions/Currency Exchange Facilities | 3,86        | 1,06        |
|                               | Telecommunication Systems for Tourists              | 4,21        | 0,67        |
|                               | Security/Safety for Visitors                        | 4,57        | 0,62        |
|                               | Electricity Supply in Rural Areas                   | 4,00        | 0,85        |
| <b>Overall</b>                |   | <b>3,93</b> | <b>0,83</b> |
| <b>Quality of Service</b>     | Quality of Rural Tourism Services                   | 3,93        | 0,59        |
|                               | Monitoring of Visitor Satisfaction                  | 3,69        | 0,72        |
|                               | Service Quality and Visitor Satisfaction            | 3,77        | 0,58        |
|                               | Training Programmes and Service Quality             | 3,15        | 0,36        |
|                               | <b>Overall</b>                                      |             | <b>3,64</b> |
| <b>Hospitality</b>            | Hospitality of Residents towards Tourists           | 4,64        | 0,61        |
|                               | Quality in Performing Rural Tourism Services        | 3,93        | 0,59        |
|                               | Communication/Trust: Tourists - Residents           | 4,43        | 0,62        |
|                               | <b>Overall</b>                                      |             | <b>4,33</b> |

### ***Destination management***

The results indicate that most respondents agree on the perception (SD: 0.55) that *human resource management* is one of the key factors limiting a further development of the selected industry (Table 4). With a mean score of 3.16, *human resource management* is clearly below the average group mean score at 3.50. This low rating reveals that for this indicator, Uruguay does not differ much from its main competitors.

Results from the other groups of indicators within destination management are rated higher than human resource management. However, within the group of indicators for “destination policy, planning and development”, the *existence of clear policies in rural tourism* scored particularly low. This might be another weakness of Uruguayan rural tourism but it has to be noted that the high standard deviation (SD: 1) reveals a high dissonance among tourism stakeholders.

The indicator with the lowest rating within this dimension is *the promotional activities of national tourist organisations in Germany*, with a rating of 2.77, which shows that is the only indicator where Uruguay is clearly perceived to be less competitive than its direct rivals.

**Table 4: Destination management**

|  |   |      | Mean        | SD          |
|--|---|------|-------------|-------------|
| <b>Destination<br/>Marketing<br/>Management</b>              | NTO Reputation                                  | 4,00 | 0,60        |             |
|  | Co-operation between Private and Public Sector  | 3,08 | 1,10        |             |
|  | Overall Destination Image                       | 4,07 | 0,59        |             |
|  | Development of effective Destination Branding   | 3,85 | 0,77        |             |
|  | Promotional Activities of NTO's in Germany      | 2,77 | 0,70        |             |
|  | Fit between Product Preferences                 | 3,33 | 1,03        |             |
| <b>Overall</b>   |   |      | <b>3,52</b> | <b>0,80</b> |
| <b>Destination<br/>policy,<br/>planning,<br/>development</b> | Vision for Rural Tourism Development            | 3,46 | 0,61        |             |
|  | Vision reflecting Tourist Values                | 4,08 | 0,73        |             |
|  | Vision reflecting Resident Values               | 3,85 | 0,66        |             |
|  | Vision reflecting Stakeholder Values            | 3,75 | 0,60        |             |
|  | Existence of clear Policies (Rural Tourism)     | 3,08 | 1,00        |             |
|  | Development/Promotion of Rural Tourism Products | 3,29 | 0,88        |             |
| <b>Overall</b>   |   |      | <b>3,55</b> | <b>0,73</b> |
| <b>Human<br/>Resource<br/>Management</b>                     | Commitment to Tourism/Hospitality Education     | 3,00 | 0,55        |             |
|  | Educational Structure/Profile of Employees      | 3,14 | 0,64        |             |
|  | Adequate Tourism Education Programmes           | 3,29 | 0,59        |             |
|  | Training responsive to Visitor Needs            | 3,21 | 0,41        |             |
| <b>Overall</b>   |   |      | <b>3,16</b> | <b>0,55</b> |
| <b>Environmental<br/>Management</b>                          | Sustainable Tourism Development                 | 3,64 | 0,72        |             |
|  | Environmental and Heritage Protection           | 3,85 | 0,77        |             |
|  | <b>Overall</b>                                  |      |             | <b>3,75</b> |
| <b>0,75</b>  |   |      |             |             |

### *Situational conditions*

Factors within this determinant can form the basis of competitive advantage in attracting tourist to Uruguayan rural farms. The overall ranking is positive but particularly, the *German business environment* factor has been rated very high by the majority of respondents.

As shown in table 5, *political stability* is another area where Uruguay has a clear competitive advantage against Argentina and Brazil, with a rating value of 4.25. This area is a key factor for a competitive destination. However, this study has also identified the following areas where Uruguay is perceived to be less competitive: *quality of research input; access to venture capital; domestic business environment; and foreign investment*.

**Table 5: Situational conditions**

|  |   | <b>Mean</b> | <b>SD</b>   |
|--|---|-------------|-------------|
| <b>Competitive<br/>(micro)<br/>Environment</b> | Domestic Business Environment                     | 3,29        | 1,10        |
|  | Access to Venture Capital                         | 3,00        | 0,76        |
|  | Level of Co-operation (Rural Establishments)      | 3,67        | 0,62        |
|  | Use of IT by Firms                                | 4,00        | 0,68        |
|  | Use of e-Commerce                                 | 3,92        | 0,73        |
|  | <b>Overall</b>                                    | <b>3,58</b> | <b>0,78</b> |
| <b>Competitive<br/>(macro)<br/>Environment</b> | German Business Environment                       | 4,42        | 0,49        |
|  | Political Stability                               | 4,25        | 0,67        |
|  | Quality of Research Input                         | 3,29        | 0,59        |
|  | Extent of Foreign Investment                      | 3,50        | 0,91        |
|  | <b>Overall</b>                                    | <b>3,86</b> | <b>0,67</b> |
| <b>Price<br/>Competitiveness</b>               | Value for Money in Destination Tourism Experience | 3,64        | 0,72        |
|  | Value for Money in Accommodation                  | 3,57        | 0,82        |
|  | <b>Overall</b>                                    | <b>3,61</b> | <b>0,77</b> |

**Demand Conditions**

Dwyer and Kim's (2003) argue that demand conditions are influenced by the *international awareness of the destination and its products*. The findings from this research suggest that the international awareness of Uruguay as a key rural tourist destination is similar to those of its direct competitors. A low standard deviation (SD: 0.66) indicates a strong agreement among all respondents (Table 6).

**Table 6: Demand conditions**

|   | <b>Mean</b> | <b>SD</b>   |
|---|-------------|-------------|
| International Awareness of Destination          | 3,15        | 0,66        |
| International Awareness of Destination Products | 3,15        | 0,66        |
| Overall Situation for Rural Tourism in Uruguay  | 3,08        | 0,73        |
| <b>Overall</b>                                  | <b>3,12</b> | <b>0,68</b> |

**Overview of the main indicators**

Overall, Uruguay's main competitive advantage is based on its *supporting factors* and *inherited resources* (Table 7). It has to be noted the high level of agreement on the perceived competitiveness of Uruguayan inherited resources is much higher than that of other indicators. With a similar standard deviation the results indicate that *special events and festivals* are rated as more competitive than situational conditions.

Supporting factors together with inherited resources had the highest average mean scores of 3.97 and 3.95 respectively, suggesting that these are the two main determinants of Uruguay's

favourable competitive situation. The vast majority of respondents agreed with the significance of these competitiveness determinants, which is reflected in the relatively low levels of standard deviation (0.66 for each factor).

Results suggest that most respondents perceived that Uruguay is less competitive in the areas of: *created resources*, *destination management* and *demand factors*. Within the dimension of destination management, results indicate that *human resource development* is one of the main factors constraining the competitiveness of Uruguay against Argentina and Brazil.

**Table 7: Overview of the main indicators**

|  | Mean        | SD          |
|--|-------------|-------------|
| Natural Endowed Resources                  | 4,2         | 0,65        |
| Cultural/Heritage Endowed Resources        | 3,71        | 0,66        |
| <b>Endowed Resources</b>                   | <b>3,95</b> | <b>0,66</b> |
| Special Events/Festivals                   | 3,86        | 0,76        |
| Tourism Infrastructure                     | 3,66        | 0,83        |
| Range of Activities                        | 3,69        | 0,75        |
| Shopping                                   | 3,57        | 0,95        |
| Entertainment                              | 3,68        | 0,76        |
| <b>Created Resources</b>                   | <b>3,69</b> | <b>0,81</b> |
| General Infrastructure                     | 3,93        | 0,8         |
| Quality of Service                         | 3,64        | 0,56        |
| Hospitality                                | 4,33        | 0,61        |
| Market Ties                                | -           | -           |
| <b>Supporting Factors</b>                  | <b>3,97</b> | <b>0,66</b> |
| Destination Marketing Management           | 3,52        | 0,8         |
| Destination Policy, Planning & Development | 3,55        | 0,73        |
| Human Resource Development                 | 3,16        | 0,55        |
| Environmental Management                   | 3,75        | 0,75        |
| <b>Destination Management</b>              | <b>3,50</b> | <b>0,66</b> |
| Competitive (micro) Environment            | 3,58        | 0,78        |
| Global (macro) Environment                 | 3,86        | 0,67        |
| Price Competitiveness                      | 3,61        | 0,77        |
| <b>Situational Conditions</b>              | <b>3,68</b> | <b>0,74</b> |
| <b>Demand Factors</b>                      | <b>3,12</b> | <b>0,68</b> |
| <b>Overall</b>                             | <b>3,68</b> | <b>0,71</b> |

Table 8 summarises important strengths and weaknesses of the Uruguayan rural tourism sector. Some of the weaknesses of rural tourism in Uruguay compared to its main competitors are all related to either tourism management or tourism policy which underlines the importance of good management strategies to best use endowed resources. These are the areas that need to be amended to improve Uruguay's destination competitiveness.

**Table 8: Strengths and weaknesses of the Uruguayan rural tourism sector**

| Strengths                   | Weaknesses                             |
|-----------------------------|--|
| Culture and Heritage        | No Marvels of Nature                   |
| Weather Conditions          | Range of Activities                    |
| Beautiful Nature            | Training Programmes                    |
| Accessibility               | Human Resource Development             |
| Entertainment               | Destination Marketing Management       |
| Special Events              | Cooperation: Private and Public Sector |
| Security and Safety         | Clear Policies for Rural Tourism       |
| Communication and Trust     | International Awareness                |
| High Fidelity Level         |  |
| Environmental Management    |  |
| German Business Environment |  |

### Profile of potential German tourist

This section will present the findings from the questionnaire carried out to German respondents at the Equitana equestrian horse fair held in Germany in 2011. This part of the study is aimed at identifying the profile of potential German tourist interested in rural tourism in Uruguay, and assessing Uruguay's potential to attract this tourist market.

#### *General characterization of participants*

Results indicate that 70% of participants travel with their partners. Within this group, 33% also travel with kids. Interestingly, not all parents take their kids on holiday with them. Among the remaining participants, 19% tend to travel with friends and 11% travel alone. Most participants (65.06%) stated that relaxation and leisure was their prime motivation for travelling followed by sport and adventure (24.01%), culture (8.43%) and lastly social reasons (2.40%). The data collected indicates that, on average, a German tourist would spend 1,000 euros per week. Most respondents indicated that they tend to plan their holidays at least half a year in advance.

In spite of the lack of knowledge about Uruguay - as a rural tourist destination - 71.08% of respondents would consider travelling to Uruguay on a holiday. However, 9.63% of respondents claimed they would not consider travelling to Uruguay. The remaining 19.28% would 'eventually' choose Uruguay as a holiday destination. It is important to note that ten participants had already been to Uruguay and all of them would like to return to Uruguay in the near future. Among those who would not consider Uruguay as a potential destination, the

13 hours flight was identified as the main factor that would discourage these potential tourists from visiting Uruguay. The study also reveals that those who would not select Uruguay as a tourist rural destination tend to spend less money than the rest of the respondents. A long and expensive flight would probably discourage those tourists on a budget.

Results from this study show that the travel patterns of those Germans willing to select Uruguay as a rural destination can be broken down as follows: 50.85% travel more than once a year, 35.60% travel once a year, 3.39% travel every other year and 10.17% travel less frequently. Most participants (69%) who considered Uruguay as a potential rural tourist destination would like to stay in the country for about three weeks (19.36 days). Also 91% of respondents would like to complement their Uruguay experience with a short visit to Argentina and Brazil.

Participants declared that they gather information about travel destinations from the internet (26.05%), friends and relatives (22.33%), tourism catalogues (13.03%), newspaper (11.16%), television (10.70%), tourist agencies (8.37%), magazines (5.12%) and newsletter (3.26%). When asked about their preferred way of receiving information the ranking was clear: 39.81% opted for information sent by email, 29.13% for information sent by post, 25.24% are happy to search for information on internet and only 5.82% like to receive newsletters.

Most of the respondents (95%) who expressed their desire to travel to Uruguay were very interested in participating in some of the activities offered by Uruguayan touristic farms. Table 9 below depicts the ranking of participants' activity preferences. Interestingly, even non-horse riders (one being the exception) would like to enjoy horseback riding and participate on typical gaucho's activities. Most participants (91.07%) were very enthusiastic about the idea of participating in several days trail rides. However, the majority of Germans respondents were not very interested in activities directly involved with polo.

**Table 9: Participants' activity preferences**

| Activity            | Rank | Level of Participation |
|---------------------|------|------------------------|
| Riding              | 1    | 98,21                  |
| Cattle Drive        | 2    | 87,5                   |
| Branding            | 3    | 71,43                  |
| Walks               | 3    | 71,43                  |
| Biking              | 4    | 55,36                  |
| Drilling/Harvesting | 5    | 42,86                  |
| Polo                | 5    | 42,86                  |
| Fishing             | 6    | 17,86                  |

The results shown in Table 9 indicate that riding and cattle driving were the two most preferred activities among Germans looking for a rural holiday. Only 33.93% of participants consider that the existence of a swimming pool would influence their destination choice. For

the remaining respondents the presence or absence of a swimming pool was irrelevant for their destination selection process.

## Discussion

Overall, compared to its main regional competing destinations, Argentina and Brazil, Uruguay does not possess a very strong comparative position. However, tourism stakeholders on the supply side rated Uruguay's *natural endowed resources* and *hospitality* as the most competitive indicators. The authors believe that Uruguayan respondents have underestimated the marvels of nature that attract international tourists to competing destinations such as Argentina or Brazil. Compared to Argentina or Brazil, Uruguay does not possess natural highlights such as the Iguassu Waterfalls and the isolated lands of Patagonia in Argentina or the beautiful Brazilian beaches. Yet, Uruguay is still rich in natural resources and beautiful landscapes and therefore a certain level of touristic activity could still be achieved. To overcome the lack of marvels of nature Uruguay should concentrate on adding value through offering high standard accommodation, excellent hospitality and service, and excellent marketing.

Looking at standard deviation values, it can be concluded that the location of the rural tourism establishment is an important criterion which influenced the rating given by respondents to selected indicators. The range of activities available, the beauty of the surroundings, or the climate can vary according to the geographical location of rural farms. Therefore, those thinking about investing in rural tourism in Uruguay should carefully review the pros and cons of a particular geographical location.

Uruguay offers a limited range of activities, compared to Argentina or Brazil. This is a consequence of the geographic and topographic conditions of the country as well as its small size. These limitations cannot be overcome. However, the small size of the country is not necessarily a competitive disadvantage. On the contrary, it could be a strong point because within small distances different sceneries and features can be explored, different activities can be experienced, and it is possible to explore most of the country in a single holiday.

The findings suggest that Uruguay will have to create and convey the right message focussing on the range of activities offered in rural farms and their surrounding areas. The distinctive experiences that Uruguay may offer needs to correspond to the experiences that German tourists would like to enjoy. The results from this study indicate that German respondents are mainly interested in getting involved in cattle drives and horse riding.

With an overall rating of 3.69 Uruguay is perceived as well positioned against its main counter rivals. Moreover, the high level of correspondence between the profile of German tourists and the characterization of nature-based and adventure tourists has revealed the significant potential of Uruguay as a rural tourism destination for Germans looking for nature and soft-adventure tourism. However, results indicated that Uruguay is less competitive in offering adventure activities and water-based activities than other sort of activities. This is not

surprising as Uruguay is not endowed with mountains or wild rivers which are necessary for hard adventure tourism activities such as rock climbing, canoeing or white water rafting.

The findings of this research suggest that recent investments have made rural tourism in Uruguay more competitive. In particular, the creation of a new international airport, one of the most modern in South America, has improved the attractiveness of Uruguay as a destination for international tourists. However, Germany is not connected to Uruguay by direct flights but to Argentina and Brazil. There are many options to travel to Uruguay from Argentina or Brazil. Nevertheless, if Uruguay was able to offer direct-flights to potential German visitors the country's accessibility could be further improved and Argentinean's and Brazilian's competitive advantage resulting from being directly connected to Germany via non-stop flights would lose importance.

The main indicators responsible for the competitive advantage of Uruguay as a rural tourist destination are the *security and safety* of the country, the good *electricity supply* even in rural areas, the good *telecommunication system*, the *lived culture and traditions*, the offered *tranquillity* and the *hospitality of residents* towards tourists. The high *level of security* and the *peacefulness* that characterise Uruguay's rural areas are highlighted in the literature and are accredited with Uruguay's high fidelity level (Cotelo, 2011). This high fidelity level has been confirmed with the help of the data collected from German participants. For instance, all the German respondents that have travelled to Uruguay before would definitely travel to Uruguay again. The level of security of a country is a key factor for Europeans choosing developing countries as a tourist destination. Therefore, tourism stakeholders should capitalize on the excellent security levels of the country.

This study also revealed that a deficit in training programs and service quality is one of the main weaknesses that constrain the further development of the rural tourism industry in Uruguay. The group of destination management indicators and the demand factors are the least favourable group of indicators regarding destination competitiveness. Within this group of indicators, only environmental management achieved an almost good competitive situation whereas for human resource development, destination policy, planning and development, and destination marketing management only low competitiveness levels were achieved. Therefore, it is recommended to improve the indicators that are responsible for the relatively poor rating of destination management. For instance, it is necessary to establish a good educational system especially for participants on the supply side of rural tourism. In order to achieve this, it would be recommended to directly involve the government in the creation of specialized human resources. Public University programmes need to be carefully reviewed and the government must ensure that graduates have the skills to enter the tourist industry.

This study has also identified opportunities where the public and private sector can work together to improve the competitiveness of Uruguayan rural tourism. The areas on which both sectors should focus on are: promotional activities in Germany, the development of clear rural tourism policies and a better integration of the sector into the country's development strategies. Currently, a vast number of private and bureaucratic public institutions within the rural tourism sector have limited the possibilities of effective coordination and collaboration

among tourism stakeholders. In Uruguay, the cooperation indicator between private and public sector was only 3.08 revealing a deficit in communication. The lack of communication between private and public institutions needs to be addressed by the Ministry of Tourism. Uruguay's destination competitiveness will only improve if the quality of the offered services and the hospitality of service providers are better than its direct competitors. For Uruguayan rural firms to remain competitive, good communication between tourism stakeholders must be attained.

Results from this study indicate the need to develop more appropriate marketing strategies. The data collected from this study revealed that German tourists are aware of the ample gamut of tourist attractions that Argentina and Brazil have to offer. This is not the case for Uruguay as many respondents were not aware of what Uruguay as a tourist destination has to offer. In order to enhance the awareness of Uruguay as a rural tourism destination, and the appeal of the core resources and attractors, destination management needs to be improved. This represents an opportunity for the public and private sector to identify the best channels to communicate the main benefits and strengths of Uruguayan rural farms to potential tourists.

The rural tourism sector has not benefited from any tax reductions that traditional sectors of tourism in Uruguay have enjoyed in the past. Considering the potential of rural tourism to improve the economic situation of rural areas the government should consider implementing tax incentives to help rural farms to improve their competitive advantage. If rural farms attract more foreign tourists it could have 'spill over' benefits for many people in surrounding areas. Tax benefits would also help the rural tourism sector to offer a more competitive product which will help to attract price-sensitive tourists such as Germans. However, tax reductions need to be carefully considered as the government requires a certain level of taxes to meet its social responsibilities and investments in the community.

## **References:**

- Arlt, W.G. (2006). Not very willkommen: the internet as a marketing tool for attracting German-speaking tourists to non-European destinations. *Information Technology & Tourism*, 8(3-4), 227-238
- Barbosa, L.G., Oliveira, C.T. & Rezende, C. (2010). Competitiveness of tourist destinations: The study of 65 key destinations for the development of regional tourism. *RAP*, 44(5), 1067-1065. Retrieved June 15, 2011, from  
<http://www.scielo.br/pdf/rap/v44n5/v44n5a04.pdf>
- Bentancur, A. (2008). *El desarrollo de la actividad turística en Uruguay (XIV)*. *Pensando Turismo*. Retrieved February 6, from <http://pensandoturismo.com/el-desarrollo-de-la-actividad-turistica-en-uruguay-xiv/>
- Blanke, T. & Chiesa, J. (2011). Travel and Tourism Competitiveness Report 2011 – Beyond the Downturn. *World Economic Forum*. Retrieved July 22, 2011, from  
<http://www.weforum.org/reports/travel-tourism-competitiveness-report-2011>
- Brida, J.G., Lanzilotta, B. and Risso, W.A. (2008). Turismo y crecimiento económico: el caso de Uruguay. *Pasos*, 6(3), 481-492.
- Campanella, L. (2010). Turismo en Uruguay: Un sector en sostenida expansión. [online] *Asociación Latinoamericana de Instituciones Financieras para el Desarrollo*. Retrieved August 14, 2011, from  
[http://www.alide.org.pe/download/Financ\\_Sectorial/fn10\\_tur\\_rev3\\_turUruguay.pdf](http://www.alide.org.pe/download/Financ_Sectorial/fn10_tur_rev3_turUruguay.pdf)
- Camtur (2008). Estadísticos Nacionales Contexto Global y situación de Uruguay. *Camara Uruguaya de Turismo*. Retrieved February 5, 2011, from  
<http://www.camtur.com.uy/publicaciones.html?start=7>
- Cotelo, E. (2011). *El turismo rural uruguayo comienza a pisar fuerte fuera de fronteras*. Retrieved June 28, 2011, from  
[http://www.espectador.com/1v4\\_contenido.php?id=206862&sts=1](http://www.espectador.com/1v4_contenido.php?id=206862&sts=1)
- Cracolici, M.F., Nijkamp, P. & Rietveld, P. (2006). *Assessment of Tourist Competitiveness by Analyzing Destination Efficiency*. Retrieved June 13, 2011, from <http://www.tinbergen.nl/discussionpapers/06097.pdf>
- Crouch, G.I and Ritchie, J.R. (1999). Tourism, Competitiveness, and Social Prosperity. *Journal of Business Research*, 44, 137-153.
- Camara Uruguaya de Turismo Magazine (2010). *Concientización Turística*. Retrieved March 07, 2011, from [http://www.issuu.com/camturmagazine/docs/revista\\_noviembre\\_2010](http://www.issuu.com/camturmagazine/docs/revista_noviembre_2010)
- Dwyer, L. & Chulwon, K. (2001). *Destination Competitiveness: A Model and Determinants*. Retrieved March 09, 2011, from  
<http://fama2.us.es:8080/turismo/turismonet1/economia%20de%20turismo/demanda%20turistica/DESTINATION%20COMPETITIVENESS%20A%20MODEL%20AND%20DETERMINANTS.PDF>
- Dwyer, L., Liviac, Z. & Mellor, R. (2003). Competitiveness of Australia as a tourist destination. *Journal of Hospitality and Tourism Management*, 10(1), 60-78.

- Dwyer, L., & Kim, C. (2003). Destination Competitiveness: Determinants and Indicators. *Current Issues in Tourism*, 6(5), 369-414.
- Dwyer, L., Mellor, R., Liviaic, Z., Edwards, D. & Kim, C. (2004). Attributes of Destination Competitiveness: A Factor Analysis. *Tourism Analysis*, 9 (1-2), 91-101.
- Federici, L. (2011). *Turismo Rural en Uruguay: Tres Opciones Para Este Otoño*. Retrieved May 27, 2011, from <http://invertirviviruruguay.com/turismo-rural-en-uruguay>
- Ferreira, J. & Estevão, C. (2009). *Regional Competitiveness of Tourism Cluster: A Conceptual Model Proposal*. Retrieved June 14, 2011, from [http://mpra.ub.uni-muenchen.de/14853/1/MPRA\\_paper\\_14853.pdf](http://mpra.ub.uni-muenchen.de/14853/1/MPRA_paper_14853.pdf)
- Gallardo, M (2010). *La OMT premiará desempeño de Uruguay en crisis global*. Retrieved January 18, 2011, from <http://200.40.120.170/formatos/iphone/seccion.asp?s=ciudades&n=489892&t=2&p=/10/05/21/>
- Gomezelj, D. O. & Mihalic T. (2008). Competitiveness of Slovenia as a Tourist Destination. *Managing Global Transitions*, 4(2), 167-189. Retrieved July 25, 2011, from [http://www.fm-kp.si/zalozba/ISSN/1581-6311/4\\_167-189.pdf](http://www.fm-kp.si/zalozba/ISSN/1581-6311/4_167-189.pdf)
- Gomezelj, D. & Mihalič, T. (2008). Destination competitiveness – Applying different models, the case of Slovenia. *Tourism Management*, 29, 294-307. Retrieved June 14, 2011, from [http://www2.ihis.aau.dk/~kvist/teaching/Gomezelj&Mihalic\\_2008.pdf](http://www2.ihis.aau.dk/~kvist/teaching/Gomezelj&Mihalic_2008.pdf)
- Inter-American Development Bank (October, 2011). *Uruguay to spur Tourism with IDB Financing*. Retrieved November 11, 2011, from <http://www.iadb.org/en/news/news-releases/2011-10-27/uruguay-to-spur-tourism,9638.html>
- Mackinnon, M., Bentancur, A. & Sanchez, A. (2009). *Rural tourism in Uruguay: a growing trend*. Retrieved March 28, 2011, from <http://webiica.iica.ac.cr/bibliotecas/RepIICA/B1619i/B1619i.pdf>
- Mill, R.C. (2002). *The Tourism System*. Kendall/Hunt Publishing Company.
- Mintur (2011). *Plan de Marketing Estratégico y Operativo del Turismo de Uruguay – A Diagnóstico*. Retrieved December 14, 2011, from [http://apps.mintur.gub.uy/Plantur/components/Web\\_Diagn%C3%B3stico\\_integradol.pdf](http://apps.mintur.gub.uy/Plantur/components/Web_Diagn%C3%B3stico_integradol.pdf)
- Peralta, A. (2012). *Campanas turísticas atraen muchos extranjeros*. El Diario, 05 Diciembre 2012.
- Quintana, C. (2010). *Entrevista*. Retrieved January 21, 2011, from [http://www.issuu.com/camturmagazine/docs/revista\\_noviembre\\_2010](http://www.issuu.com/camturmagazine/docs/revista_noviembre_2010)
- Ricardo, D. (1817). *On the Principles of Political Economy and Taxation*. John Murray, London, (3<sup>rd</sup> edition, 1821).
- Ritchie, J.R.B. & Crouch, G.I. (2003). *The Competitive Destination: A Sustainable Tourism Perspective*. CABI Publishing, Wallingford, UK.
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. Methuen and Co. Ltd, London, (5th edition, 1904).

- The World Tourism Organization. (2010). *Yearbook of Tourism Statistics*. Retrieved June 07, 2011, from <http://www.unwto.org/facts/menu.html>
- Valdez, J.C., Cruz, P. & Velasco, A.E. (2010). *Tourism Competitiveness in Mexico: The elements of a More Rational Tourist Policy*. Retrieved June 18, 2011, from <http://www.regional-studies-assoc.ac.uk/events/2010/may-pecs/papers/Valdez.pdf>
- WEF. (2011). *Travel and Tourism Competitiveness*. Retrieved November 03, 2011, from <http://www.weforum.org/issues/travel-and-tourism-competitiveness>
- Wilde, S.J. & Cox, C. (2008). Linking destination competitiveness and destination development: findings from a mature Australian tourism destination. *Proceedings of the Travel and Tourism Research Association (TTRA) European Chapter Conference – Competition in Tourism: Business and Destination Perspectives*. Helsinki, Finland. pp. 467-478.
- World Travel and Tourism Council. (2011). *Travel and Tourism Economic Impact 2011: Uruguay*. Retrieved June 09, 2011, from [http://www.wttc.org/site\\_media/uploads/downloads/uruguay.pdf](http://www.wttc.org/site_media/uploads/downloads/uruguay.pdf)

# **E-Commerce Development in China: Challenges and Solutions**

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## **Abstract:**

There are many changes in commerce activities nowadays. Some of them promoted e-commerce while others showed negative impact on development of the e-commerce. Credit issue is one of most difficult problems in current stage of this industrial growth in China. This article tries to review historical development and the current situation of E-commerce; it also tries to explore the features of this industry through discussion on the changes happened in recent years; the focus will be on analysis of credit threats and problems through some case study; and some possible and effective solutions will be discussed and brought up in order to solve the problems. For the above purpose, definition and characteristics of E-Commerce will be Examined while the environment of its development is to be reviewed. Comparison of The traditional model and IT-based model will be conducted to indicate their Differences in all related perspectives of the business. Some key issues related to Quality, payment and delivery of the goods will be discussed in details through case study to find out advantages and disadvantages in a fast development of E-Commerce. As a credit guarantee system and e-commerce network security show a significance among the relevant aspects, they will be explored and carefully discussed in order to find out challenges and difficulties faced by this industry. Some solutions will be identified for the problems that have to be dealt with in fast development of E-Commerce in China.

The first part introduces the research background of this thesis which lays a foundation for the following chapters. The second part describes the definition and developing history of the E-commerce. The third part discusses the credit problems arising in the E-commerce and analyzes the reasons and ways to solve the problems. The fourth part brings up with some suggestions on the credit management.

## **Key words:**

E-commerce, Credit problems, Credit management

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## 1. Introduction

The Chinese economy was still at fast developing speed with growth rate of 7.8% in 2012. The market structure was also in a rapid optimization stage while the online shopping users rapidly increased national-wide according to the statistics of the Internet Development Report by China Internet Network Information Center (CNNIC) in January 2013. As indicated in the Report, the number of online shopping users reached 242 million and utilization ratio of online shopping rose to 42.9% by the end of December 2012. The number of online shopping users was increased by 48.07 million with growth rate at 24.8% compared with 2011.

However, in the open network environment the safety problem is the greatest obstacles for the development of E-commerce and has become the focus of the application domain about e-commerce and the key of implementing e-commerce. In 2009, 57% of the dealers in the UK recognize online fraud is the biggest problem they faced and an average of 1.8% of the e-commerce revenue is wasted on the payment fraud. With the growing expected credit risk, more and more Internet users have abandoned the online transactions (Selis, Ramasastry and Wright, 2001). Chinese electricity commerce market is still in its infancy, various aspects of the environment are not yet mature, and therefore the problem of online fraud is more serious. The China Internet Network Information Center (CNNIC) released "28th China Internet Development System Project Report" showing that in the first half of 2011, 8 percent of Internet users encountered online fraud. CNNIC also warned that a large number of fish website using counterfeit website address, web page content and other ways to steal users' bank or credit cards numbers, passwords and other information. 86.9% of users will give up online trading when they are not sure of the authenticity of the websites. This situation urgently needs to be changed to ensure a more credible, reliable network environment for the healthy development of E-commerce.



## **2. Development of E-commerce in China**

### **2.1 Scope of E-commerce**

E-commerce usually refers to a new type of commercial operation mode among the wide range of global commercial trade activities, in the open network environment of the Internet, based on the browser or server application mode, where buyers and sellers conduct business activities without meeting each other, to achieve consumer online shopping, online transactions between merchants, online electronic payments, as well as a variety of business activities, like trading activities, financial activities and related service activities. E-commerce is a combination of the use of micro-computer technology and network communication technology. Many different definitions are made by governments, academics and business people, depending on different degree of participation and angles of view according to their specific positions.

E-commerce covers a wide range of activities, which are generally divided into 4 categories: Business-to-Business(B2B), Business-to-Consumer,(B2C), Consumer-to-Business (C2B), Consumer-to-consumer(C2C) and other modes, the major parts are the nodes of Business-to-Business and Business-to-consumer.

### **2.2 The Developing Status of E-commerce**

The United States is the first country to initiate e-commerce and characterized with the most mature status of e-commerce development. America has been playing a leading role in the development of global e-commerce. Although EU started e-commerce later than U.S., EU has become an advanced area of global e-commerce in a fast development period. Asia as a rookie of e-commerce development has great market potential, but its pace of development and market share is not ideal in recent years; that put Asia in a position of developing region in e-commerce world. Global e-commerce transactions on B2B have been in the dominant position of all e-commerce activities since 2002, and continue to show rapid growth. If we look at the progress of the Chinese e-commerce on B2B in last five years, we have found that it has been growing up in a stable scale from 2007 to 2012. The transaction volume was increased from RMB2.2 trillion yuan in 2007 to RMB 6 trillion yuan in 2012. (Chart 2)

Transaction volume of China's B2B market between 2007 and 2012

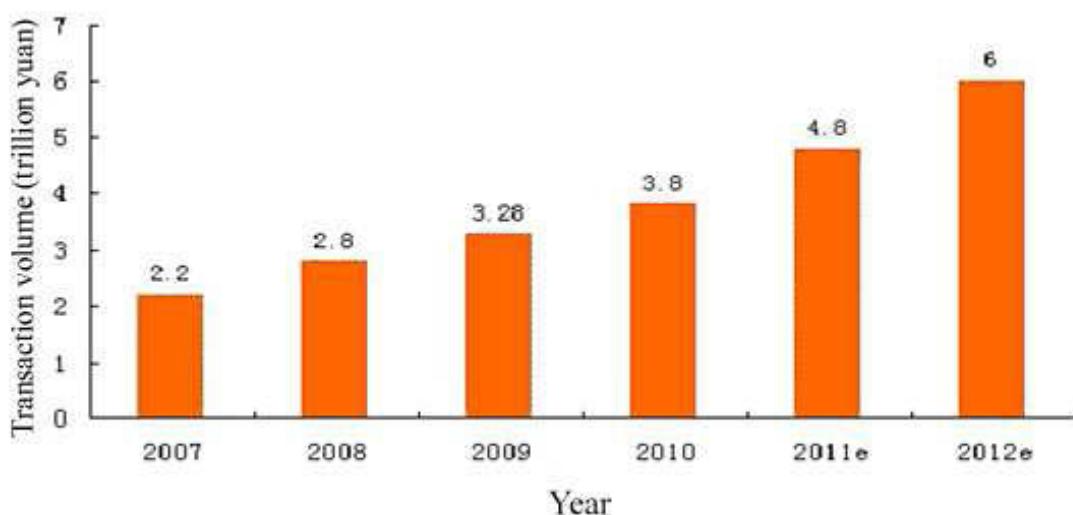


Diagram prepared by: China e-Business Research Center

Website:BSB.TOOCL.COM

By the first half of 2012, there were more than 83 million e-traders in China, and over 214 million e-consumers. The contribution of online shopping was 14.1% of China's GDP growth in the first 3 Quarters of 2012 according to the statistics of CINIC. The retail sales were increased by 34.9% compared with that in the same period of 2011. As indicated in the report by Xinhua Journalists-Ji Shaoting and Zhang Yao, the volume of online shopping reached over 10 billion yuan on the single day of Nov. 11, 2012. Although the Chinese economy development slowed down because of the global crisis, the e-commerce has been continuously going up very fast. China's electronic shopping scale has surpassed Japan with a growth rate of 40 percent in 2012. The growth rate of China's electronic commerce averagely surpassed 30 percent during 2007 to 2012. The gross turnover of electronic commerce reached 6 trillion yuan in 2012.

### 3. The challenging Problems in E-commerce Development

#### 3.1 Characteristics of Credit payment in E-commerce

Compared with the traditional credit which is based on personality, the credit concept of E-commerce has its own impersonal characteristics. The impersonal relations exist in the impersonal credit environment and the relations between the stakeholders are incoherent. In other words, it is what we called "one-shot deal" where the information is asymmetric and uncertain, and from the commercial to the final consumer, there are some important right authorization processes.

E-commerce credit refers to the interactive credit relations between the buyers, sellers and E-commerce platform providers on the market. That is the level of compliance to the market contracts by the trading bodies. Beside e-banks and electronic credit cards, with the fast development of E-commerce, third party plays a

more and more important role in E-commerce payment and has drawn a greater attention. Third party payment refers to a paying mode where are the non-financial institutions who are companies serving as the credit intermediaries, exchanging data and confirming related information on the basis of the internet by signing contracts with major domestic and foreign commercial banks. The purpose is to establish a payment process between the cardholders or consumers, banks, and the ultimate payee or businesses (enterprises). Now in China, there are two types of third party payment: One is the gateway model and another is account model. In the gateway mode, the payment instructions issued by the client are sent to the bank, then the bank send messages to the third-party payment platform after the bank completed the transfer, finally the payment platform informs the trader (enterprise) of the message and conducts accounts settlement with the trader. The payment gateway is located between the Internet and traditional private network of the banks, playing the role of isolation and protection. The typical representative is Pay Ease. Different from the gateway model, the account model requires the customers and businesses (enterprises) to open an account in the third-party payment platform and recharge from a commercial bank account to the platform. Before the buyer confirms receipt of the merchandise, the third-party payment platform, instead of the buyers and sellers takes temporary custody of the payment. Then, with the instruction of the payer, the third-party payment companies transfer money from their accounts to the account of the payee. There are many third-party payment platforms, such as Paypal and cloud network.

### **3.2 Credit Threats of E-commerce**

After World War II, with the economy booming of the capitalist market, the research activities on western philosophy, economics, law, sociology, management as well as the administration were well developed with insight into the credit theory. The relations between credit, economy and social relations, government credit systems, corporate credit systems, personal credit systems have reached to a mature stage in the Western countries. Two major credit systems were set up: One is called as the credit construction entirely based on market operations; another is to operate under the management of governments or the central banks.

The United States is a big country of e-commerce transactions and credit management compared with other western countries. Its social credit system is relatively effective from the legal system, information systems, and intermediaries to specific trading rules. Other western countries also have more mature applications in the credit system compared with that of the previous years. The input into the credit reference systems also made their credit system more effective. As the birthplace of the Internet, the USA conducted a lot of researches in the field of credit building in e-commerce. In the aspects of trading behavioral norms, President Clinton gave approval to the E-SIGN and other items in June 30th, 2000, to promote the development of e-commerce credit; in the market operation, due to the promotion of the government policy, as many as 50 third-party guarantees, supervision, and e-commerce certification agencies have emerged. However, for many developing

countries, the emergence of E-commerce was relatively late, which caused the comparatively laggard development of the credit system construction in E-commerce. With imperfect credit systems and inadequate laws and regulations and other factors, there is still a long way to go for the developing countries to build up high-reputed credit system.

Our study indicates that five major threats are identified in the development of E-commerce.

A. There are difficulties in ensuring the authenticity and legitimacy of the E-commerce traders' identity. Although the E-commerce main bodies are required to conduct identity registration and enrollment before the transaction, there are still difficulties in identifying the authenticity of the information they provide. The existing technologies and management skills of e-commerce sites cannot distinguish whether the trading bodies are using their real identities or not. It allows the trading body using virtual identity to escape the regulation of the trading norms, which is bound to cause interests damages to the counter-party, producing a sense of fearing in the trading bodies of E-commerce.

B. Uncertainty of the information about the commodities in the E-commerce transactions. In the process of E-commerce transaction, buyers can make a decision based only on the information with the pictures provided by the sellers or through online negotiation with the sellers. If integrity problems happen in the sellers' part, for examples, providing false information or intentionally concealing the defects of commodities, the legal interests of the buyers will be damaged. Currently there is no effective law or technologies to make constraints on the authenticity and validity of the commodities online, which has greatly increased the transaction risks.

C. Network payment issues. Credit cards are the quickest and most convenient financial settlement tools in E-commerce. However, due to credit hazards and consumer's weak awareness of security, many obstacles took place in online payment. It seriously hampers China's e-business development. Entire online payment and simplification of the trading process will be realized in the future, with the support of national policies and regulations, as well as the promotion of the financial institutions and the cultivation of card consumption ideas.

D. The logistics problems in the E-commerce transactions. The last step of supply chain in the E-commerce transactions is logistics, which not only provide transportation and distribution of goods, but also assume responsibility of feedback and after-sales service. However, the logistics system, although in recent years enjoying enormous development, has been greatly hampered by, the high distribution costs, poor quality of service, low efficiency and other problems. Especially, when the damage or loss of goods happens in the distribution process, the ultimate person liable is difficult to be determined, thus making the E-commerce credit risk reveal again.

E. The violation of customers' privacy protection. Consumers of online shopping need to submit their personal information to the site, such as name, contact information and address, and so on, in order to facilitate receipt and acceptance of the goods and service. However, Disclosure of customers' information by some websites

has caused a lot of inconvenience to the customers' life, making serious infringement on protection of customers' privacy.

### **3.3 The Main Causes of the Credit Threats**

#### **3.3.1 The absence of credit consciousness**

There is a general lack of credit consciousness and credit morals which are very important to the business under the market economy. Due to the inadequate development of some regions' modern market economy and the underdeveloped market credit trading, the real social credit relationship is not in a position as it should be. A lack of credit consciousness and credit morals weaken the business relationship among the entrepreneurs and the consumers. As national credit management system was not in an effective way and related regulations and punishment mechanism were not set up for dealing with such issues, credit-loss behaviors can be often seen on the market of e-commerce.

#### **3.3.2 A full market mechanism is not in place**

A. There is a lack of effective credit management system in the enterprises.

Internal credit management is a specialized part of the financial management, including management of receivables and merchandise sales; credit investigation and management of major customers of the business. It is the a bridge connecting the business sectors for financial and accounting department of corporates, important reference for enterprises screening customers and maintaining long-term links with credible customers. Lack of this important management ring can easily leads to moral crisis.

B. Low marketization degree of credit intermediary services.

Countries where the real credit background reports of the capital market, the vast majority of businesses and consumers in the commercial market are called credit countries. Some countries are still not credit countries, where the social credit intermediary services industries lag behind. Although there are some institutions providing credit services and credit products for E-commerce enterprises, such as credit spot checks report and credit rating reports, the size of the market is still very small, decentralized, and the overall level of the industry is not high. Those countries have not established a complete and scientific set of credit investigation and evaluation systems, which lead to the unscientific and unreasonable assessment of the businesses' credit status. It disturbs the role of the market to perform its role of conducting rewards and punishments, and the enterprises also have no enough motivation to strengthen its credit management.

C. Low market openness degree of credit data and the lack of accesses to the corporate and personal information.

In the credit bureaus countries, the opening and marketable operation of businesses' and individual consumers' credit information data is an important part of the credit management system and the fully functional credit database has been necessary infrastructure for building the social credit system. Many countries' credit agencies do not currently own credit information databases, which are, if existing,

generally small in size, with incomplete information. In this case, it is impossible to make fair, objective and honest assessments of the E-commerce businesses and consumers.

### **3.3.3 Problems of the Government Managements**

Imperfection of the national credit management system and lack of effective punishment mechanism for losing credit also lead to many credit problems. In some credit countries, usually there are relatively complete national credit management systems, which contain national legislation and enforcement of laws on credit issues, the supervision and administration of the credit industries by the governments, whole-society credit education as well as the research and development of credit management. At present, many countries, including China, have serious deficiencies in these areas. First, there is lack of strict punishment mechanism for losing credit. Credit-losing behaviors not reaching the degree of crime receive no appropriate punishment; discredit enterprises and individuals in the trading are not condemned and spurned by society. Second, because of the government's oversight and weak management of the credit market, intermediary institutions engaged in the business information services (including accounting, auditing, legal services and credit intermediaries, credit rating, etc.) receive no sufficient supervision, which finally leads to the prevalence of false information and negative social reflection.

### **3.3.4 The Lagging Development of Logistics**

A. With the fast development of E-commerce, the security technology and management of the online payment can hardly keep pace with the changing requirements. Payment system of E-commerce is a huge integrated system consisting of the shopping process, payment instruments, security technology, recognizing certification system, the credit system and the financial system. On one hand, passengers use their own payment instruments (such as credit cards, electronic purses, etc.) to initiate payment and they are the starting point of the system operation; On the other hand, businesses have commodity trading claims monetary benefits from the financial system according to the customers' payment instructions, which means the businesses are on the other side of the commodities trading with creditors' rights. Excellent businesses are generally prepared to handle this process, including certification as well as the processing of different payment instruments. The opening bank of the customer is the one where the customer has an account. The opening bank provides the customer payment instruments, in which course, the bank also offers another kind of bank credit, payment guarantee. The payment gateway is the interface between the public network, private networks and financial private networks (VPNS), and the payment information must enter the payment system through the payment gateway, and then complete the payment authorization and access. The construction of the payment gateway security has a direct bearing on the security of e-commerce gross settlement, the bank's own security, arrangement of E-commerce payment settlement arrangements, and the risk of the financial system. So we must be very cautious about the construction of the payment gateway.

#### B. The lack of logistics supervision and management.

The logistics is the last ring of E-commerce transactions and low efficient management of logistics becomes a main cause of inefficient delivery. Logistics not only achieve the transportation and distribution of goods, but also bear responsibility of collecting feedbacks and offering after-sales service. However, although the logistics system has made significant development in recent years, many serious problems have arisen, for example, high distribution cost, poor service quality, inefficiency and difficulties in returning goods, absence of sense of responsibility of the sellers, which still hinder the development of the logistics industry. Especially, when damages happen in the distribution process, it is difficult to determine who should bear the responsibility, thus making negative impact on credit of a company.

With only a small number of invisible or media commodities being able to be directly delivered through the network transmission and distribution, the majority of goods and services require physical logistics in entire process. The process of logistics is the ultimate guarantee for E-commerce activity, without which there is no true sense of e-commerce. However, the vast majorities of B2C businesses haven't established and improved long-term cooperative relationships with the third party's logistics, leading to lack of scale advantages, disability to improve logistics efficiency and to reduce logistics costs by taking advantage of information technology and even great disadvantage. Research and practical application of logistics management theory have made great strides, with the emergence of many new theories which confront the management researchers for the first time and need to be fully digested and absorbed with time. The infrastructure of e-commerce logistics is not yet completely set up, with insufficient application of new equipment and technologies. Many logistics companies are lack of the concept of modern logistics, unaware of the status and role of electronic logistics management, which results in unstable trading environment and slow development of demand for E-commerce logistics.

### 4. Some Suggestions on the Solutions of the E-commerce Credit Problems

Due to the global nature and virtuality of e-commerce, the market is facing more severe crisis of confidence than the traditional commerce. To solve the problems of trust between consumers and businesses is an urgent issue for promoting rapid development of E-commerce transactions and to establish credit and orderly E-commerce environment. To realize the construction of trust mechanism in E-commerce, some concrete proposals are made in the following related sections.

#### 4.1 Strengthen the Network Management, Improving Network Security

##### 4.1.1 Optimization of Network Environment

The fundamental reason why people do not trust online merchants is that the basic platform network where electronic commerce develops has not been fully popularized. Therefore, the government should expand the investment in the construction of network infrastructure and facilities, to promote a larger network-covered area worldwide, fully popularizing computer and network. A hacker

attack in the transaction process is also a big problem, which often causes private information disclosure. In these cases, it is necessary to introduce some high-techs protection, including password technology, firewall settings, digital certification and digital signature technology; These actions help to improve the security of online transactions and to prevent a speculation, disclosure of consumer information and to provide an effective protection, which will ensure confidentiality, integrity, anti-repudiation of the provided data. Governments should be a key player with the responsibility to create a good environment of e-commerce network, which will clearly reduce the negative impact on the development of B2C E-commerce.

#### 4.1.2 Improve laws and Regulations

The laws and regulations covering E-commerce play an important role in establishment of a good business environment. The construction of a comprehensive set of e-commerce laws and regulations will help to promote the development of e-commerce, because the government can constrain the behaviors of enterprises and customers in the B2C. It will guarantee smooth transactions and protect the legal rights and interests of both enterprises and customers. At the same time, it can also cultivate customers' awareness of law. In addition, the Government should strengthen the legislation and enforcement of laws on electronic contracts. Due to the virtualizing operating, subjects of the contracts establish, modify and terminate the contract relationships by electronic means. Therefore, the technology of electronic means must ensure security.

## 4.2 Strengthen the Credit Management

### 4.2.1 Credit management and the development of e-commerce

As we all know, credit trading is the most important mode in the modern market economy, which is essentially a kind of credit economy. Market operation efficiency mainly depends on the quantity and reliability of the information obtained (including information of the product itself, the supply information, and information of customers' demand for the product, especially the credit information between supply and requisitioning parties). Without accurate credit information, market efficiency will be very low. Specifically, if the clients know little about the credit conditions and product quality of the businesses, they will not buy the products. So manufacturers will be working very hard to improve product quality and at the same time, release information about the products through advertising and other means, showing the quality of their products, which in fact is to convince the customers of the manufacturers' credit. But if manufacturers and customers know each other very well and confidence is gained, the transaction will become very simple and effective. Therefore, the effective management of credit information directly decides the level of efficiency of the operation of the market.

With the advent of the Internet, the network makes it easier for supply and requisitioning parties to get the product information they need. Manufacturers and customers can post products or demand information online, which makes credit information and its management particularly important to E-commerce based on the

net. The effective implementation of the credit management can ensure the efficient operation of the E-commerce credit system, so as to promote the healthy development of E-commerce

#### 4.2.2 The Implementation of Credit Management

Take the development of China's e-commerce for example, the implementation of credit

management consists of the following perspectives:

A. Building up the network infrastructure of the implementation of credit management.

Network is the basic technological platform of credit management. The establishment of the database of customer's credit information, the obtaining of credit information, analysis and evaluation of credit information all rely on network information technology. Therefore, for credit management, network is both a major tool of credit investigation, and is also a natural integrity credit information database.

B. Establishment of an authoritative e-commerce certification center as soon as possible. The Electronic Commerce Certification Center ensures that any transaction can be under the monitoring. It provides a standardized environment for the development of the E-commerce. This not only promotes a fair competition between enterprises, but also eliminates public doubt about the security of E-commerce, thereby enhancing users' confidence in electronic commerce.

C. Establishment of credit rating system in the E-commerce. This is mainly divided into the following aspects:

a. The credit rating websites engaged in e-commerce operations.

b. The E-commerce security certification center's granting digital certificates and credible sites certificate. The digital certificate is an identification paper provided through the security authentication technology and certification of trusted sites is a comprehensive evaluation the proof of the security indicators of the business sites.

c. The establishment of a credit-based credit member's community, in order to meet the market demand.

D. Building credit management system of enterprise in the E-business. In order to adapt to the modern enterprise system, the credit management system of the E-business should be established as soon as possible. First, it is necessary to improve the enterprise's own credit risk control system, including financial accounting system, bank loan management system, and accounts payable management system. Second, it is very important to complete the customer credit risk control system, including customer credit management system, customers' credit system and accounts receivable management system, which will greatly promote the healthy development of the e-commerce.

E. Developing e-commerce credit intermediaries and establishing socialized E-commerce credit management support system. It costs a lot for credit relations parties to collect, identify, analyze, rate the creditors' information. However, if credit to intermediary service agencies like credit consulting companies supply service to the parties to a credit, the cost will be greatly reduced.

F. Establishing complete punishment mechanism for losing credit. Behaviors of breaching promises refer to inauthentic behaviors having not yet reached the degree of fraud and other criminal standards. Related punishment mechanism for losing credit in the E-commerce should be set up to improve the cost of trust loss behaviors, preventing inauthentic behaviors from happening.

J. Improve payment methods, ensuring payment security. Online payment business norms and standards should be improved, and researches on risk prevention measures should be conducted. Relevant laws and regulations on the payment service need to be completed to guide commercial banks to build convenient online payment platform, vigorously promoting the use of online payment tools like bank cards, online banks, further improving the online fund settlement system to promote the standardization of online payment business. What's more, electronic certification system must be set up, which is the concrete application of electronic identification technology.

### **4.3 Strengthening logistics supervision and improving efficiency of delivery**

It is a good strategy to strengthen the research of modern theories of E-commerce and logistics, and to absorb foreign advanced thoughts, theories and technology. It would be greatly helpful to learn from the achievements of other countries' researches on logistics management, which will speed up China's development of E-commerce.

#### **4.3.1 Optimize the Development of Third-Party Logistics**

Third-party logistics enterprises have evident advantages in the areas of high efficiency, lower cost, specialization and comprehensive utilization of logistics resources in recent years have been seen as the key to the logistics industry. For the logistics in the B2C E-commerce model, specialized services by the third-party logistics enterprises can reduce or even eliminate concerns about logistics, and enable the enterprises to concentrate on operation and reduction of the cost in logistics distribution.

#### **4.3.2 Speeding up the Development of Logistics Industry Alliance and Information Exchanges.**

The B2C enterprises can directly carry out the sales and distribution relying on the vast commercial network of traditional industry chains. People order merchandises through the B2C online platform and claim goods from the nearby chain stores or chains, which can be very convenient and time-saving way to complete the shopping process, making the consumers enjoy the full and efficient sales service of B2C. The enterprises shorten distances, reducing the frequency, and complete the logistics with low costs. At the same time, the cooperation between chain enterprises and the B2C enterprise can bring the chain enterprises a large number of excellent-quality customers with little cost and improvement of the brand awareness.

#### **4.4 Improving image of the Website**

Business with a certain brand image in the public will produce higher sense of security and trust in the customer's mind. A good brand makes the customers trust the products, services and quality. The brand also means the establishment of the relationship between the businesses and the customers. Brands also imply the commitment to the customers of the company's products, service and quality. A good brand is built up on the capacity to fulfill its commitment, which is the main factor affecting consumers' trust of the business. Therefore, to establish a brand with various methods has become a way to improve the consumers' trust in the businesses.

In addition, the online stores must try hard to improve the quality of the products and services so that the trust of customers will be fully increased on the enterprises. For this purpose, two ways can be explored to improve the quality.

A. Enhance and improve the technology and management level of the online store, aiming at ensuring the security of the online stores and improving the efficiency of order process.

B. Improve the after-sales service system to provide customers with convenience and to release the worries of consumers in the process of purchasing, using and maintaining.

### **5. Conclusion**

With the high-speed development of the E-commerce, many new problems especially credit problems come up and it challenges the whole credit system of many countries and China. The credit construction not only requires development of the laws and regulations, but also calls for the improvements of people's credit consciousness and advanced technologies as well as the completion of the credit functioning system. Therefore, the credit problem should be considered and solved from comprehensive sides. The credit information system must be complete and open. What's more, the government, businesses and the customers should be in commitment on improving their credit consciousness while responsibility of supervising institutions should be reinforced. Only with a more perfect credit system can the development of E-commerce be healthy and efficient. E-commerce will bring more convenience to both consumers and producers of products under ensured and security environment in future age of e-commerce.

### **Reference:**

- 1 *Report on Internet Development in China*, China Internet Network Information Center,  
Beijing, P. R. China, January 2013
- 2 Guo Zhiguang, *A Credit Mechanism Research in the Environment of Electronic Commerce*,  
Beijing Jiaotong University, March 2013
- 3 "E-commerce: New engine of China's economic development," People's

Daily,January 18,

2013

- 4 Shapiro, B. P., R. J. Dolan, and J. Quelch. *Marketing Management: Principles, Analysis and Applications*. Homewood, 111.: Richard D. Irwin, Inc., 1985.
- 5 *A research on the Current Situation and Countermeasures of the Electronic commerce*
- 6 *Credit Construction*, Yanjun, Jiangsu science and technology information, April 2009.
- 7 Li Xiaoxia *A Research on the Credit Problems in the B2C e-commerce*, Anhui University,  
May 2011
- 8 Li Xiaoxia *A Research on the Credit Problems in the B2C e-commerce*, , Anhui University,  
May,2011
- 9 Bhatt, GD. and A.F. Emdad, An analysis of the virtual value chain in electronic commerce  
*Logistics Information Management*.2001. 14(1/2):78-85.
- 10 Carter, L., A. McBride, Information privacy concerns and e-government: a research  
agenda .*Transforming Government: People, Process and Policy*. 2010, 4(1):10-13.
- 11 *Report on Internet Users Information Security Research* by CINIC, Beijing, China,  
January 2013
- 12 Ettredge,M. and V. Richardson. Assessing the risk in e-commerce. 2002.
- 13 Report on Online Payment Security in China by CINIC, Beijing, China, Oct. 2012
- 14 Guo Zhiguang, *A Credit Mechanism Research in the Environment of Electronic Commerce*,  
Beijing Jiaotong University, March,2013.
- 15 Zhang Xueling, *Current situation of China's E-Commerce*, Journal of E-Commerce, China  
Nov.2012
- 16 Ji Tizhen, *Problems China's E-Commerce is facing in future development*, Hua Lu Web,  
July 2012
- 17 Chau, CxAu, Tam. Impact of information presentation modes on online shopping:  
an empirical evaluation of a broadband interactive shopping service [J] . *Journal of Organizational Computing and Electronic Commerce*, 2000: 1-22.
- 18 Shapiro, B. P., R. J. Dolan, and J. Quelch. *Marketing Management: Principles, Analysis and Applications*. Homewood, 111.: Richard D. Irwin, Inc., 1985.
- 19 Guo Zhiguang, *A Credit Mechanism Research in the Environment of Electronic Commerce*,  
Beijing Jiaotong University, March,2013.
- 20 Gerald Spindler, *E-commerce law in Europe and the USA*, Springer, 2002.

- 21 Guo Zhiguang, *A Credit Mechanism Research in the Environment of Electronic Commerce*,  
Beijing Jiaotong University, March,2013.
- 22 Dan, J.K.,Charles,S. and Lai, Y.J. Revisiting the role of web assurance seals in business- to-consumer electronic commerce[J]. Decision Support Systems. 2008, 44  
(4):10-15.
- 23 *Research Report on Consumers Behavior of Internet Users* by CINIC, Beijing China, 2012
- 24 Ho,B.C.T.and K.B. Oh, An empirical study of the use of e-security seals in e-commerce [J]. Online Information Review.2009, 33(4): 655-671.
- 25 Simon S Y Shim, Vishnu S Pendyala, Meera Sundaram, Business-to-Business E-Commerce Frameworks, Computer, 2000, 10: 40~47.
- 26 Report on Online Payment Security in China by CINIC, Beijing, China, Oct. 2012
- 27 Ji Tizhen, *Problems China's E-Commerce is facing in future development*, Hua Lu Web,  
July 2012
- 28 Li Xiaoxia, *A Research on the Credit Problems in the B2C e-commerce*, Anhui University,  
May, 2011.
- 29 Doney.p.M. An examination of the nature of trust in buyer-seller relationships,  
Journalofmarkering1997,61(4):35.
- 30 *Research Report on Consumers Behavior of Internet Users* by CINIC, Beijing China, 2012

# **Creating Spaces for Indigenous Research Around Eziko for Strengthening Sustainable Livelihoods within Rural Contexts**

**Nomalungelo Goduka<sup>1</sup>**

**Vuyiswa Tali<sup>2</sup>**

## **Abstract:**

Eziko Sipheka Sisophula (Eziko for short) theoretical framework is rooted in African/indigenous worldviews, philosophical foundations, cultural values and languages. Eziko creates spaces for engaging in processes and practices for strengthening sustainable livelihoods within rural contexts, through intercultural and intergenerational opportunities for learning, teaching, research and community engagements. A central feature of Eziko involves the collective struggle and efforts of indigenous scholars/researchers and students to interrogate and deconstruct the impact and the continuing legacy of the European conquest, the domination of indigenous lands, peoples, cultures, languages, religions and worldviews, but above all the colonization of their minds through the western-based science and systems of knowledge production.

The purpose of this position paper is to illustrate the seven pillars of Eziko Sipheka Sisophula theoretical framework. These pillars include the African ontology, epistemology, cosmology, teleology, ideology, logic and axiology that embody the African worldview in which Eziko is rooted.

## **Key words:**

culture, eziko, world views, co-creating knowledge, intercultural, inter-generational, communal knowledge production

## **Theoretical Frameworks that undergird Indigenous Research (Decolonizing Theories)**

Within the academy, theories have historically been constructed in ways that have maintained and privileged the centrality, legitimacy and superiority of western thinking. These theories are being challenged by a range of indigenous scholars/researchers and students who are engaged in efforts to establish decolonizing spaces within university settings. They are generating decolonizing frameworks and research methodologies for rethinking the nature and structure of education for all learners, and research for, with and by indigenous peoples. They are also establishing intellectual spaces to create analytical, conceptual and theoretical frameworks for the development and integration of Indigenous Knowledge (IK) within the curricula, pedagogy and research methods for sustainable livelihoods within rural communities Goduka (2005); Battiste (2002) ; Cajete (1999); Kawagley (1995). These indigenous-based

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theoretical and methodological paradigms set foundations for spaces to conduct research that has a potential for strengthening sustainable livelihoods within rural contexts. These paradigms are also an affirmation that indigenous research is not research conducted for no purpose or direction. Rather, it is research for addressing socio-economic challenges within rural contexts. This sentiment is also articulated by Nabudere (2006) when he writes:

- African scholars must pursue knowledge production that can renovate African culture, defend the African peoples' dignity and civilization achievements and contribute afresh to a new global agenda that can push us out of the crisis of modernity as promoted by the European Enlightenment. Such knowledge must be relevant to the current needs of the masses, which they can use to bring about a social transformation out of their present plight. We cannot just talk about the production of 'knowledge for its own sake' without interrogating its purpose.....Eurocentric knowledge is not produced just for its own sake. Its purpose throughout the ages has been to enable them to 'know the natives' in order to take control of their territories, including human and material resources for their benefit. Such control of knowledge was used to exploit the non-European peoples, colonize them both mentally and geo-strategically, as well as subordinate the rest of the world to their designs and interests.

Therefore, for knowledge to be relevant to the needs of indigenous people within rural contexts, it must be embedded in indigenous worldviews, cultures, languages and ways of knowing. This knowledge must also speak to their aspirations, and efforts that will lead to transformation of their existing socio-economic and political situations.

Indigenous research also animate fundamental IK theories and methods as means to raise its intellectual, economic, political and social value and its status as a system of scientific knowledge. This is done without mystifying western-based knowledge systems, i.e. raising them to a position of superiority, and without mythicizing indigenous-based knowledge systems, i.e. relegating them to a lower status. Therefore, this renewed focus on IK and its role within rural contexts raises questions about the western/colonial view of indigenous people and their heritage as exotic objects that have no history, no culture, and have not made contribution to world civilization, science and progress. These views are now competing with a developing intellectual nexus of constructivist and indigenous theoretical frameworks that affirm and validate the importance of IK, indigenous worldviews, philosophical foundations, cultural values and languages for strengthening sustainable livelihoods within rural contexts.

### **The Emergence of Kaupapa Maori Theory (KMT)**

The struggle for the re-discovery and re-affirmation of indigenous knowledge and theoretical frameworks has grown significantly in the past 20 years. In Aotearoa (New Zealand), the Kaupapa Maori Theory (KMT) has been presented as an indigenous theoretical framework that is grounded in Maori worldview, language and culture. It is important to first present principles and foundations of KMT as these principles inform and form foundations for Eziko. According to Pihama (2001) KMT is simultaneously local and international. Local, in that it is defined by Māori for Māori, drawing on fundamental Māori values, experiences and worldviews. It is international, in that there are many connections that can be made through a process of sharing Indigenous Peoples theories. For example, KMT and Eziko Theoretical Framework share commonalities with the Critical Theory, yet, they also differ from it:

- Both Kaupapa Māori theory and Eziko Theoretical framework do not depend on Critical Theory for their existence.
- In the same vein, the Critical Theory does not depend on KMT and Eziko for its existence.

- Both are rooted in indigenous lands, worldviews, philosophical foundations, cultures and languages of Africa and Maori.
- On the other hand, the Critical theory is founded in European land, cultures and languages.
- Both KMT and Eziko must be cognisant of indigenous peoples' historical, cultural and linguistic realities in all their complexities.
- Both KMT and Eziko are not Theories in the Western sense. They do not subsume themselves within European philosophical assumptions which construct and privilege one Theory over another; one rationality over another; one research paradigm over another; and one knowledge and World view over another.
- Both KMT and Eziko are rooted in African and Maori praxis. The term praxis comes from Friere's (1973) critique of western-based education. In the two instances, praxis refers to action and reflection that are informed by and linked to specific values that are grounded in African and Maori contexts. Therefore, it is not enough for people to come together in dialogue in order to gain knowledge of their social reality. They must act together upon their environment in order to critically reflect upon their reality in order to transform it through further action and critical reflection.
- Both KMT and Eziko struggle to reassure that ethnic identities and pride of indigenous learners are not subtly undermined by a 'hidden curriculum'. Rather, their languages, ways of knowing, cultural values are validated and legitimated (Smith, G., 1997).

KMT also takes a position that within the curriculum, research methodologies and community engagement practices affirm and validate:

- legitimacy and relevance of Māori language and culture
- Survival and revival of Māori worldview and philosophical foundations as imperative, and
- Struggle for autonomy over our own cultural wellbeing, and over our own lives.
- Transformation is also a driving element of KMT. How that transformation is defined and brought to light is determined by how socio-economic and political community issues are understood, theorised and engaged with (Pihama, 2001).

### **Eziko Sipheka Sisophula Proposed Theoretical Framework**

Eziko Sipheka Sisophula (Eziko for short) is a theoretical framework proposed by Goduka (2005 and 2012) to create spaces for indigenous research that has a potential to strengthen sustainable livelihoods within rural contexts. In the African contexts, this practice literally means "gathering around the hearth (eziko) to cook (sipheka) and dish out (sisophula). Metaphorically, Eziko theoretical framework provides spaces/processes to engage in dialogues to interrogate and deconstruct western-based knowledge systems that the system of education elevates whilst marginalizing indigenous knowledge systems. It is rooted in the African worldviews, languages, cultures, and builds on a relational/ecological perspective.

Eziko can also be described as holistic, feminine, experiential and participatory. It is holistic as indicated by the circle around which spiritual, intellectual and psychological rituals, dialogues and intergenerational and intercultural teachings take place. It is feminine because of the qualities of caring, loving and nurturing that emanate and radiate from the fire and whatever, is cooked – (sipheka) and dished out – (sisophula) around eziko. It is experiential and participatory because it provides all participants opportunities to engage in action and reflection for the welfare and good of all. Foundational assumptions around Eziko process are that our world does not consist of separate elements. Rather these assumptions are described in terms of relational ontology, epistemology and cosmology. This process is built on relationships and interactions

among humans, as well as between humans and the natural environment which is a source of our livelihood, therefore, around the fire the spirit sobantu and oneness is not only felt but is lived. The assumption is that we participate in our world, so that the 'reality' we experience is a co-creation. In the process of co-creating this knowledge, we are already embodying and breathing beings who are engaged around Eziko for collective and communal knowledge production that will benefit families, communities and the world. Activities around Eziko also raise awareness of the damage we are creating to the planet's ecosystem.

Eziko theoretical framework is informed and draws on the principles and foundations of the Kaupapa Maori Theory. Characteristics that both KMT and Eziko share were discussed above. In addition, Eziko seeks to de-colonize western-based knowledge, and question the relevance of western/colonial positivist approaches for addressing challenges that rural communities face. The goals of Eziko as a decolonizing theoretical framework, therefore, are to re-cover, re-store re-recognize, re-create, and 'research back' utilizing indigenous relational ontological, epistemological, axiological and methodological constructs (Chilisa 2012). However, given that indigenous groups in Africa are not monolithic. Rather, they have diverse cultures, languages, unique experiences and varied attempts to resist colonization, such an approach cannot be reduced to a singular, one-dimensional and monolithic solution. For example, for the Nguni/Sotho group of South Africa, indigenous scholars/researchers and students should create spaces for the creation of multiple and varied indigenous/African theoretical frameworks that:

- emerge from Nguni/Sotho indigenous ecological contexts;
- emerge from Nguni/Sotho indigenous social and cultural frames of reference;
- embody Nguni/Sotho indigenous worldviews, philosophical foundations, languages, cultural and spiritual values and beliefs;
- are anchored on ancestral knowingness which ensures that indigenous ways of knowing do not only have cultural, spiritual and historical roots, but are also ancestrally generated and constantly evolving, therefore inextinguishable; and
- are built on synergistic knowledge that is used to overcome the western binary and oppositional logic that demands adherence to one so-called 'absolute truth' and rejection of its opposite.

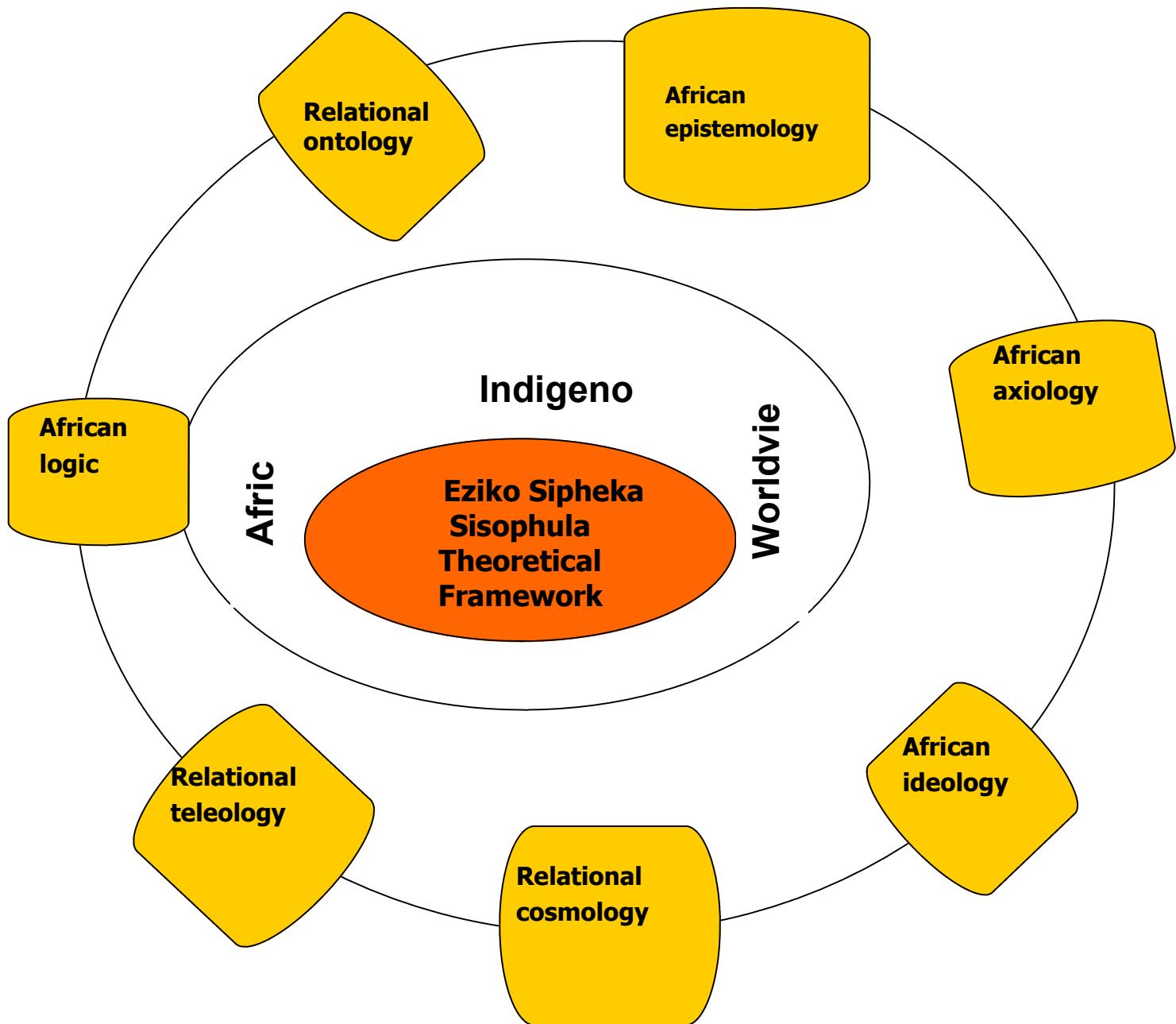
Therefore, the proposed Eziko theoretical framework emerges within the Nguni/ indigenous ecological, philosophical, cultural and linguistic contexts. It involves the collective struggle and efforts of indigenous scholars/researchers and students to interrogate and deconstruct the impact and the continuing legacy of the European conquest, the domination of indigenous lands, peoples, cultures, languages, religions and worldviews, but above all the colonization of their minds through the western-based science and knowledge systems. Specifically, Eziko theoretical framework creates spaces in order for indigenous identities, realities and knowledge systems that were part of the colonizing mission to be deconstructed. This process will lead to the construction and reconstruction of new identities and knowledge systems, etc., that resonate and are rooted within indigenous world views, cultural values, languages and ways of living within African communities. As stated above, Eziko is rooted in African cultures, experiences and worldviews. It is derived from African design of a circle. African life is perceived from a circular perspective. Life goes in cycles and Eziko represents the cycle of life.

The following specific pillars, building blocks/principles of Eziko theoretical framework namely: African/relational ontology, epistemology, axiology, ideology, cosmology, teleology, and logic are adapted from Karanja Carroll (2008):

- The African ontology addresses questions pertaining to the nature of reality and of being. This suggests that the nature of reality and being is spirit/energy. Therefore, at the most fundamental level of all that exists within the universe is a spiritual/energy force

manifesting itself in material and immaterial phenomena. Wilson (2001) also adds that there is an apparent inter-relationship between ontology and worldview. Thus how people see the world will influence their understanding of what exists, and vice-versa.

- An African epistemology refers to the nature of knowing and processes used in order to know phenomena. Processes of knowing are subjectively based and describe “the capacity to tap the creative life forces of the inner space by the use of all the faculties that constitute our being—it is to exercise inwardness” (Ermine, 1995).
- An Indigenous axiology refers to the nature of values. Questions addressed by this assumption are: What does a researcher value? Or, what does one’s values consist of?
- The African ideology involves the prophetic vision of a thought as well as the action orientation of a moral commitment to serve. Thus, ideology combines an interpretation of the social world with a moral commitment to change it.
- An Indigenous cosmology is based upon an assumption that humans and non-humans are interconnected and interdependent within their environments. Therefore, according to this assumption all phenomena are connected within a fundamentally communal universe.
- The African teleology suggests that there is an intended goal for research, scholarship and intellectual projects designed and carried out. This assumption clearly demonstrates a difference from the idea of “knowledge for knowledge sake,” (see Nabudere, 2002) which is so common within the western intellectual tradition. The teleological assumption is clearly reflective of the calls for relevant and functional education.
- An Indigenous logic; according to Dixon (1997), refers to the canons and criteria of validity in reasoning or how one organizes what one knows. Distinct approaches to logic exist. These will vary in relation to the researcher’s worldview. Among the Euro-American the logic is either/or, and among indigenous people it is diunital. The term diunital refers to phenomena that are part and united at the same time. Figure 1 below illustrates the seven pillars of Eziko theoretical framework.



**Pic. 1 Pillars of Eziko Sipheka Sisophula Theoretical Framework**

In summary, African/indigenous ontology, epistemology, axiology, ideology, cosmology, teleology and logic play central roles in defining the worldview orientation of research methodologies. A researcher's values and logic shape the content and form of assumptions implemented in the research process. These assumptions are in turn developed into models and/or hypotheses that are then verified through a particular way of knowing and knowledge production.

As stated above, it is one of the indigenous theoretical frameworks that come under the umbrella of post-colonial theories for decolonizing and de-constructing western-based frames of reference. It also probes the inherent ideology of the supremacy and legitimacy of western-based knowledge over indigenous-based knowledge. Specifically, Eziko theoretical framework creates spaces in order for indigenous identities, realities and knowledge systems that were part of the colonizing mission are deconstructed. This process will lead to the construction and reconstruction of new identities and knowledge systems, etc., that resonate and are rooted within indigenous world views, cultural values, languages and ways of living within rural contexts.

### **Literature:**

- Battiste, M., (2002). Reclaiming Indigenous voices and version. Vancouver: UBC Press.
- Chilisa, B., (2012). Discovery and Recovery. In Indigenous Research Methodologies (pp.55) Sage Publication Ltd, London, DC.
- Freire, P., (1971), "Pedagogy of the Oppressed", To the oppressed, and those who suffer with them and fight at their side.
- Goduka, N., (2005). Eziko Sipheka Sisophula: Nguni Foundations for Education/ Researching for Sustainable Development. The South African Journal of Higher Education. 19, 467- 481.
- Kahakalau, K., (2004). "Indigenous Heuristic Action Research: Bridging Western and Indigenous Research Methodologies", Hilili: Multidisciplinary Research on Hawaiian Well-being, 1 (1): 19-33.
- Mosha. R. S, (2000), "The Heartbeat of Indigenous Africa" A study of Chagga Education System. Gerland Publication, Inc. A member of the Taylor & Francis Group New York & London.
- Nabudere, D. W, (2006), "Philosophy and Epistemology for Rural Communities: Intensive Graduate Seminar 5th-7th June at the Good News Centre, Bhisho.
- Ngugi, W, (1993) "Moving the Centre", The Struggle For Cultural Freedoms.
- Odora Hoppers Catherine, A., (2000), "African Voices in Education": Retrieving the past, Engaging the present, and Shaping the future.
- Shizha, E., (2007). Critical analysis of problems encountered in incorporating indigenous knowledge in science teaching by primary school teachers in Zimbabwe. The Alberta Journal of Education Research, 53(1) pp. 302-319.
- Smith, L., (1999)." Decolonising Methodologies: Research and Indigenous peoples. Dunedin: University of Otago Press.
- Wilson, S., (2001). What is Indigenous research methodology? Canadian Journal of Native Education, 25(1), 175-179.

# **Role of Agriculture in Economies of Developing Countries**

**Libor Grega<sup>1</sup>**

## **Abstract:**

Trade liberalization and globalization of food chains lead to dramatic structural changes in agricultural and food markets in the whole world. Farmers in developing countries are increasingly challenged to compete in markets which are much more demanding as for quality and food safety, more integrated, and much more open to international competition. The article is dealing not only with changing position of agriculture in economies of developing countries, but also with changing efficiency of agriculture in these countries and structural changes in this industry. In final part of the paper are discussed the most important contributions and challenges of agriculture for development, especially in poor areas.

## **Key words:**

Agriculture, rural poverty, developing countries, efficiency of agriculture, commodity benefits of agriculture, non-commodity benefits

## **Introduction**

Traditionally the role of agriculture in economic development has been considered as a source of food and manpower to support the process of economy industrialization and industrial development has been viewed as dynamic element of any overall strategy of economic development. An example of theory of development emphasising importance of industrial growth in economic development and considering agricultural sector as a source of food and surplus labour and thus supporting industrial expansion, is Lewis's dual sector model explaining growth of developing economy in terms of labour transition between subsistence and capitalist sectors. Lewis's article from 1954 "Economic Development with Unlimited Supplies of Labor" is often considered as one of fundaments of development economy.

More active role of agriculture in economic development was considered by Johnston and Mellor (1961) who assumed five categories of contributions of agriculture to economic development:

- a. food products for domestic consumption;
- b. earnings of foreign exchange as a result of exports of agricultural products;
- c. transfer of manpower from agriculture to non-agricultural sectors;
- d. contributions to capital formation;
- e. increased rural sector cash income as a stimulus to industrialization.

On the other hand a few years later Kuznets (1965) formed three broad categories of contributions of agriculture to economic development:

- a. food products contribution;
- b. market contribution;
- c. saving contribution.

Block and Timmer (1994) identified Johnston and Mellor's work as the first set of classical studies focused on the role of agriculture in the development process. Discussion

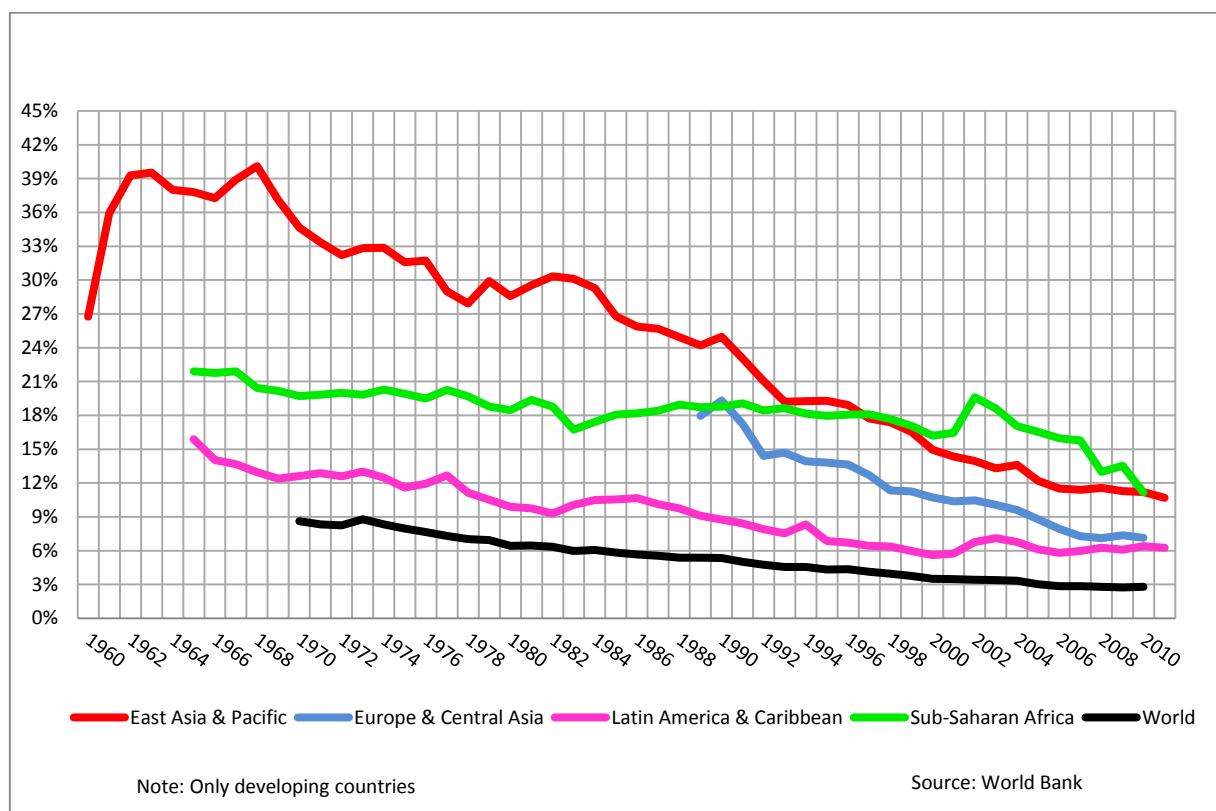
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on contributions of agriculture to economic development has been continuing since the time, when both Mellor with Johnston and Kuznets specified these contributions five decades ago. Economists are deeply concerned especially with the development of the rural sector and its role in economy in developing countries. Present development economists also do not place heavy emphasis on the role of industrialization in process of economic development and do not view the role of agriculture only as a passive and supportive. Agricultural sector, respectively rural economy, must play indispensable role in general strategies of economic development, especially in low income developing countries.

### **Position of agriculture in economies of developing countries**

Agriculture plays very important role in economies of developing countries. It accounts for 20 to 60 percent of gross domestic product and often employs up to 70 percent of population. It is major source of income for poor, supplies decisive part of basic food and represents a major source of foreign exchange in the least developed countries.

Approximately 2.6 billion people rely on agricultural production systems – farming, pastoralism, forestry or fisheries – for their livelihoods (FAOSTAT 2004). However agriculture not only provides food for entire population. Strong linkages with other sectors of the economy, both at side of suppliers into agricultural sector and in sector processing agricultural products and food production, provide additional incentives for economic growth and income generation. That is why for evaluation of contribution of agriculture for domestic economy must be considered not only primary agricultural production but the whole agribusiness.

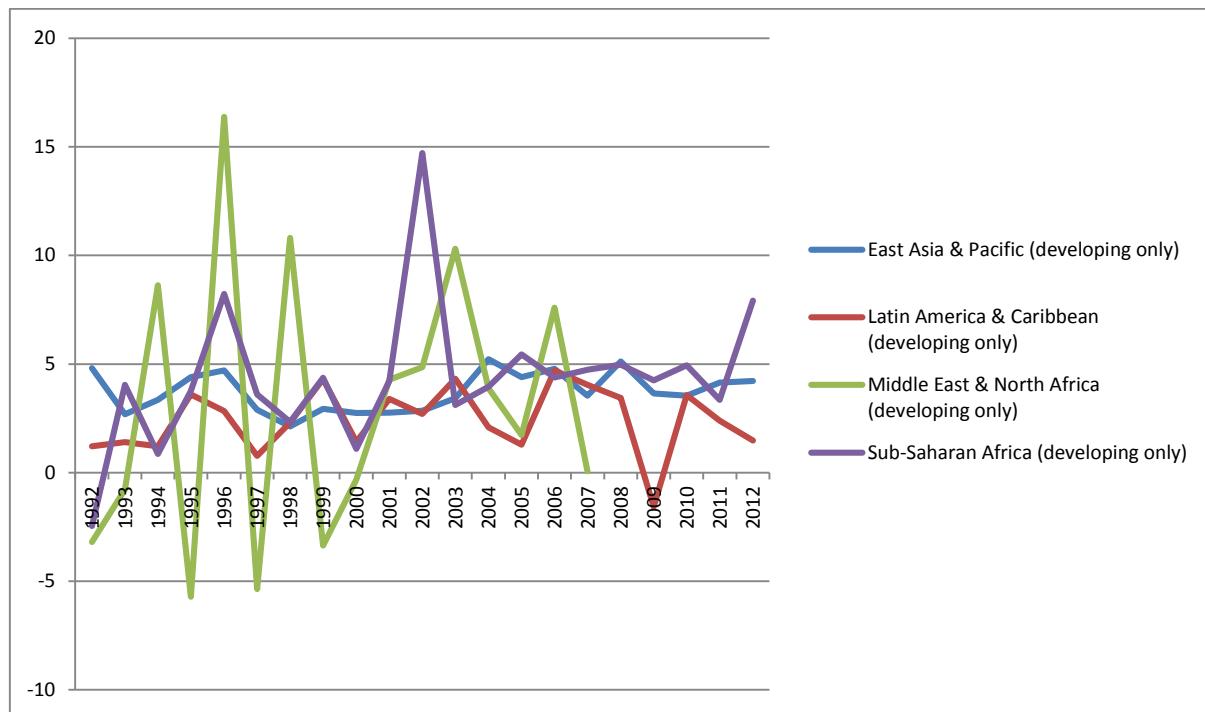


**Pic. 1 Share of Agriculture on GDP, value added**

In the discussion of the role of agriculture in economic development, a leading question is how agriculture contributes to economic growth, and especially to pro-poor growth. There seems to be a paradox in the role of agriculture in economic development. The share of agriculture contributing to GDP is declining over the years (see picture 1), when highest

share of agriculture on GDP in added value, above 10 percent on average, is in Sub-Saharan Africa and East Asia & Pacific. This decline in agriculture's GDP share results partly because post-farm gate activities, enabling to get agricultural products to consumers, and partly because producers substitute chemicals and machines for labour. While agriculture's share fell relative to industry and services, it nevertheless grew in absolute terms, evolving increasingly complex linkages to the non-agricultural sectors.

At the same time, the productivity of agriculture has been increasing. When we measure agricultural growth in terms of annual growth rate of value added (see picture 2), Sub-Saharan Africa has performed better than Latin America & Caribbean and East-Asia & Pacific in the past 20 years. It seems that the agricultural sector in Sub-Saharan Africa has made some progress towards closing the gap with Latin America & Caribbean and East-Asia & Pacific.



**Pic. 2 Annual growth rate of agricultural value added**

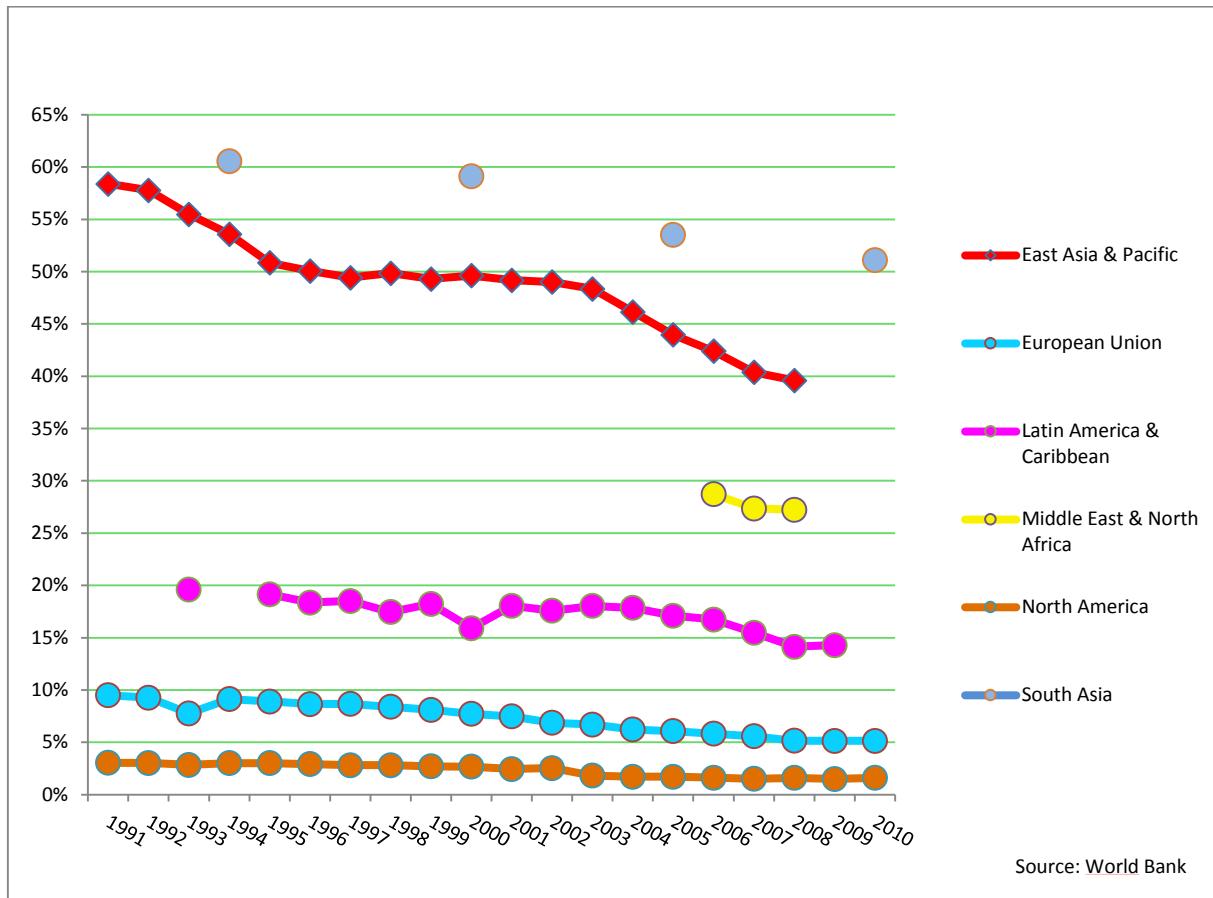
It seems that as agriculture becomes more successful, its importance declines in the overall economy. Of course, other sectors in the economy can be even more successful. It might suggest that focusing on other sectors of the economy at the expense of agriculture is a recipe for economic growth. Many observers today agree that agricultural sector contributes to economic growth, but that economic growth reduces the role of agriculture in terms of GDP.

It has been observed that GDP growth from agriculture benefits the incomes of poor people two to four times more than GDP growth in other sectors of the economy (Asenso-Okyere, K., Davis, K., Areo, D., 2008).

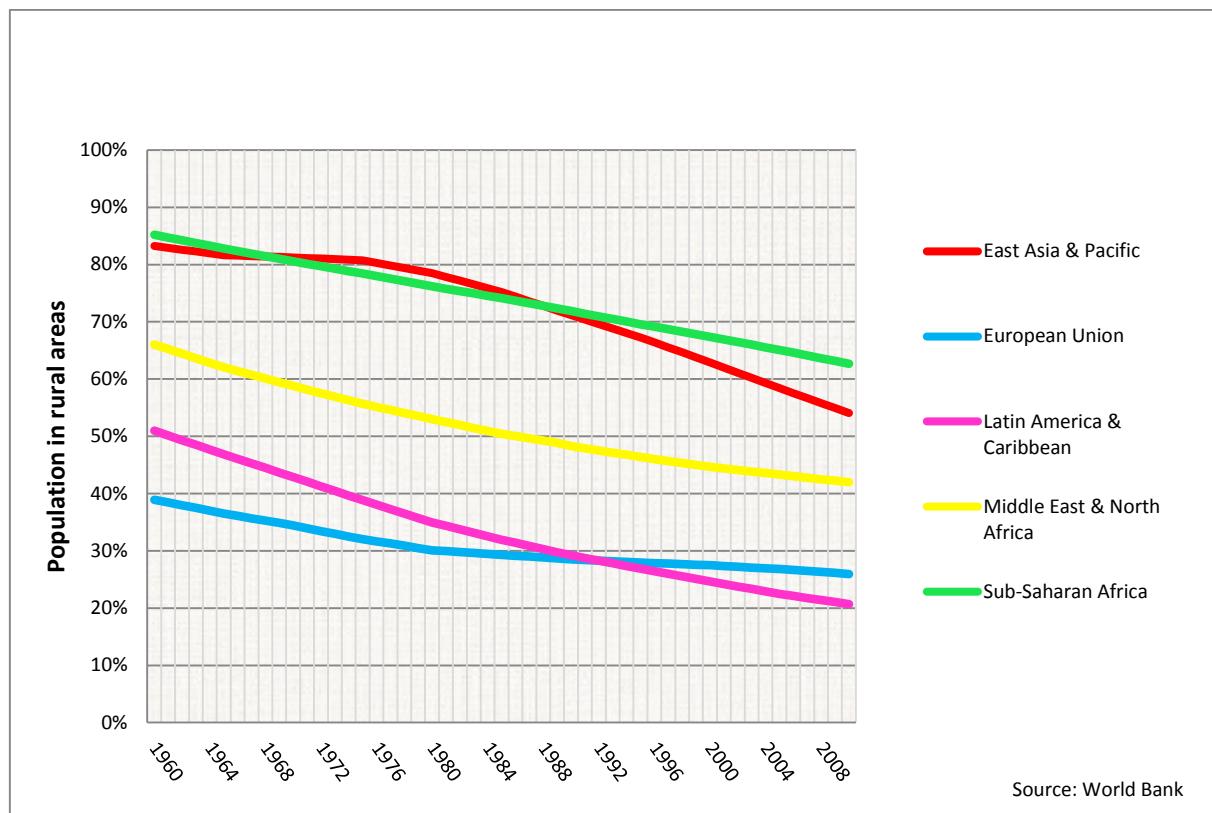
In spite of declining share of agriculture in gross domestic product in added value, share of people employed in agriculture in developing countries remains at very high levels (picture 3). Employment in agricultural sector as a percent of total employment has been decreasing in the whole world, with more significant decline in developing countries, however agriculture remains main source of employment in this part of world. In some countries of Sub-Saharan Africa is share of agriculture in employment up to 85 percent (WB, 2008).

The gap between the number of new rural workers and the number of new jobs in agriculture is growing in Sub-Saharan Africa, South Asia, and the Middle East and North Africa. Improvements in agricultural productivity can still generate more and better jobs in

most developing countries. However, because of the low elasticity of demand for food, the agricultural labour force will in the long run decline (WB, 2008). This may be viewed in picture 4. In spite of this decline, more than half of the population in Sub-Saharan Africa, East Asia & Pacific is living in rural areas. In Middle East and North Africa nearly half of the population is living in the country.



**Pic. 3 Employment in agriculture as percent of total employment**



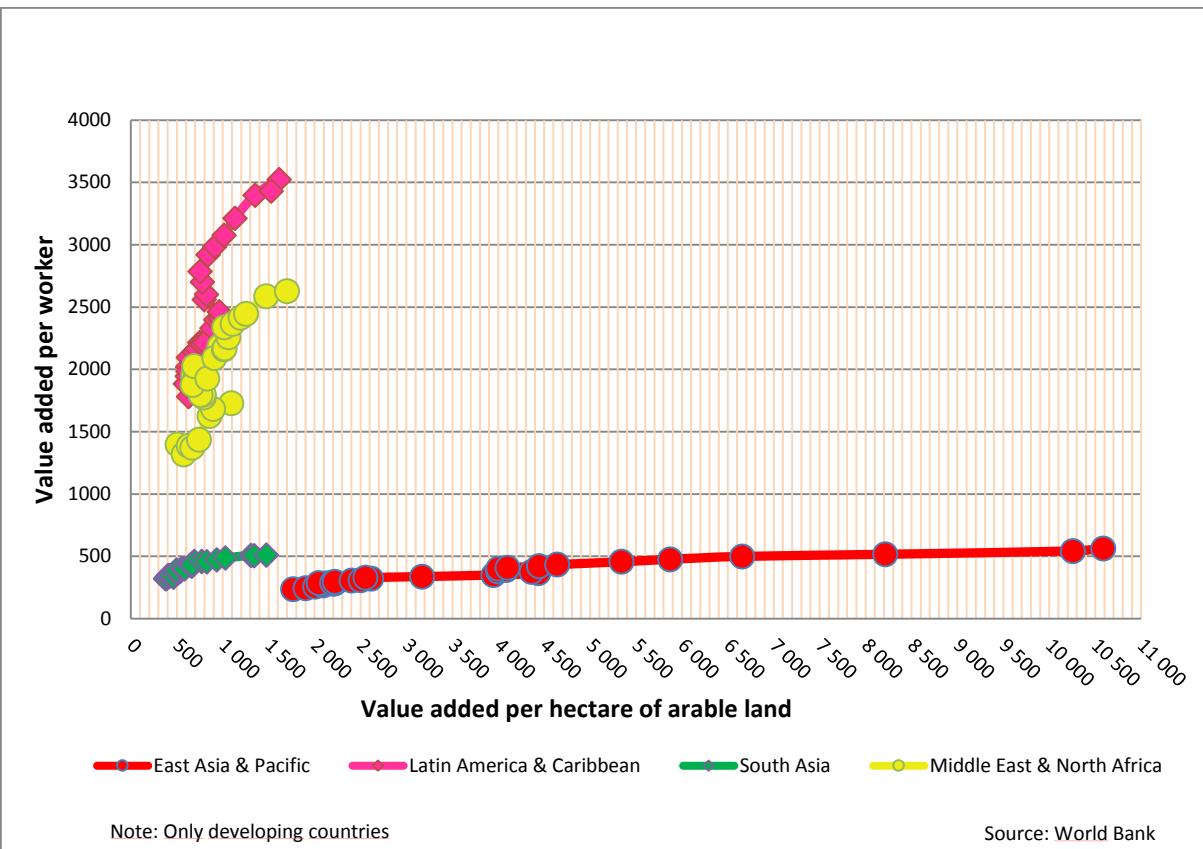
**Pic. 4 Share of population in rural areas**

### Efficiency of agriculture in developing countries

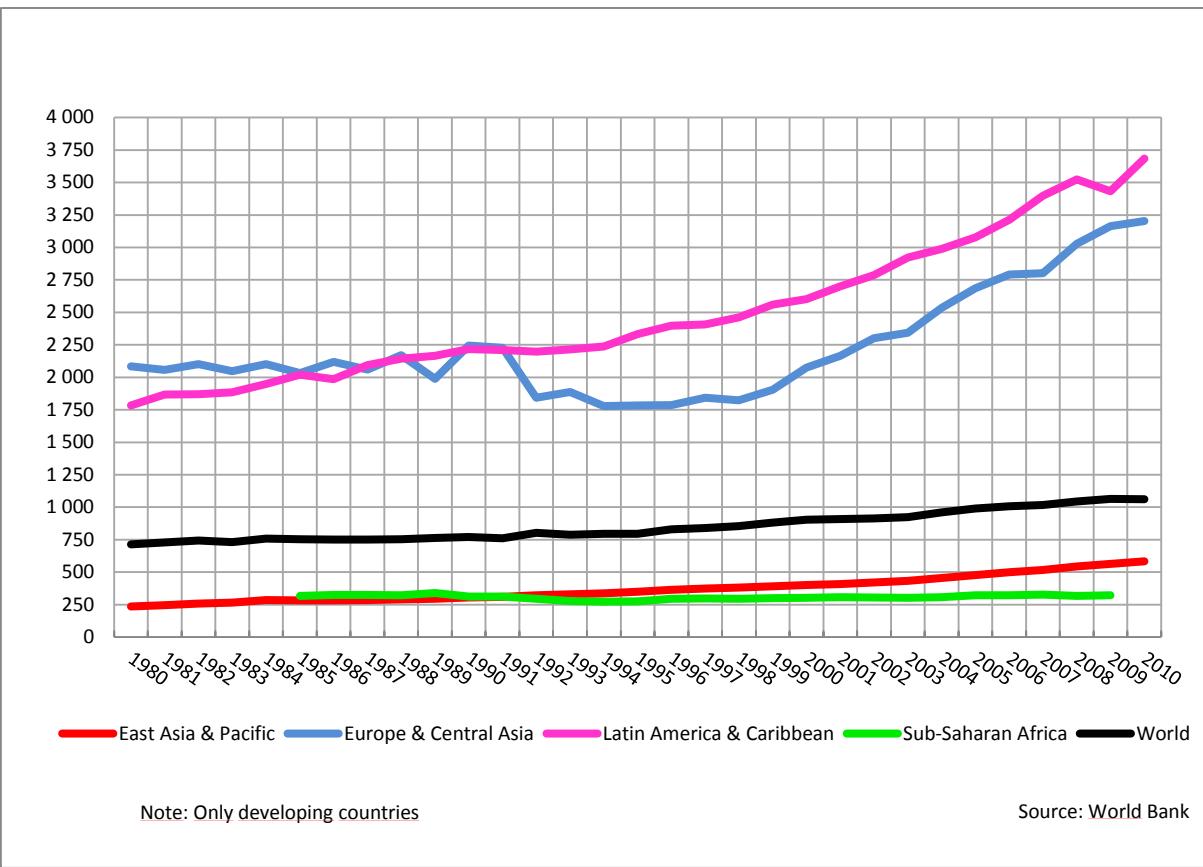
During last 50 years much effort has been put into effort to raise productivity in agriculture in developing countries. Investments into irrigation, widespread use of chemical fertilizers and crop varieties increased cereals yields. Also livestock production has contributed to high agricultural growth rates. At present it creates about one third of agricultural GDP in developing countries. Huge investments have also come into research, roads and human capital.

As a consequence of this enormous effort we may identify in many regions progress in raising land and labour productivity (see picture 5). During last 25 years productivity of agriculture in Sub-Saharan Africa measured as value added per hectare of arable land or labour, has not changed too much. At the same time in East Asia & Pacific and South Asia productivity in terms of value added per unit of land was increased, but not much in terms of value added per unit of labour. In Middle East & North Africa and Latin America & Caribbean value added per worker was increased, however land productivity measured in terms of value added per hectare of arable land has not changed significantly. Even if progress has been made in some regions in increase of productivity, many other regions have lagged behind.

Looking at picture 6, we may identify big differences around the world in labour productivity in agriculture as measured by value added per worker. Latin America & Caribbean and developing countries in Europe & Central Asia showed significant growth in labour productivity, while Sub-Saharan Africa and East Asia & Pacific both have very low levels of value added per worker.



**Pic. 5 Labour and land productivity in agriculture**



**Pic. 6 Value added per agricultural worker**

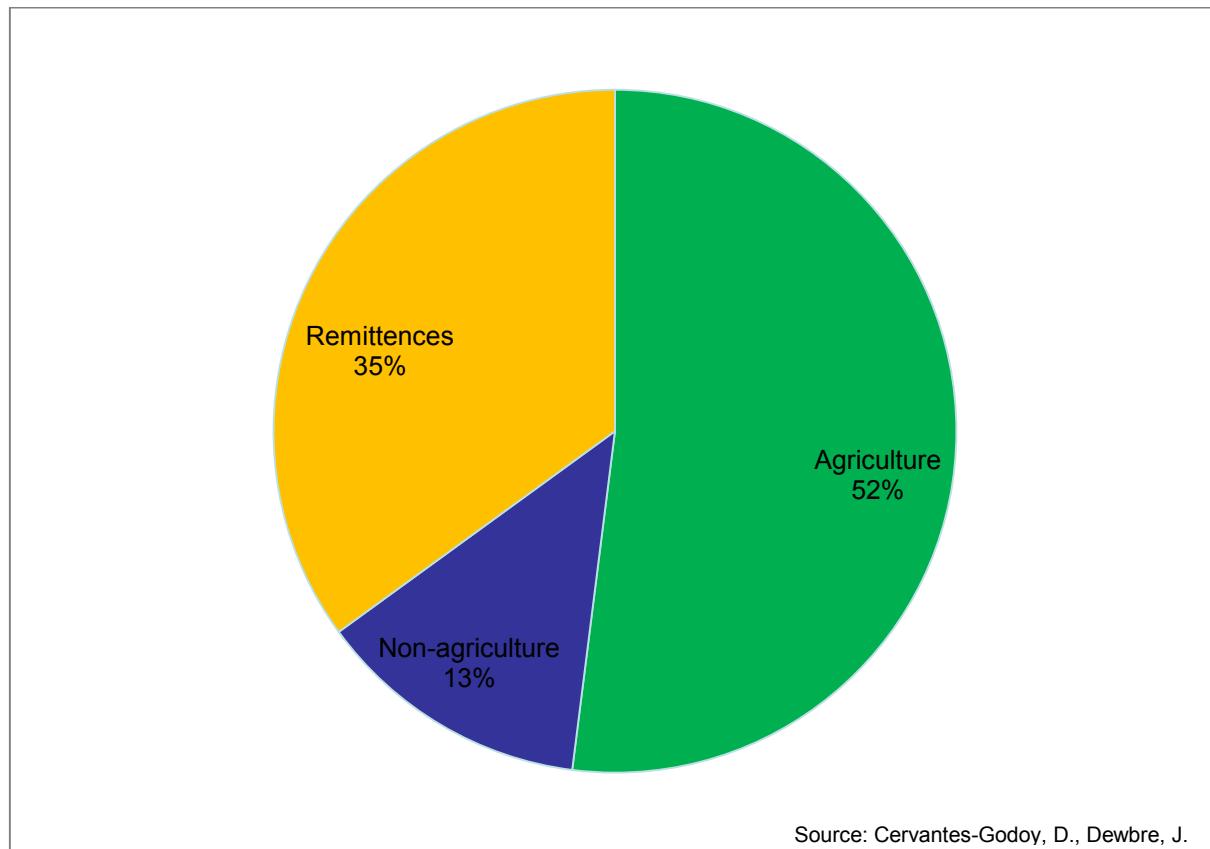
### **Economic importance of agriculture for poverty reduction**

Previous research suggests that agricultural income growth is more effective in reducing poverty than growth in other sectors because: 1) the incidence of poverty tends to be higher in agricultural and rural populations than elsewhere, and 2) most of the poor live in rural areas and a large share of them depends on agriculture for a living. However, even if the incidence of poverty is lower within the population of non-farm people (whether rural or urban) growth in income from non-farm sources could be proportionally more effective in reducing poverty. Moreover, it could be that even for poor farm families, growth in income from non-farm sources is more important than growth in farm income (Cervantes-Godoy, D., Dewbre, J., 2010).

From various research results is obvious, that periods of high agricultural growth rates are associated with falling rural poverty. Strong agricultural growth usually leads to lower food prices, increased income opportunities for food producers and jobs for rural workers and positive intersectoral effects including migration, trade and enhanced productivity.

Agriculture also has tremendous potential to alleviate poverty. A large proportion of the rural population and labour force in LICs is employed in agriculture. On average, agriculture's contribution to raising the incomes of the poorest is at least 2.5 times higher than that of non-agriculture sectors in low income countries. Underscoring the relationship between increasing yields and return on labour with poverty estimated that for every 10 per cent increase in farm yields, there was a 7 per cent reduction in poverty in Africa and more than a 5 per cent poverty-reduction effect for Asia (UNEP, 2011).

Cervantes-Godoy, D. and J. Dewbre (2010) selected 25 developing countries and analysed major contributors to poverty reduction. Results are presented in picture 7. They observed that over one-half of the reductions in poverty in the selected countries was due to growth in agricultural incomes, over one-third to growth in remittances and only just over 10% due to growth in non-farm incomes.



**Pic. 7 Total average contribution to poverty reduction**

## **Structural changes of agriculture in developing countries**

Structural transformation of agriculture in developing countries may be viewed from two perspectives. From the perspective of redefining roles of agriculture, industrial and tertiary sectors in economy and from the point of view of changes within agricultural sector with transformation of subsistence agriculture into industrial one. These transformations were observed in history in most developed countries. As was mentioned above, agriculture has its crucial role to support growth of economy and for poverty reduction. However in many developing countries this potential of agriculture has not been used. To use this potential we need to identify both roles of agricultural sector and also challenges which are in front of agriculture.

### **Roles of agriculture in development**

#### **Food security**

Available data suggest that more than 700 million people in the developing world lack the food necessary for an active and healthy life. The problem of food security is not caused by an insufficient supply of food as has been commonly believed, but by the lack of purchasing power on the part of nations and households ([foodsecurityportal.org](http://foodsecurityportal.org)). The increase in incomes of the farmers results in increasing demand for foodstuff.

Because of industrialization and associated migration of labour force to urban areas incomes of people has been rising, resulting in increase of demand for food. If agricultural sector in individual developing countries will not respond, price of food would go up and missing food would be imported from other countries having pressure on foreign exchange reserves of the country.

#### **Labour for industry in urban areas**

From picture no. 4 is obvious, that the share of population living in urban areas has been increasing steadily over the past decades. Working age men are migrating into secondary and tertiary sectors in urban and semi-urban areas. According to Pingali, P., Y. Khwaja, and M. Meijer (2005) there are various positive effects of urbanisation for agriculture. It increases options for economies of scale in food marketing and distribution, while reductions in transaction costs increase the size of the market for distributors and retailers. The result has been a remarkable increase in the volume of food marketing handled by supermarkets, but also substantial organisational and institutional changes throughout the food-marketing chain. The effects are not only in agricultural processing and marketing but also in production. Types of crops demanded by urban population differ, increasing the market for meat, vegetables and horticultural crops.

However urbanisation does not mean only increased market for food products, but also for labour. Off-farm labour activities have increased considerably over the past decades in all developing countries. These activities play very important role in development of rural areas, contributing to local employment and to the development of market and institutional structures.

#### **Savings for industrial investments**

In the initial stage of economic development the capital accumulation can be made with the help of agricultural surplus. According to Johnston and Mellor (1961) when the productivity increases in agricultural sector, it means that either inputs are being used in lesser amount or agricultural yields have been increased. The biggest input in the agricultural sector which can be used for capital formation is labour. If labourers are withdrawn from farms and they are utilized in the constructional fields the capital mobilization can be increased. Capital mobilization from agricultural sector can be made by imposing tax on land or by income tax.

Development and growth of agriculture may also lead to increasing savings spent within the sector. Rich farmers may invest their incomes further in agricultural sector and so to support further development and industrialization of this sector.

### **Markets for industrial products**

Growth and development of agricultural sector support growth of purchasing power of farmers, which contributes to growing demand for industrial goods. In this way growth of agriculture leads to the expansion of the demand for manufactured goods. Growing markets with manufactured goods send signals to this sector to increase its supply. However this is not the only contribution of agricultural sector growth to growing markets with industrial products. A consequence of this growth is raising demand for agricultural inputs like fertilizers, pesticides, or machinery. This also provides a stimulus to industrial sector. The expansion of secondary industrial sector has effects on the development of communication and transportation infrastructures. Thus development and growth of agriculture contributes to the development of many other industrial and services sectors.

### **Export earnings to pay for imported capital goods**

If agricultural sector is able to make marketable surpluses, this surplus may be exported. Growth of agricultural sector contributes to market surplus. Agricultural exports enable countries to increase their incomes that can be used to support industrialization and development of the sector of services. As a consequence domestic consumption of raw material will increase and export incomes from raw materials will be reduced. However domestic industrialization leads to the production of substitutes of imported industrial product and thus foreign exchange is saved. Saved foreign exchange may be used for increased import of capital goods to support process of industrialization.

### **Primary materials for processing industries**

Agriculture is the main source of raw materials to major industries especially cotton and jute fabric, sugar, tobacco, edible and non-edible oils. Moreover, many other industries such as processing of fruits, vegetables, and rice get their raw materials mainly from agriculture.

### **Agribusiness activities**

Within the process of agricultural industrialization, e.g. process of changes from subsistence to commercial farming, primary agriculture gives up processing activities, storing, merchandising, transporting, and financing practices, giving way to create more complex, specialised and integrated process. Input providers, farm suppliers, assemblers, processors, wholesalers, brokers, importers, exporters, retailers, merchants, and distributors have been forming agribusiness sector. There are also other services supporting development of these agribusiness activities, like research and promotion. Character of agribusiness activities is determined by the type of farming.

### **Social welfare infrastructure**

During recessions or economic crisis agriculture can act as a buffer, safety net, and as an economic stabiliser. Agricultural sector can provide a substitute for a welfare system in those countries unable to provide unemployment insurance or other types of social services for retired and unemployed. Agriculture helps to ensure, that poor people keep acceptable nutrition levels.

Farms can offer jobs for local citizens, as well as provides healthy food for area residents. Taxes paid on properties and farm income tax help boost tax revenues for the community, providing funding for community programs and infrastructure.

### **Contribution to labour productivity through education**

Agriculture is raising incomes of farmers in rural areas. Improved income situation in farmer's families contributes not only to food safety and healthy diet, but also enables to

invest into education of children. This children education represents both personal and social contributions. Educated labour force enhances labour productivity, regardless whether in agriculture or in industrial sector in case of migration of labour force into urban areas.

Markets frequently do not reflect the social value of education, research and training. Agriculture contributes indirectly to education and education is a classic example where the benefits of increased education to society are higher than the benefits of that education to an individual. In the case of women, the social returns to investment in education are higher still. Investing in human capital remains one of the most important keys to reduce poverty and bring about sustainable economic growth. Few measures contribute more to economic development and poverty alleviation than investing in women (WB, 2008).

### **Contributions to health and food safety**

One of the primary requirements of any nation is food security. And stable agricultural sector ensures a nation of food security. Food security prevents starvation and malnourishment that has traditionally been believed to be one of the major problems faced by the developing countries. No country can effectively grow without a stable agricultural base.

### **Alleviating poverty**

Agriculture plays an important role in the economic development and poverty alleviation in developing countries in the era of economic liberalization and globalization. Historical experience shows that periods of high agricultural growth rates are associated with falling rural poverty. Agricultural growth increases supply of food and reduces price of food both in rural and urban areas. Growing agriculture has direct effect on incomes of farmers and indirect effect on development and income of non-agricultural activities enhanced by spending of farmers, and thus reducing migration flows from rural to urban areas.

Agricultural growth rates exceeding 3 percent a year produce a decline in the World Bank's poverty index grouping by more than 1 percent. In no case did poverty decline when agricultural growth was less than 1 percent (WB, 1996).

### **Challenges for agriculture in developing countries**

The potential of agriculture for poverty reduction and economic growth in countries based on agriculture exists. However efficient realization of this potential requires dealing with new challenges standing in front of agriculture.

### **Availability of arable land and water resources**

According to the World Bank data from 2011, approximately 37,6 percent of earth's surface land is agricultural land and 10,8 percent is arable land. Only limited additional land can be converted for agricultural production. Moreover, very often highly fertile arable land surrounding cities is rapidly being converted into residential and commercial areas. Other problems are extending drought condition in some parts of the globe and over-grazing by livestock leading to land degradation in some areas. Rising demand for food also contributed to expansion of crop cultivation at the expense of natural resources with a consequence of accelerated deforestation. To satisfy growing demand for food both increase of productivity and application of green production practices in agriculture are required.

Agriculture is consuming approximately 70 percent of world fresh water consumption. Water is becoming increasingly scarce around the world. Water resources are being increasingly used for different purposes, such as agriculture, hydro-power, or drinking water. Because most of agriculture is historically based on rainfall water supply, climate changes and degradation of ecosystems increase a need of irrigation based agricultural production systems, leading to increased production cost. These are the reasons why agriculture requires implying water use efficiencies.

Many of the regions facing the greatest problems related to the degradation of ecosystems are in Sub-Saharan Africa, Central Asia, South and Southeast Asia, and in Latin America.

### **Technological, institutional and structural innovations**

Introduction of the “Green Revolution” in the economies of developing countries has brought an entirely different perspective of agricultural sector as a sector that is able to promote sustainable economic growth (FAO, 2000).

In many least developed countries, governments have often intervened in markets in inappropriate ways and have invested in state owned production enterprises that have often been inefficient. Reforms have been undertaken to privatize inefficient state-owned enterprises and to eliminate marketing boards and other regulatory agencies in many countries in recent decades. However, the historical role of such institutions and the associated provision of these public goods in agriculture have not always been fully appreciated. Public sector investment in rural schools, in the development of input and output markets, in agricultural extension and in applied agricultural research have been vital to agricultural development in every economy in the world. Institutional reform without investment in these public goods does not produce economic growth in the agricultural sector (UNDP, 2007).

Country experience shows that there is not the only prescription for structural innovation of agricultural sector in developing countries. There are many factors, especially infrastructure, social services, technology, marketing infrastructure, credit availability, and institutional structure, which must be considered when speaking about structural innovations in individual developing countries.

Development and growth of agricultural sector require investments and use of appropriate technologies. Over the last 30 years, increases in government spending on agriculture in East and South Asia have led to rapid growth of agriculture and to progress towards achieving the Millennium Development Goals. In sub-Saharan Africa, however, public investment in agriculture is still far below what is needed.

Appropriate technological innovations are the question of the choice of convenient techniques and technologies, corresponding with infrastructure and institutional structure. If there is restricted capacity of secondary and tertiary sectors to absorb available labour force, labour intensive techniques and technologies to use oversupply of labour force and to alleviate unemployment problems are proper ones for adoption.

### **Use of material inputs**

Intensification of agricultural production systems requires sustainable management of fertilizers, pesticides and herbicides. Unsustainable management may lead not only to degradation of ecosystems but represents serious risk to human health. Another restrictive problem of the use of material inputs, especially in some developing parts like Sub-Saharan Africa, is relatively high price of chemical fertilizers and pesticides. As a consequence farmers often use less of these inputs than required. Many authors agree that high prices of fertilizers and pesticides are derived from declining availability of fossil fuels and minerals, high costs of producing intermediate inputs or transporting them to rural areas and because of imperfect competition in the wholesale and retailing sectors.

### **Labour for knowledge-intensive agriculture**

Implementation of intensive industrial agriculture is to the great extent affected by incomplete markets with qualified labour force, which is scarce and cannot be easily hired.

New technology is often capital-based and requires certain skills that are beyond the scope of many small farmers. In general small farmers pay more for inputs and receive less for outputs than large farms, thus decreasing their rates of return. The high value chains

impose quality and timeliness requirements that are difficult to comply with for small farmers (Ashley, C., S. Maxwell., 2001).

There are also expected demographic changes in rural areas. Working age men has been moving to urban areas to meet demand for labour from secondary and tertiary sectors. This migration has already resulted in dominant position of women in small farming in many developing countries and this trend is likely to continue.

As may be seen from picture 6., labour productivity is very low, especially in Africa and also in East Asia & Pacific. This is mainly because most of Africa's agriculture is manual or semi-mechanized. Education programmes and programmes supporting technical skills will help to improve labour productivity; however it should be taken into account, that labour productivity is also affected by other factors like availability of modern farming technologies and complementary inputs.

### **Reduction of postharvest losses**

Present volume of agricultural production from global point of view is sufficient to feed properly the whole population, however but significant part of food production is lost or wasted after harvesting.

For example in the USA, around 40 per cent of all food produced is wasted, resulting in losses of all embedded inputs such as energy (equivalent to wasting 350 million barrels of oil per year), water (equivalent to about 40 trillion litres of water every year) and huge volumes of fertilizers and pesticides. Losses in the high income countries are often caused by factors such as retailers' rejection of produce due to poor appearance or "super-sized" packages leading to post-retail spoilage. Post-retail food losses tend to be lower in lower income countries. There they mainly result from a lack of storage facilities, on-farm pest infestations, poor food-handling and inadequate transport infrastructure (UNEP, 2011).

### **Climate change**

Most studies on climate change impact agree that climate change is not likely to reduce significantly aggregate productivity in developing countries as the whole. However at the level of individual countries must be opened discussion on impact of climatic changes on agriculture as soon as possible. In some countries may increased rainfall contribute to increased productivity of agriculture, increased incomes from agriculture and thus to help to reduce poverty. On the other hand rainfall declines in other countries may have devastating impact on poverty. It seems that the most adversely affected continent by climatic change will be Africa and especially Sub-Saharan Africa. Also Central and South Asia and drier regions of Latin America will belong among the most adversely affected regions. Farmers will have to adapt to pattern of climatic variability by adequate production systems. Rapid changes in this variability may make this adaptation very difficult.

Another negative aspect of global warming from the point of view of developing countries is the fact, that improved production conditions in agriculture in cooler regions will increase productivity in these parts of world and thus pushing down prices of agricultural commodities in international markets.

### **To balance population growth and food supply**

Population growth, especially in developing countries, is together with rise of income in emerging economies the most significant factor of increasing demand for food. Current global population on 7,2 billion is forecast to reach 9,5 billion by 2050. Per capita incomes in countries with fastest population growth are rising every year. Persisting hunger in developing parts of the world means that providing nutrition for the population will remain one of the most important challenges which will be agriculture facing.

## **Changed pattern of consumer demand**

There are a few factors affecting changing character and structure of consumer demand. Increasing income and spending abilities among citizens of more developed countries offer opportunities for developing countries. Developing countries may supply not only exotic or unique products like coffee, cocoa, and tea; they can also supply commodities like grains, natural fibres, and fish. Developing countries should also focus on the new commodities, such as fishery products, fruits, vegetables, cut flowers and on other processed products.

General trend of increasing per capita income is responsible for an increase of demand for meat and semi processed and processed food. From picture 4 is obvious declining share of population living in rural areas in developing countries. There is increasing migration into urban and peri-urban areas. Also this phenomenon has a consequence in growing demand for processed food, because diet of urban dwellers shows higher share of processed food. Population growth and rise in per capita demand for meat, dairy and vegetable products requires adequate reaction in agricultural production systems.

## **Food safety and quality standards**

Another important challenge for developing countries are increasing international standards for their food exports. Especially because of their poor capacities in research and testing they face difficulties in meeting international food safety and quality standards. Also it may be expected, that increasing consumer concerns over food safety and quality will lead to even higher international quality standards and thus restricting export potential of developing countries in international markets with food commodities.

## **Growing demand for first generation biofuels**

Growing production of first generation biofuels as substitutes of petroleum based fuels has been increasing demand for starch, sugar and oilseed food commodities. Regardless of growing ethical and environmental questions connected with the use of these food products for bio-fuels, there is continuing public and private interest in their development. These crops needed for biofuels production compete with food crops for land and water. As a consequence, some effort has been spent on development of second generation biofuels, which can be produced from non-food biomass; however demand of non-food agricultural commodities for land and water is continuously growing.

## **Conclusion**

Speaking about the role of agriculture in economies of developing countries are usually mentioned its contributions to employment, income generation, and commodity contributions. However for evaluation of its role should be considered also non-commodity contributions, which are not traded in the market. Among these contributions having character of public goods belong especially food security, poverty reduction, environmental services and social net contributions. Agricultural policies should create adequate political frameworks and sets of instruments considering also these non-commodity contributions of agriculture.

## **Literature:**

- Abler, D., 2010, Demand Growth in Developing Countries", OECD Food, Agriculture and Fisheries Working Papers, No. 29, OECD Publishing.
- African Development Bank Group, Agriculture & Agro-industries, 2013, <http://www.afdb.org/en/topics-and-sectors/sectors/agriculture-agro-industries/>
- Asenso-Okyere, K., Davis, K., Areo, D., 2008, Advancing agriculture in developing countries through knowledge and innovation, International Food Policy Research Institute, ISBN: 0-89629-780-2.
- Ashley, C. and S. Maxwell. 2001. "Rethinking Rural Development", Development policy review, 19(4): 395-425.

- Block, S., Timmer, C.P., 1994, Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience, Development Discussion Paper No. 498, Harvard Institute for International Development.
- Cervantes-Godoy, D., Dewbre, J., 2010, "Economic Importance of Agriculture for Poverty Reduction", OECD Food, Agriculture and Fisheries Working Papers, No. 23, OECD Publishing.<http://dx.doi.org/10.1787/5kmmv9s20944-en>
- FAOSTAT, 2004: Food and Agriculture Organization of the United Nations, Statistical Databases, Online at <http://faostat.fao.org>.
- Gutierrez, L., 2002, Why is Agricultural Labour Productivity higher in some countries than others?, Agricultural Economics Review, Vol. 0, Issue 1, ISSN: 1109-2580
- Green, D., King, R., Miller-Dawkins, M., 2010, The Global Economic Crisis and Developing Countries, [www.oxfam.org](http://www.oxfam.org),
- Johnston, B., Mellor, J., 1961. "The Role of Agriculture in Economic Development."American Economic Review, 51(4). 566-93
- Kuznets, S., 1965, Economic Growth and Structure, Selected Essays. New York.W.W.Norton, pp. viii, 378.
- Lewis, W. A., 1954, "Economic Development with Unlimited Supplies of Labour," The Manchester School, Vol. 22, pp. 139-91.
- Meijerink, G. & P. Roza., 2007. The role of agriculture in development. Markets, Chains and sustainable Development Strategy and Policy Paper, no. 5. Stichting DLO: Wageningen. Available at: <http://www.boci.wur.nl/UK/Publications/>
- Pingali, P., Y. Khwaja, and M. Meijer. 2005. "Commercializing Small Farms: Reducing Transaction Costs". Rome: FAO. ESA Working Paper No. 05-08.
- Stringer, S., 2001. How important are the 'non-traditional' economic roles of agriculture in development? Center for International Economic Studies, University of Adelaide, ISSN 1445-3746
- UN Department of Economic and Social Affairs, 2010. World Population Prospects: The 2010 Revision, [www.unpopulation.org](http://www.unpopulation.org)
- UN Department of Economic and Social Affairs, WORLD POPULATION TO 2300, 2004. United Nations, New York.
- UN Environmental Programme, 2011. Agriculture Investing in natural capital.
- UNDP, 2007. Globalization, Agriculture and the Least Developed Countries, Making Globalization Work for the LDCs, Istanbul.
- UNCTAD secretary, 2009. Global economic crisis: implications for trade and development.
- World Development Record, 2008. Agriculture for Development, World bank.
- World Bank. (1996). Reforming agriculture: The World Bank goes to market, Washington, D.C. <http://www.foodsecurityportal.org>  
<http://www.worldbank.org>.

# **System solving uninsurable risks with focus on floods and deluges**

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## **Abstract:**

Our project is focused on actual problems, needs and gap in the insurance market. We pay attention to uninsurable risks, especially non-life risks of flood and deluge, and to their role in conditions of the Czech insurance market.

The main aim is to define a functional system, which is ready to solve an impact of implementation risks with vast damage. Our solution is based on multi-source fund system with predetermined role of commercial insurance companies and public sector. This fund system should ensure all consequences of risks mentioned above.

The research will be focused on special conditions of the Czech insurance market with comparison of methods solving similar problems in the world insurance market.

Flood and deluge belong to a group of key non-life risks, which have broad impact on property and life. These risks and subsequently their realization are more often in the Czech region. The progress of flood effects is uncontrollable. Many insurers avoid of making contracts in areas, where floods or deluges caused enormous damage in the past. This trend affects negatively prices of real estates. Appropriate authorities then set up flood zones, which define exceptions of insurable objects. Nowadays this method influence adversely lives of people and value of their property. According to these random choices of arguments it is necessary to make a new effective system covering all negative factors, which are joined with damage realization.

The multi-source system solving uninsurable risks of flood and deluge should have positive impact on all branches in economy. An effective system can protect life and property with minimum costs. The project is prepared to build a new structure based on cooperation between public and private sector. Our suggested structure has characteristic feature of insurance pool. Pool membership of insurers should be considered as a sign of competitive advantage and also as a way of making profit. Each member should take part in fund via netto premium by specified percentage. A role of the state is supposed via grants and subvention. An important requirement is a high quality of state supervision. Insurers also should be joined in risk prevention. Due to successful system it is necessary to prevent from risk causes (e.g. to promote construction of anti-flood barriers). A part of member fees is supposed to cover costs of preventive measures in order to remove efficiently insurer's losses.

Our system of solving enormous damage is expected to be profitable. A predetermined part of fund's profit should be divided between insurers undergoing risks. Another part goes back to the fund to finance system activities.

The new approach allows for many factors of flood and deluge risks. We want to focus on insurance limits, participation in insurance payments, insurer's commissions, administrative costs, additional premium, insurance deductions and policy coverage in comparison with a simulation of risk development. An important part is a making definition of detailed structure and running system including ways of funding. This new system should play a major role in elimination of negative consequences of uninsurable risks. We want to suggest an organization structure and a business plan of new commercial institution. On the

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other hand there is a requirement to estimate costs, expenses, revenues and profits of this modern way of business. Next part of our research is expected to establish a base of new commercial insurance product. Our aim is to describe an innovative insurance product including all necessary features of current insurance contracts. In order to design a functional insurance system we intend to create conditions for distribution chain and for claims adjusters. We also want to form external and internal network of salesmen including analysis of chain costs and impacts.

Our system of solving uninsurable risks can be used as a framework to apply conclusions to other insurance branches.

### **Key words:**

Uninsurable risk, fund system, multi-source system, commercial insurance product, flood, net premium.

### **Introduction**

Commercial insurance companies provide services to protect our lives, health and property. These institutions strengthen their position in process of financial markets globalization, in changing economic conditions and ways of modern life. Causes of modernization we can observe by intensive industrial production, technological improvement, a rational society with different social fabric. These factors make a contribution to economic development and influence billions of people.

The importance of insurance is connected with changing conditions and new desires of modern time. Demanding living standard requires higher amount of economic wealth and property. Industrialised countries operate with significant capital and reserves. On the other hand developing and especially emerging markets try to use efficiently their material, financial and human resources to achieve a higher level of economic development. This aim is closely connected with ensuring constant security, economic support and finally also with enterprise promotion.

Contemporary trends on insurance market are influenced by economic conditions. Worldwide financial and debt crises have significant impact on development of total premiums written. Recovering of global economy influences positively demand for commercial insurance products. Nowadays insuring of life risks is very popular and this segment of global economy is growing. On the opposite side non-life premiums is negatively influenced by rising number of catastrophes and enormous losses. Especially natural catastrophe costs grow very quickly in last time period, which is connected with higher concentration of equity in national economies. Results are reflected in decreasing returns of insurance companies and subsequently huge catastrophe losses require interventions of state authorities and constitute extra public expenses.

In conditions of the Czech Republic natural catastrophes have significant impact on expenses of private and public sectors of economy. The highest losses caused by natural catastrophes in the Czech Republic are consequences of floods, deluges and overflows. Risks of flood and deluge influence negatively millions of people in the form of decreasing value of their property (such as flood damaged houses and buildings), business and service interruption, danger of people's lives etc. Insurance is one of effective and efficient tools, which can reduce costs and eliminate consequences of flood and deluge risks realization. In spite of several insurance products and high quality of insurance services, recent history of flood occurrence in the Czech Republic emphasizes insufficiency of prevention, protection and loss solution. Due to these risk factors we focused our research on issues of uninsurable risks in conditions of the Czech insurance market. Our commercial solution is a way to strengthen the role of insurance in a field of uninsurable risks.

## **The role of flood and deluge risks in conditions of the Czech insurance market**

Trends on global insurance markets are influenced by claims development. Characteristic features in conditions of the Czech insurance market are claims development and losses caused by floods, deluges and overflows, which appear more often in recent history. This effect is closely related to climate changes and interventions in landscape as a human decision.

An issue of solving consequences of floods and deluges has two points of view - at a national level and at a regional level. We can observe many territories with frequent occurrence of risks realization in Bohemia, Moravia and Silesian. Czech landscape is typical for its density of rivers and streams. The worst claims developments are dated in 1997 and 2002, which were caused by floods at a national level. In 1997 natural catastrophe of flood requested 62.6 bn CZK, which meant 3.3 % GDP. Vast losses almost stopped life in hundreds of municipalities, infrastructure collapsed, countryside was changed. After wave of solidarity and government intervention the Czech authorities have financed modern rescue system, systematic structure of flood affected areas recovery and organized prevention process. Subsequently widespread floods in 2002 displayed unpreparedness of systems mentioned above which were in progress and losses exceeded the last enormous floods in 1997. Total flood costs in 2002 were 73.14 bn CZK. It equals to 2.8 % GDP. Reinsurers covered more than 87 % of insured costs (28.7 bn CZK). Totally the Czech insurance companies paid 32.9 bn CZK to insured clients.

Partial modifications of anti-flood barriers, aquatic constructions and other arrangements did not solve negative impact on property thousands of inhabitants affected by twenty-year, thirty-year and also hundred-year floods. The same natural catastrophes are known for several hundred years, but in modern history the value of property sharply increased and then losses cause higher costs. Flood, deluge and overflow risks haven't been removed and an assumption of commercial insurance application to eliminate subsequent flood costs has come true.

Increasing flood frequency and costs contributed to premiums increase. There was a significant pressure to decrease a quantity of risks. After floods in 2002 reinsurers have refused insurance proposals and new contracts influenced by higher risk level. Prices of insurance protection increase. These problems were particularly solved by flood zones establishment.

### **Flood zones and system of prevention**

Recurrent insured events were one of reasons to define flood zones. The Czech region was considered according to flood risk, recent flood frequency, quantity of loss and probability of risk occurrence. The system was developed after the second catastrophic flood in 2002 with cooperation of the Czech interest association ČAP and reinsurer SwissRe. A map collection presents the usable output based on expressions of insured peril and prices calculations, which are actualized according to changes in flood risks. Each scope of insurance policy is compared with list of uninsurable real estates in flood zones and then a policy is prepared including risk and value appreciation.

The time period after catastrophical flood losses was significant for a process of implementing rescue system, early warning system and process including flood remains recovering. One of the main themes was prevention. The state authorities determined a strategic target - to reduce costs on damage removing and to increase expenditure on prevention.

### **Requirement of commercial flood protection through insurance product**

We can distinguish four flood zones. Real estates built in the fourth zone are uninsurable. Owners of uninsurable buildings are threatened by repetitive damages, low value of real estate and impossibility of building sale. In order to avoid of paying high insurance payments by insurers (among others) flood zones are extended. Institutions

participated in risk protection and settlement payments are interested in decreasing risk exposure. To achieve this aim insurers make exceptions and don't assume a responsibility for flood risks. Significant risks by quantity and subsequent costs cause demand for commercial insurance protection through supply of insurance products.

Factors mentioned above have a negative impact on individuals. At present commercial insurance weakens its role in property protection and loses a key position of institution in financial market frame. In spite of increasing expenditure on loss prevention we miss a functional system which could be used by individuals and owners of uninsurable property. Our solution of uninsurable risks is described in next parts of paper.

### **Relevant data access**

Modern systems of evaluation risks and simulation of development in risk realization are depended on a high quality of data. Relevant data is a specific kind of public good. This good should be available free of charge. Settings of long term strategy and solving climate risks need an own resource of data.

Czech database of relevant information regarding to flood, deluge and overflow risks is not available. Participating institutions (public and also private) work with their own data resources. In conditions of the Czech insurance and financial markets there is neither public nor private completed database. In periods of the highest flood losses there was no authority which would complete all data. Due to this data unavailability our research is based on an incomplete database which hasn't been verified by uniform system. A lack of high quality data is supplemented by our estimations and trend modeling.

### **Multi-source fund system solving uninsurable risks with focus on flood and deluge**

Flood risk influences thousands of Czech residents. Risk realization immediately concerns individuals, industrial producers and business units in regular cycles. Each of them lasts for different time period and causes different costs. We can distinguish seasons without claims development and intensive expenditure seasons. An important factor is a fortuity. Regionally flood and deluge costs mean very difficult problem. In according to many factors there is effective, efficient and economical way to solve uninsurable risks of flood, deluge and overflow - commercial insurance product in the form of existing product innovation.

Our approach of flood risk solution is based on these key factors

- compulsory participation
- profitability
- pool contribution
- state supervision

To support an interest in commercial solving uninsurable flood risks our system is designed as profitable. Next to the commercial focus on flood issue the insurers are motivated by improvement of their image or in the form of CSR. A successful system solving uninsurable risks is a balanced mix of key components. It is necessary to make an optimal combination of important factors. Our model consists of three main components

- state
- insurance companies
- insurance intermediaries

An insurance pool creates a core of our system. This pool is designed as a fund serving to save membership payments and fees. Insurance companies are members of the pool. Next to the pool there is an assumption to define a fund structure which is formed also by state payments, especially in case of negative claims development.

## **Insurance pool structure**

Membership in the insurance pool is compulsory for predetermined group of commercial insurance companies. A condition to entrance into the pool is responsible to an economic activity of insurers. All composite and non-life insurance companies are members of the pool automatically in case of providing residential property and household contents insurance. Participation in the pool is based on compulsory entry fee, which is defined in the level of 10 million CZK. These costs represent a kind of fee which ensures to insurer to take a part in new market segment. In fact limited number of insurance companies can provide insurance services to clients, whose real estates are situated in the fourth (uninsurable) flood zone. About 30 thousand real estates were built in high risk zone in according to last research. We estimate that number of uninsurable buildings is higher (approximately 100 thousand addresses) because of extension of flood zones. The amount of 10 million CZK per insurer can cover current claims development without pool and fund losses. In case of moderate claims development it is possible to redistribute pool profit between pool members. Pool resources have a special purpose and are strictly determined to cover future flood costs. An exception of strict pool rules makes insurer's potential insolvency. Our approach was also inspired by gentleman agreements which were applied to the insurance market of the United Kingdom.

## **Intermediary network**

Our system solving uninsurable risks uses internal and external network of intermediaries. Using insurers' own distribution channels have neutral impact on premiums because provision and cost schemes are common and strictly predetermined. Conversely new product creation and developing of new distribution chain would mean higher costs than using own chain of internal and external intermediaries. Insurers supplement own portfolio of insurance products by risk recovering of estates in the fourth flood zone and cancel existing exceptions of insurance protection. Risk premiums related to our product is paid to the pool according to predetermined process of risk and fluctuation payments (see next part Coverage of uninsurable risks and insurance product structure).

Optimal price of insurance protection includes also administrative costs. Our solution specifies amount of administrative costs as a percentage limit and as an absolute sum, which mean deduction of premiums. Lower level of insurance premiums allows calculation of administrative costs in the form of total premiums costs percentage, higher level of premiums is calculated by fixed amount of costs which include standard payments, adjustment and recoverable loading. Our main intention is to extend a number of insured clients and their property and on the other hand to eliminate uninsurable risks of flood, deluge and overflow. Last but not least factor is a rentability of pool solution. Positive externality is achieved thanks for extended base of insured clients, which have needs to use other insurance products to protect their lives, property and responsibility. Other property risks are closed to "package" of grounding insurance.

## **Claims adjusters and loss solution**

An administration of insurance policies is in competence of insurers' administrative departments. System uses a service of own network of claims adjusters in case of risk realization. This arrangement contributes to costs reduction and simultaneously to prevent from insurance payments manipulation and to make loss settlement faster. Each of insurers also shares risk costs. A compulsory financial participation in loss removing is estimated on the level of 10 % of each insured event. This measure is adequate in comparison with total estimated costs and also supports an assumption of quick claims settlement which prevent from deffered claims adjustment. This innovation influences positively process of adjustment. Claims adjusters can processed other losses (e.g. household losses) during claims adjustment of flood consequences. Insurers cover these expenditures also in according to avoid of excessive damages and to maintain an effective management of adjusters. An evaluation of adjustment report is in exclusive competence of insurer who doesn't pay a

commission of loss percentage. This solution avoids problems connected with disproportionate of insurance protection costs.

### **Role of state and reserves creation**

A state position is designed as independent without interventions into pool operations. This system runs independently till correct creation of reserves, which cover risk development in specified time schedule. Opposed to classic approach of reinsurance markets the state doesn't participate in risk settlement of any loss. State reinsurance approach corresponds to excedent reinsurance, but all claims developments seem as one claim. Debit account is formed up to 100 % of current status of reserves. The main role of the state is concentrated in covering of claims development and simultaneously authority doesn't participate in each risk and individual loss.

Our suggested system is closed to reinsurance model of loss excessiveness CATXL (CATastrophe eXcess of Loss cover), which is devoted to reensure cumulative claims. These claims appear very rarely and are described in a form of the same type. A ceding insurer doesn't pay any premiums to the state authority because these payments are hidden in cash flows into the reserve fund. The state takes control over the situation in case of fund overdrafting. Excessive damages are substituted by direct deposits on flood fund account. Instead of deposits it is possible to issue flood obligations, which are ready for the same risk development. Emissions of flood obligations play a major role in case of overdrafting flood fund reserves.

System solving uninsurable risks is supposed to use new tools to ensure a protection against catastrophic risks realization. We can meet with limits of insurability by classic insurance products. Our system is prepared to exploit innovative instruments of financial markets in according to ensure appropriate financial resources, which can cover negative claims development. Currently institutions of insurance markets use a mix of incremental and radical innovations with focus on consistency of public and private solutions and on insurance markets positive stimulation by investment instruments (e.g. insurance-linked securities). A client appears in the center of our attention - a consumer of commercial insurance. Traditional flood obligations should be substituted by "weather bonds" (known as catastrophe bonds which interest payments depend on risk realization), insurance futures or event-linked derivatives (value of contracts is derived from risk assessing).

### **System's supervision**

An independent supervisor of the Czech financial system is the Czech National Bank. The supervisor plays a major reinsurance role also in our system solving uninsurable risks. Model doesn't expect a risk transfer to reinsurance markets. A participation of the Czech National Bank in conditions of the insurance fund is fundamental and this authority supervises over the fund. The Czech National Bank as the integrated financial authority takes a responsibility for smooth fund running, creation of reserves, entrance and controlled fund leaving of pool members.

The Czech financial system authority also determines fluctuations and flood loading, declares amounts of calculated costs connected with the insurance product and especially controls and takes part in profit redistribution into pool members and fund reserves in case of positive claims development. Redistribution of fund profit shares should be very sporadic. We expect that free reserves and profit will be used in process of anti-flood barriers building to avoid of future repeated catastrophic losses. One of system's aims is a prevention and to eliminate compensation payments. Profit should mitigate negative effects caused by floods, deluges and overflows and expenditures on prevention should decrease future fund and pool requirements for policy coverage. Redistributed profit flows to insurers' accounts in according to their pool participation, concretely to risk premiums paid to the fund. These profit flows are supposed to support regions with the highest flood, deluge and overflow risks. Profit transferring is closed to the fact that insurers are participated in costs coverage and it is in their interest to build anti-flood barriers and to finance anti-flood protection in concrete

regions. The supervision in compliance with rules to competitive flood tendering is performed by the fund.

### **Coverage of uninsurable risks and insurance product structure**

Claims development of flood, deluge and overflow risks are in the Czech Republic unfavourable. Our model solving uninsurable risks is based on several assumptions, which are described to achieve final form of fund system.

#### **Objects of our interest**

In the Czech Republic at least 30 thousand of real estates are uninsurable thanks for repetitive floods, deluges or overflows. It is highly probable that the number of uninsurable realties will increase as a result of next wave of risk realization in different flood regions. We estimate that real amount of uninsurable real estates is three times higher and will be extended in the future. Net premiums written in our system is calculated on the basis of 100 thousand concluded insurance contracts.

Our model calculates with realty in value of 2 million CZK. It is current purchase price of the Czech family house. Value of real estates is purposely overestimated. In fact number of insurance events doesn't equal to the number of real estates. E.g. in a block of flats (we suppose a community of block owners) there is possible realization of several insurance cases within one address (in the case of no framework agreement). We also suppose full value of insurance and abstract from unfair practices of policy holders, especially intentional underinsurance.

#### **Risk realization**

Assumed flood risk is implemented at least in annual frequency of 1 % of realties. Degree of loss (in according to Tab. 1) is 10.05 % taking into account the distribution of loss frequency and loss amount. Average loss corresponds to claims development of last 16 years in the Czech Republic (it is considered average insurance penetration and personal property and no business property).

**Tab. 1 Insurance event - 1 % of realties is affected by loss in 1 year (in CZK)**

| Average sum insured | Individual insurance payment | Amount of losses | Total insurance payment | Insurance payment after participation of 10 % (min. 10 K) |
|---------------------|------------------------------|------------------|-------------------------|---|
| 2 000 000           | 50 000                       | 800              | 40 000 000              | 32 000 000  |
|                     | 400 000                      | 110              | 44 000 000              | 39 600 000  |
|                     | 600 000                      | 20               | 12 000 000              | 10 800 000  |
|                     | 1 000 000                    | 35               | 35 000 000              | 31 500 000  |
|                     | 2 000 000                    | 35               | 70 000 000              | 63 000 000  |
| Total               |                              | 1000             | 201 000 000             | 176 900 000   |

Model degree of loss expresses ratio of average loss and average sum insured. Average loss (amounting to 201 thousand CZK) is determined from amount of total insurance payment and amount of losses due to existing claims development. Determination of net risk premium is based on specified degree of loss. Loss participation is set as percentage in order to improve motivation to quick loss adjustment. Nevertheless loss adjustment is limited by the lowest amount of 10 thousand CZK, which should decrease a number of administrative difficult minor losses.

Insurance policy holder (person insured) participates in loss together with underwriter who negotiates of contract. Participation is dealt with absolute franchise to eliminate minor

losses. Our main aim is to focus on contingency losses. Supposed function of franchise is to influence positively adjustment of claims.

### **Specified degree of loss**

Evaluation of specified degree of loss ( $q_2$ ) respects relative frequency of individual degree of loss or partial loss. Final specified degree of loss is described in Tab. 2.

**Tab. 2 Specified degree of loss**

| $z$  | $T_z$ | $t_z$ | $Y_z$ | $b_z$ | $G_z$         |
|------|-------|-------|-------|-------|---------------|
| 0.10 | 800   | 0.80  | 0.04  | 0.80  | 0.0400        |
| 0.25 | 110   | 0.11  | 0.01  | 0.91  | 0.0538        |
| 0.50 | 20    | 0.02  | 0.01  | 0.93  | 0.0613        |
| 0.75 | 35    | 0.04  | 0.02  | 0.97  | 0.0831        |
| 1.00 | 35    | 0.04  | 0.03  | 1.00  | <b>0.1138</b> |
|      | 1 000 | 1.00  | 0.11  |       |               |

Calculation of specified degree of loss is determined by real data and by hypothetical 1 % of flood affected real estates.

- $z$  - interval degree of loss
- $T_z$  - amount of loss in loss interval
- $t_z$  - relative frequency in loss interval
- $Y_z$  - wage degree of loss in loss interval
- $b_z$  - cumulative and relative frequency of loss in loss interval
- $G_z$  - wage amount of losses in loss interval
- $i$  - middle interval

$$q_2 = \sum t_z * (z - i) = \sum Y_z = G_{1.00}$$

$$G_z = Y_{0.10} + Y_{0.25} + Y_{0.50} + Y_{0.75} + Y_{1.00}$$

Expression of specified degree of loss is summed by interval degree of loss. Specified degree of loss ( $q_2$ ) within available information is determined on the level of 11.38 %.

### **Net premium calculation**

To calculate correct net premium it is necessary to choose a level when total insurance payment is equivalent to premium collected. We search for an amount of premium which is enough to all claims adjustment generated during a calendar year. This process is based on principle of equivalence.

Net premium calculation in system solving uninsurable flood risks depends on full value insurance. Our solution abstracts from underinsurance, which is caused by intentional or unintentional miscalculation of sum insured by insurance consumer or insurance intermediary. We conclude an equality assumption of actual value and sum insured. Effectiveness of insurance coverage is equal to 1 due to our net premium calculation.

### **Non-participating net premium**

Calculation of non-participating net premium in our model is based on technical rate of interest in amount of 2 % which expresses estimated current interest level in market conditions of the Czech Republic. Amount of non-participating net premium is equal to 2 253 CZK.

$${}^S P_{(h)}^H = v * q_1 * q_2 * S$$

- P - net premium
- S - sum insured
- H - insurance value
- h - ratio of insurance value and actual value
- v - discount rate (0.990)
- $q_1$  - loss frequency

We expect that  $h = H$  for the purpose of full value insurance.

### **Excess participation**

In case of excess participation on the level of 10 % at least 10 thousand CZK net premium is equal to 1 422 CZK ( ${}^S EP P_{(h)}^H$ ). It follows rate calculation of net premium with excess participation in amount of 0.0711 %. We deduct own participation which is covered by person insured. Calculation is shortened due to assumption of correct sum insured adjustment in according to insured value.

$${}^S EP P_{(h)}^H = v * q_1 * [G_1 + (1 - b_1) * s - G_{0,1} - (1 - b_{0,1}) * x_0] * H$$

- s - full value insurance
- $x_0$  - ratio of contracted sum insured and insurance value

### **Gross premium calculation**

Calculation of gross premium conforms to current requirements to cover fluctuations of insurance payments and to include administration costs, commissions, adjustment costs and other fees. Net premium with excess participation in amount of 1 422 CZK is correct in case of steady and calm claims development. In case of claims deterioration it is necessary to calculate fluctuation reserve, which serves to unexpected increase in insurance events (in the Czech conditions it means fifty-year and hundred-year floods). Fluctuation reserve and net premium create risk premium rate, which takes into account fluctuation in loss distribution and sudden events.

Gross premium consists of net premium, safety loading, administration costs and profit calculation of insurer.

### **Safety loading**

Assessment of safety loading as a part of gross premium calculation is mentioned in Tab. 3.

**Tab. 3 Calculation of safety loading**

| $z^2$  | $z$    | $T_z$    | $z^2 * T_z$ |
|--------|--------|----------|-------------|
| 0.0025 | 0.0500 | 800.00   | 2.00        |
| 0.0156 | 0.1250 | 110.00   | 1.72        |
| 0.1406 | 0.3750 | 20.00    | 2.81        |
| 0.3906 | 0.6250 | 35.00    | 13.67       |
| 0.7656 | 0.8750 | 35.00    | 26.80       |
| 1.3150 |        | 1 000.00 | 47.00       |

## Risk premium rate

Net premium is based on input parameters and assumptions mentioned above. Essential risk premium is extended by fluctuation loading in according to cover fluctuations in long term. Our calculation uses distribution of losses caused by floods. Risk loading calculation considers 30 thousand uninsurable units and models real fluctuations in recent years in the Czech Republic. In order to high probability of risk realization out of current loss interval, we complemented risk premium rate additionally by safety loading of the fourth flood zone.

Calculation of risk loading is essentially stricter because model is based on the highest risk units. We benefit from the presumption that 10 % of estates are affected by insurance event of total loss (2 million CZK) once per fifty years. In order to cover these fluctuations it is necessary to collect net premium in the amount of 5.4 billion CZK during 50 years (after deduction of participation amounting to 10 %, which means 5 400 CZK of loading for estate in value of 2 million CZK). Model ensures meeting this requirement through flood loading in the amount of 1.8 %.

$$RP = (1+\lambda_1) * P + \lambda * s + \lambda_3 * s^2$$

- RP - risk premium
- $\lambda_{1,3}$  - non-negative coefficients which equal to 0 due to principle of standard deviation ( $RP = \lambda * s$ )
- s - estimated standard deviation

$$s = \sqrt{\frac{1}{N} * \sum_{i=1}^N (z_i * S - p * S)^2}$$

- N - estimated amount of insurance contracts
- p - annual net premium calculated by sum insured per unit

$$RP = P + 4/N * H * \sqrt{\sum_{i=1}^N z_i^2}$$

$$RP = 1\ 421.64 + [(4/30\ 000 * v1.3150 + 0.0018) * 2\ 000\ 000] = 5\ 327.436$$

Risk loading is purposely overestimated and limited by 30 thousand units, which are significantly influenced by risks of the fourth flood zone. Importance of risk loading is overvalued through integration of higher than average sum insured. Risk premium is amounting to 5 327 CZK which is accorded with selected value of estates (2 million CZK). Risk premium included margin of safety in the form of flood loading is estimated on the level of 73.3 %.

Final amount of premium is 5 327 CZK and insurance risk premium rate is calculated in the amount of 2.66 %.

## Administration costs

Our model defines administration costs purposely as a minimum of gross premium. We estimate that the highest administration costs should be acquisition. Other kinds of these costs are mostly joined with claims adjustment. Administrative burden should be minimized due to the fact, that our insurance product is designed as additional insurance to existing products. Higher costs are expected in relation to the fund (in the form of transfers, statement of account etc.), to intermediary (acquisition expenses), to claims adjuster. Profit calculation

is in the form of reserve serving to some increased expenses within administration. Primarily the main aim is not to achieve a profit, but to extend insurance protection. Profit flows from the fund in the case of moderate claims development.

We can distinguish independent and dependent administration costs. Independent costs are indifferent to the amount of sum insured. We estimate these costs at the level of 0.5 %. Dependent costs are described in the Tab. 4.

**Tab. 4 Dependent administrative costs**

| Type of cost          | Space of time | Amount and origin of cost | Loading for management expenses |
|-----------------------|---------------|---------------------------|---------------------------------|
| Acquisition           | 1 year        | 5.0 % of rate             | 0.193 ‰                         |
| Own administrative    | permanent     | 0.1 % of rate             | 0.004 ‰                         |
| Organization          | permanent     | 0.025 % of rate           | 0.010 ‰                         |
| Collection            | permanent     | 0.75 % of rate            | 0.029 ‰                         |
| Cancellation          | 1 year        | 0.10 % of rate            | 0.004 ‰                         |
| Adjustment            | 1 year        | 2.00 % of the fund        | 0.077 ‰                         |
| Other                 | permanent     | 1.00 % of rate            | 0.039 ‰                         |
| Calculation of profit | permanent     | 0.50 % of rate            | 0.019 ‰                         |

It is necessary to limit administration and other costs in order to ensure that insurer doesn't hide profit into increased administrative costs. Fixed amount of administrative costs in primary rate is reliable protection against increasing insurance costs.

Gross premium is determined from ratio of risk premium with independent administrative costs and dependent administrative costs of gross premium with calculated profit of gross premium.

$$b = \frac{rp * 1,005}{1 - (0,01 + 0,0025 + 0,01 + 0,015 + 0,01 + 0,015) - 0,05}$$

- b - gross premium rate at risk premium rate "rp" per unit sum insured

Administrative costs are a part of gross premium. Model's gross premium rate is calculated in the amount of 3.016 ‰ which means total increase in premium rate of 0.37 %. Finally annual total gross premium equals to 6 032 CZK in case of sum insured of 2 000 000 CZK.

## Conclusions

Our solution of uninsurable risks with focus on floods, deluges and overflows is based on fund approach to ensure commercial insurance protection. Flood risks are very significant in conditions of the Czech Republic. Extensive losses influence negatively thousands of the Czech residents and value of their property. Our research highlights the importance of uninsurable risks solution. Because of many considering factors an effective instrument able to protect lives and property is an innovative commercial insurance product.

Multi-source system solving uninsurable risks is purposed in the form of fund with participation of the state authority. Our solution depends on pool creation and primarily should cover enormous claims development. Assumption of fund profitability encourages insurers' motivation to become a pool member. Very important role of the fund supervisor is defined as a fundamental part of fund foundation and its effective functioning.

Assessment of input conditions and calculation of premium is based on real published data and conform to a real market development in the Czech Republic. A weakness of our

system is lack of high quality input data of the Czech insurance market. Our calculations are also based on our estimations of risk development.

Our system is designed to conditions of the Czech insurance market and takes into account special domestic factors. We suppose that our solution is possible to be adopted in conditions of any insurance market in case of using relevant data and risk factors.

## Literature

- CIPRA, Tomáš. Pojistná matematika - teorie a praxe. Praha: EKOPRESS, s.r.o., 2006. ISBN 80-86929-11-6.
- ČAMROVÁ, Lenka a Jiřina JÍLKOVÁ a kol. Povodňové škody a nástroje k jejich snížení. Praha: IEEP, 2006. ISBN 80-86684-35-0.
- ČESKÁ ASOCIACE POJIŠŤOVEN. Statistiky - ostatní. Available from: <http://www.cap.cz/statistics.aspx?t=1>.
- KOLEKTIV autorů z České asociace pojišťoven. Česko-anglický slovník pojišťovnictví. Praha: Grada Publishing, a.s., 2007. ISBN 978-80-247-1817-0.
- SIGMA No 2/2011. World insurance in 2010. Premiums back to growth - capital increases. Switzerland: Swiss Reinsurance Company Ltd, 2011. Available from: [www.swissre.com/sigma](http://www.swissre.com/sigma).
- SIGMA No 4/2011. Product innovation in non-life insurance markets. Where little "i" meets big "I". Switzerland: Swiss Reinsurance Company Ltd, 2011. Available from: [www.swissre.com/sigma](http://www.swissre.com/sigma).

# **Actual situation of risk analysis in enterprises of agrosector in Slovakia**

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## **Abstract:**

Analysis of security risks and their management is an essential tool in the hands of the senior management of the enterprise in order to protect investments in information systems, and thus to support the main business processes. Custom design of the risk analysis process can be distinguished by the details and depth of approaches to solve them. Based on the risk analysis, it is possible to specify the appropriate measures with regard to the identified threats.

## **Key words:**

Risk analysis, threats, enterprises of agrosector, information security

## **INTRODUCTION**

The risk analysis is a fundamental prerequisite for creating an effective system of the information systems protection. The objective of risk analysis is to identify and assess threats to which the information system is exposed in order to select new or additional relevant steps. Risk analysis identifies threats and risks that are going to be accepted or corrected. (**Loveček 2006**). Risk analysis should be carried out periodically, which ensures the adequacy and timeliness of all the requests for specific security measures. (**Kaluža 2012**). **Kostrecová (2008)** noted that through the process of risk analysis are detected threats, the likelihood of their realization and asset vulnerability. The risk analysis process proposes measures to mitigate or eliminate the risk of detected threats. Risk assessment is a key block to help uncover potential threats resulting from operational interruptions and their financial impacts.

The object of our study was initially focused on carrying out the survey on the actual risk analysis in the selected agricultural sector, as well as asset evaluation by company, and then carrying out the risk analysis in the chosen company of agricultural sector.

## **MATERIAL AND METHODS**

The survey was designed to map the state of the risk analysis, specifically in the agricultural sector businesses in Slovakia and it was accomplished by completing a printed questionnaire. Distribution and collection of completed questionnaires was conducted in 2011 and 2012. Survey respondents were agricultural sector businesses. Key factors were area of business activity, orientation of the agricultural sector businesses in the Slovak

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Republic, region, legal form, and not least the size of the company (measured by number of employees). The results include a total of 78 companies with a staff of 3 to 104 employees with a wide range of business activities (agriculture, food industry, etc.) and their legal forms (limited liability companies, joint stock companies, cooperatives and individual farmers).

## RESULTS AND DISCUSSION

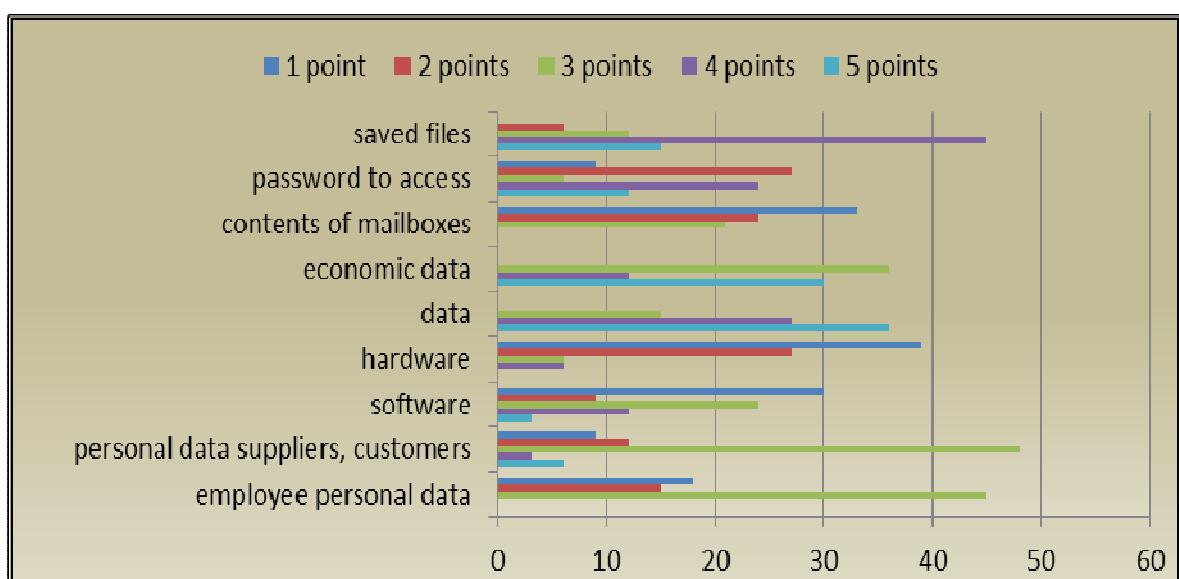
We present a summary of the results processed by the survey areas in this part of the report, as well as the actual results of the risk analysis in the agricultural sector enterprise.

### Asset valuation in the agricultural sector companies

Assets are all tangible and intangible goods. It is everything that has a certain value for the owner. Their assessment forms part of the risk analysis. The most valuable assets are considered data and information, which misuse, loss or modification would cause damage to a company or a person. The tangible assets have value corresponding to the cost and they consist of: computers and other devices (servers, storage media, UPS) communication technologies (structured cabling, active network elements).

Intangible assets are software and data. These include in particular: data (e.g. databases, personnel records), operating systems, application programs, program tools for information system management. Agricultural sector enterprises assessed valuation of their assets and assigned values to individual assets, so what would be missed the most in case of loss or theft. Assigning points were as follows. Value 5 points means that the company lacks the asset the most and 1 point means that it misses the least. Most, as shown in Chart 1, the companies currently value asset data, saved files, and economic data that were scoring 5, 4 or 3 points. Poor values for companies have hardware and content of mailboxes.

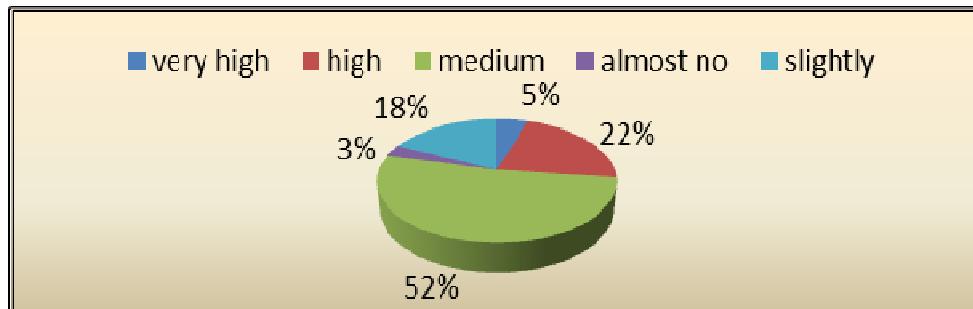
Company data represent the most valuable assets that often exceed several times the hardware value on which they are stored. The best way how to prevent access to company internal data is through data classification. If a company wants to build a little stronger protection system, it must be approached individually to protect each system. As in many enterprises the budget is not big enough to be able to cover the cost of several administrators, one person has access to all information and computers.



**Chart 1 The evaluation of assets in the agricultural sector enterprises of SR**

## The risk analysis in the agricultural sector enterprises

The enterprises of agricultural sector perceive level of risk with varying intensity, as illustrated in Chart 2, in which 2.56% of enterprises reported that for them there is almost no risk with regard to the companies that produce agricultural products, thus it is a manufacturing enterprise. About 5.13% of businesses perceive very high risk and more than a half of the companies evaluate their area as medium risk (52.56%).



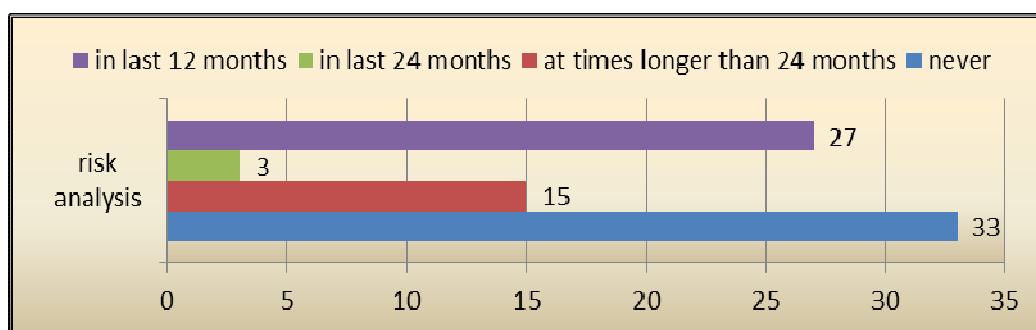
**Chart 2 Percentage of risk perception in the agricultural sector enterprises**

The attitude to risk in the agricultural sector enterprises in the survey was associated with the response of the method of risk assessment, which were available as options - evaluate all hazards, the most important risks and verbal. The result of evaluation is found in Table 1.

**Table 1 The relationship between attitudes towards risk and risk evaluation method in enterprises**

| Attitude to risk | Risk assessment |                          |                   |       |
|------------------|-----------------|--------------------------|-------------------|-------|
|                  | All risks       | The most important risks | Verbal assessment | Total |
| Aversion to risk | 16              | 5                        | 7                 | 28    |
| Tendency to risk | 12              | 11                       | 6                 | 29    |
| Neutral attitude | 11              | 6                        | 4                 | 21    |
| Total            | 39              | 22                       | 17                | 78    |

It is worth to mention the fact that only 21.79% of companies consider their risks only verbally. These results are some warning because businesses should try to apply modern management tools in a greater measure, 28.21% of the enterprises evaluate only the most important risks, and a half of businesses assess all their risks.



**Chart 3 Frequency of agricultural sector enterprises with performing risk analysis**

Since the analysis of risks should be one of the first steps in the process of building information security management, the results of this part of the survey specifically refer to realization of its importance. During The period of analysis of the selected sample, as well as Chart 3, shows the frequency of agricultural sector enterprises, in which the risk analysis was carried out. In 34.62% of the agricultural sector enterprises the risk analysis for the last 12 months was conducted. The survey shows that a smaller proportion of enterprise respondents were analyzing for about 24 months, just 3.85% of business risk analysis was performed in the last 24 months and up to 19.23% of enterprises conducted the risk analysis at the time of longer than 24 months. Risk analysis was never performed in the 42.31% of the enterprises, which is the most apparent frequency of carrying out risk analysis.

The risk analysis was carried out from view of security to give an overview about the various threats. The risk is not precisely formulated. Any risk refers to the specific threat and it depends on the likelihood of threat implementation and threat impact. The realization of the threat with bigger probability and bigger impact is for information system riskier. In the case of the threat  $H_i$ , its risk  $R(H_i)$  is expressed as the product of the threat execution probability  $P(H_i)$  and some degree of the impact of this threat  $D(H_i)$ :

$$R(H_i) = P(H_i) * D(H_i)$$

The measure of the threat impact may be financial costs associated with the recovery of lost assets, percentage of losses importance or some fictitious points. The risk is expressed also by a qualitative scale – e.g. low, medium, or high. Qualitative methods are characterized by the risks to be expressed in certain stages (e.g. 1 up to 10 points or small, medium, large). The degree of risks is determined by a qualified estimate. Qualitative methods are simpler and faster, but also more subjective. They usually cause problems in the risk management area, because they lack a clear financial statement, making it difficult to control cost effectiveness. Quantitative methods are based on a mathematical calculation of the risk from the likelihood of the threat and its impact. They usually reflect the impact in financial terms, for example in thousands of Euros. Quantitative methods are more exact, generally provide financial risk statement, but on the other hand require more time and effort.

The objective of the risk analysis was to determine which threats endanger IS assets and how they are dangerous. Risk analysis procedure was as follows: asset identification, threat identification, identification of vulnerabilities, estimate the likelihood of incidents, impact analysis, determination of risk.

The assets of information system was identifying in the first step of the risk analysis. It was necessary to analyze the system, identify and map all that belongs to the system (e.g. hardware, software, interfaces, personnel, data, and services). They also identified the importance of the enterprise. The second step is to identify threats. Here it was necessary to assess the threats that can jeopardize IS. The individual threats bearers and threats to individual mechanisms for assets, mapped in the previous step, were considered. The third step was devoted to identifying weaknesses. In this step, weaknesses in the system were looking for, i.e. looking for threats for which protection is non-existent or inadequate. In the fourth step, the information about threats and vulnerabilities estimate the probability  $P$  of incidents caused by various threats. In the case of spontaneous events (lightning, flood, etc.) the occurrence probability tables of these events were used. If the threat bearer is an attacker, the following Table 2 can be used.

**Table 2 Table to determine the probability of incidents**

| P                                   | Characteristic  |
|-------------------------------------|---|
| <b>high: <math>P = 1,0</math></b>   | attacker is highly motivated, well equipped and protection do not exist or are not effective                      |
| <b>medium: <math>P = 0,5</math></b> | attacker is motivated, well-equipped, but the existing protection can be long enough to retain                    |
| <b>low: <math>P = 0,1</math></b>    | attacker is not interested or are not sufficiently equipped or existing protection can be significantly long hold |

In the fifth step, the analysis of the impact D carries out by threats and vulnerabilities through the following Table 3.

**Table 3 Table to determine threats**

| D                                | Characteristic   |
|----------------------------------|--|
| <b>high: <math>D=100</math></b>  | The incident may cause a very significant loss of assets |
| <b>medium: <math>D=50</math></b> | The incident can cause major loss of assets              |
| <b>low: <math>D=10</math></b>    | Incident parts can cause loss of assets                  |

The final step of the risk analysis is to identify the risks. Part of this step is to evaluate the level of risk. The last row of Table 4 represents the fact that the security cannot be absolute. In each system there will always be some risks for which the elimination is more expensive than possible losses. Such risks are not removed and are so-called residual risk.

**Table 4 Table of measures based on the level of risk**

| Level of risk                               | Arrangements   |
|---|--|
| <b>high: <math>P*D \in (50,100)</math></b>  | Weakness should be removed as soon as possible.        |
| <b>medium: <math>P*D \in (10,50)</math></b> | Weakness must be removed within a reasonable time.     |
| <b>low: <math>P*D \in (0,10)</math></b>     | Consider weakness or even removed (the residual risk). |

Based on these facts we reviewed the risk analysis done in XYZ company listed above. The risk analysis was carried out in collaboration with the company management. The risk analysis in the company is revised according to the above steps and tables. The result is shown in Table 5.

**Table 5 Risk Analysis in the company XYZ**

| Threat                                       | Vulnerability                    | P   | D   | $P*D$ | Level of risk |
|--|----------------------------------|-----|-----|-------|---------------|
| Underestimation of safety                    | Equipment, services, information | 1   | 100 | 100   | High          |
| User error (in use or HW. SW)                | Equipment, services, information | 0,5 | 50  | 25    | Medium        |
| SPAM   | Information                      | 0,1 | 10  | 1     | Low           |
| Virus from within the organization (on disk) | Operation system                 | 0,5 | 50  | 25    | Medium        |
| Virus from the outside (the Internet)        | Operation system                 | 0,5 | 50  | 25    | Medium        |

|  |                                  |     |     |     |        |
|--|----------------------------------|-----|-----|-----|--------|
| Overcrowding disks or memory             | Equipment                        | 0,1 | 100 | 10  | Low    |
| Software error                           | Equipment                        | 0,5 | 100 | 50  | Medium |
| Hardware failure                         | Equipment, services              | 0,5 | 50  | 25  | Medium |
| Unauthorized access to data from within  | Information                      | 1   | 100 | 100 | High   |
| Unauthorized access to data from outside | Information                      | 1   | 100 | 100 | High   |
| Steal information from the server        | Equipment, information           | 1   | 100 | 100 | High   |
| Theft equipment                          | Equipment                        | 1   | 100 | 100 | High   |
| Administrator or operator error          | Equipment, services, information | 0,5 | 50  | 25  | Medium |
| Failure of local area network (LAN)      | Equipment, services, information | 0,1 | 50  | 5   | Low    |
| Sniffing                                 | Information                      | 0,1 | 50  | 5   | Low    |
| Power outage                             | Equipment, services              | 0,5 | 50  | 25  | Medium |
| Natural disaster (fire, flood)           | Equipment, services, information | 0,5 | 50  | 25  | Medium |
| Abuse facilities (to attack)             | Equipment                        | 1   | 50  | 50  | Medium |
| Falsification of data                    | Information                      | 0,5 | 50  | 25  | Medium |

## CONCLUSION

On the basis of survey results, the agricultural sector enterprises consider data as the most valuable assets, particularly economic data. The smallest value for them has hardware, mailbox content and software. More than a half of the enterprises evaluate their area with medium risk and the risk analysis has never been carried out in more than 42% of businesses. The selected company performed manual risk analysis and suggested a possible way to achieve quality assurance, but most of these interventions to the system should be carried out with real experts in order to measure function properly and efficiently. Particular results of the risk analysis were continually consulted with a representative of the company.

## Literature

- HAMÁŠOVÁ, Katarína. 2012. *Aspekty informačnej bezpečnosti v oblasti implementácie IT a IS v podnikoch agrosektora* : dizertačná práca. Nitra : SPU, 2012, 199 s.
- HENNYEYOVÁ, Klára – HAMÁŠOVÁ, Katarína. 2012. *Aspekty informačnej bezpečnosti v podnikoch agrosektora* : vedecká monografia. Nitra : SPU, 2012. 123 s. ISBN 978-80-552-0879-4.
- HENNYEYOVÁ, Klára – KORCOVÁ, Zuzana – POPELKA, Vladimír. 2010. *Selected aspects of the information security in Slovakia*. In Global Economy 2010. (CD). Nitra : SPU, 2010 s. 2559-2565. ISBN 978-80-552-0386-7.
- KALUŽA, František. 2012. *Outsourcing z pohľadu riadenia informačnej bezpečnosti*. In Information Security, Security Revue – International Magazine for security engineering. [online], aktualizované 2012, č.06, [cit 2012-11-05]. Dostupné na: <<http://www.securityrevue.com/article/2011/06/outsourcing-z-pohladu-riadenia-informacnej-bezpecnosti/>>.
- KOSTRECOVÁ, Eva. 2008. *Informačná bezpečnosť 4, Klasifikácia a riadenie aktív*. [online], aktualizované 2008. [cit 2012-11-11]. Dostupné na: <<https://www.download.matus.in/Informacnabezpecnost/2008.04.ppt>>.

LOVEČEK, Tomáš. 2006. *Bezpečnostná politika IT ako jeden zo základných dokumentov organizácie*. [online], aktualizované 2006. [cit. 2012-10-08]. Dostupné na: <<http://www.securityrevue.com/article/2006/04/bezpecnostna-it-politika-ako-jeden-zo-zakladnych-dokumentov-organizacie/>>.

TÓTHOVÁ, Darina. 2006. *Konvergovaná bezpečnosť*. In Medzinárodné vedecké dni 2006: Konkurencieschopnosť v EÚ - výzva pre krajiny V4, elektronický konferenčný zborník. [Zborník na CD ROM] 1. vyd. Nitra : Slovenská poľnohospodárska univerzita, 2006. s. 1588-1591. ISBN 80-8069-704-3.

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# **Returns and volatility transmissions between crude oil futures markets and Asian emerging stock markets<sup>1</sup>**

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**Seong-Min Yoon<sup>3</sup>**

## **Abstract:**

This paper investigates the transmission of volatility and shocks between oil futures prices and 10 Asian emerging indices using a VAR(1)-bivariate GARCH(1,1) model. We also analyse the optimal weights and hedge ratio for building optimal portfolios to minimize the exposure to risk from oil futures price changes. We found that there is no significant impact of oil futures price returns to Asian stock returns. However, strong volatility spillover effect is observed from oil futures price shock and volatility to its counterpart volatilities. In addition, our examination of optimal weights and hedge ratios suggests adding the oil asset into a well-diversified portfolio and hedging the oil price risk effectively. These findings are of practical importance to financial market participants and may be useful in making optimal portfolio allocation decisions and developing cross-market hedging strategies.

## **Key words:**

Cross-market hedging; Oil price risk; Portfolio diversification; Spillovers

## **1. Introduction**

The recent oil price fluctuations have renewed interest in the impacts of oil price shocks on economic activities (Hamilton, 2003; Cunado and Perez de Garcia, 2005; Cologni and Manera, 2008; Kilian, 2008; Lardic and Mignon, 2008). In particular, understanding the dynamic relationship between oil price variants and stock markets is an ongoing issue in energy finance. According to a basic theory, the value of stock equals the discounted sum of expected future cash flows. These discounted cash flows reflect economic conditions (e.g., inflation, interest rates, production costs, income,

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economic growth, and investor and consumer confidence) and macroeconomic events that are likely to be influenced by oil shocks (Apergis and Miller, 2009; Masih, Peters and De Mello, 2011).

In the literature, a large volume of studies have provided an explanation concerning the linkage between oil prices and stock market indices. A majority of these works show the negative impact of oil price shocks on international stock returns (Jones and Kaul, 1996; Sadorsky, 1999; Park and Ratti, 2008; Chiou and Lee, 2009; Narayan and Narayan, 2010; Lee and Chiou, 2011). These studies have suggested that the oil price shocks may lead input prices to increase, driving profits and returns in different countries or industries (or even firms). However, Huang, Masulis and Stoll (1996) found little evidence of a relationship between oil prices and the S&P 500 market index using a VAR model. Surprisingly, there is a positive relationship between the oil price and stock price of oil companies (Sadorsky, 2001; Boyer and Filion, 2007; El-Sharif et al., 2005). This evidence indicates that oil price increases lead to higher stock returns of oil-related firms.

Given the recent uncertainties of oil prices, dynamic volatility spillover between oil and stock markets are of increasing interest to the construction of optimal risky portfolios and hedge ratios in financial risk management. Malik and Hammoudeh (2007) examined the volatility and shock transmission mechanism among US equity, Gulf equity, and global crude oil markets using a multivariate GARCH framework. They found that the volatility of Gulf equity markets is affected by the volatility of oil markets, but only in the case of Saudi Arabia is there evidence of a significant volatility spillover from the equity market to oil markets. Arouri, Lahiani and Nguyen (2011) also examined the volatility transmission between oil and stock markets in the Gulf countries. They reported that the recent crisis period led to an increase in the existence of volatility spillovers between oil and Gulf equity markets.

Several studies have focused on the volatility transmission mechanism between oil prices and industry-specific sector stock prices. Malik and Ewing (2009) focused on the volatility spillover between oil prices and US sector indexes (Financials, Consumer, Health, Industrials, Technology) and found significant evidence of volatility spillover between oil and sector stock markets. This evidence indicated that the volatility spillover is usually attributed to cross-market hedging and changes in common information. Chang, McAleer and Tansuchat (2009) explored the volatility spillovers between crude oil futures and international oil company stocks using various multivariate GARCH models. They suggested little evidence of volatility spillover effects in any part of the return series.

Arouri, Jouini and Nguyen (2011, 2012) examined the extent of volatility transmission, portfolio designs, and hedging effectiveness in oil and sector stock returns in Europe and the US. They found that there is significant evidence of unidirectional volatility spillover from oil to Europe sector stock returns, but the empirical evidence supports a bidirectional volatility spillover between oil and US sector markets. Sadorsky (2012) analyzed the volatility spillover between oil prices and the stock prices of clean energy companies and technology companies using various multivariate GARCH models. Surprisingly, the empirical findings suggested that the stock prices of clean energy companies have received more impact from technology stock prices than oil prices.

This study contributes to the extant literature by investigating the linkage between oil price futures and 10 Asian emerging stock markets using a VAR(1)-bivariate GARCH(1,1) model with the BEKK framework. An assessment of the returns and volatility linkage between oil price volatility and sector price volatility is crucial for making investment decisions, and for policymakers in implementing appropriate policies for controlling the exposure to oil price risk in Asian stock markets.

The main contribution of this paper is threefold. First, although previous empirical studies have documented the impacts of oil price movements on stock returns in developed countries, little attention has been paid to examining the returns and volatility transmission between oil futures price and Asian stock indices. This study initially explores the returns and volatility spillovers between oil futures and Asian stock markets.

Second, this study further examines optimal portfolio designs and hedge ratios using the estimated conditional covariances between oil futures and Asian stock returns. From a portfolio management point of view, accurate estimation of the time-varying covariance matrix is required to build financial and strategic decisions regarding accurate asset pricing, risk management, and portfolio allocation. Our findings from optimal weights and hedge ratios indicate that investors might make appropriate capital budgeting decisions and effectively manage the exposure to oil price risk in the Asian stock markets.

The rest of this paper is organized as follows. Section 2 presents the econometric methodology. Section 3 provides descriptive statistics of the sample data. Section 4 discusses the empirical results. Section 5 presents our conclusions.

## 2. Methodology

### 2.1. VAR(1)-Bivariate GARCH(1,1) model

Substantial attention has been given to how news from one market affects the volatility process of another market. The univariate GARCH model of Bollerslev (1986) has been extended to the multivariate GARCH model with a cross conditional variance equation. In this study, we analyze the mean and volatility spillovers by using a VAR (1)-bivariate GARCH (1, 1) model with the BEKK parameterization (Engle and Kroner, 1995).

Firstly, we consider the bivariate mean model, i.e., the VAR (1) process:

$$\begin{bmatrix} R_{1,t} \\ R_{2,t} \end{bmatrix} = \begin{bmatrix} \beta_{10} \\ \beta_{20} \end{bmatrix} + \begin{bmatrix} \beta_{11} & \beta_{12} \\ \beta_{21} & \beta_{22} \end{bmatrix} \begin{bmatrix} R_{1,t-1} \\ R_{2,t-2} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \end{bmatrix}, \quad (1)$$

$$\begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \end{bmatrix} | \Omega_{t-1} \sim N(0, H_t), \quad (2)$$

where  $H_t$  is a  $2 \times 2$  corresponding conditional variance-covariance matrix. The market information available at time  $t-1$  is represented by the information set  $\Omega_{t-1}$ . The parameter  $\beta_{ij}$  implies the mean spillover effects. For example, both  $\beta_{11}$  and  $\beta_{22}$  indicate that market returns are affected by their own lag values whereas both  $\beta_{12}$  and  $\beta_{21}$  represent the mean spillover effects between oil futures and stock markets.

The standard BEKK parameterization for the bivariate GARCH model (1, 1) is written as:

$$H_t = C' C + A' \varepsilon_{t-1} \varepsilon_{t-1}' A + B' H_{t-1} B, \text{ or} \quad (3)$$

$$\begin{aligned} \begin{bmatrix} h_{11,t} & h_{12,t} \\ h_{21,t} & h_{22,t} \end{bmatrix} &= \begin{bmatrix} c_{11} & \\ c_{21} & c_{22} \end{bmatrix}' \begin{bmatrix} c_{11} & \\ c_{21} & c_{22} \end{bmatrix} \\ &+ \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}' \begin{bmatrix} \varepsilon_{1,t-1}^2 & \varepsilon_{1,t-1} \varepsilon_{2,t-1} \\ \varepsilon_{1,t-1} \varepsilon_{2,t-1} & \varepsilon_{2,t-1}^2 \end{bmatrix} \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \end{aligned}$$

$$+ \begin{bmatrix} b_{11} & b_{12} \\ b_{21} & b_{22} \end{bmatrix}' \begin{bmatrix} h_{11,t-1} & h_{12,t-1} \\ h_{21,t-1} & h_{22,t-1} \end{bmatrix} \begin{bmatrix} b_{11} & b_{12} \\ b_{21} & b_{22} \end{bmatrix}, \quad (4)$$

where  $H_t$  is a  $2 \times 2$  matrix of conditional variance-covariance at time  $t$ , and  $C$  is a  $2 \times 2$  lower triangular matrix with three parameters.  $A$  is a  $2 \times 2$  square matrix of parameters and measures the extent to which conditional variances are correlated past squared errors.  $B$  is a  $2 \times 2$  squared matrix of parameters and shows the extent to which current levels of conditional variances are related to past conditional variances.

The conditional variance of the bivariate GARCH (1, 1) model can be expressed as:

$$h_{11,t} = c_{11}^2 + c_{21}^2 + a_{11}^2 \varepsilon_{1,t-1}^2 + 2a_{11}a_{21}\varepsilon_{1,t-1}\varepsilon_{2,t-1} + a_{21}^2 \varepsilon_{2,t-1}^2 + b_{11}^2 h_{11,t-1} + 2b_{11}b_{21}h_{12,t-1} + b_{21}^2 h_{22,t-1}, \quad (5)$$

$$h_{22,t} = c_{22}^2 + a_{12}^2 \varepsilon_{1,t-1}^2 + 2a_{12}a_{22}\varepsilon_{1,t-1}\varepsilon_{2,t-1} + a_{22}^2 \varepsilon_{2,t-1}^2 + b_{12}^2 h_{11,t-1} + 2b_{12}b_{22}h_{12,t-1} + b_{22}^2 h_{22,t-1}, \quad (6)$$

where the parameters  $a_{12}$ ,  $a_{21}$ ,  $b_{12}$ ,  $b_{21}$  of Equations (5) and (6) reveal how shock and volatility are transmitted over time and across markets. The off-diagonal elements of matrices  $A$  and  $B$  capture cross-market effects, such as shock spillover ( $a_{12}$  and  $a_{21}$ ) and volatility spillover ( $b_{12}$  and  $b_{21}$ ).

The parameters of the bivariate GARCH model can be estimated by the maximum likelihood estimation method optimized with the Berndt, Hall, Hall and Hausman (BHHH) algorithm. The conditional log likelihood function  $L(\theta)$  is expressed as:

$$L(\theta) = -T \log 2\pi - 0.5 \sum_{t=1}^T \log |H_t(\theta)| - 0.5 \sum_{t=1}^T \varepsilon_t(\theta)' H_t^{-1} \varepsilon_t(\theta), \quad (7)$$

where  $T$  is number of observations and  $\theta$  denotes the vector of all the unknown parameters.

## 2.2. Optimal portfolio weights and hedge ratios

The volatility transmission across oil futures market and stock markets is a crucial element for efficient diversified portfolios and risk management. Practically, portfolio managers are required to quantify the optimal weights and hedge ratios in order to effectively hedge oil price change risk. For minimizing the risk without reducing

expected returns, we now consider a portfolio construction of oil futures price and Asian emerging market indices. Following Kroner and Ng (1998), the portfolio optimal weights of oil futures and stock indices holding is given by:

$$w_t^{OS} = \frac{h_t^S - h_t^{OS}}{h_t^O - 2h_t^{OS} + h_t^S}. \quad (8)$$

And

$$w_t^{OS} = \begin{cases} 0, & \text{if } w_t^{OS} < 0 \\ w_t^{OS}, & \text{if } 0 \leq w_t^{OS} \leq 1 \\ 1, & \text{if } w_t^{OS} > 1 \end{cases} \quad (9)$$

where  $w_t^{OS}$  refers to the weight of oil asset in a one-dollar portfolio of the two assets defined above at time  $t$ ,  $h_t^S$  and  $h_t^O$  are the conditional variances of the stock index and the oil futures price, respectively, and  $h_t^{OS}$  is the conditional covariance between oil futures returns and stock returns at time  $t$ . The optimal weight of the stock index in the considered portfolio is obtained by computing this amount  $(1 - w_t^{OS})$ .

As for hedge ratios, Kroner and Sultan (1993) considered the conditional volatility estimates. For minimizing the risk of this portfolio (oil futures and stock markets), we measure how much a long position (buy) of one dollar in the oil futures market should be hedged by a short position (sell) of  $\beta_t$  dollar in the stock markets, that is:

$$\beta_t^{OS} = \frac{h_t^{OS}}{h_t^S}. \quad (10)$$

### 3. Data and descriptive statistics

This study considers weekly data (Friday-close) for one month futures contract of the West Texas Intermediate (WTIF) crude oil price and 10 Asian emerging markets (China, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand). Weekly data covers the period from January 8, 1999 to May 18, 2012. Stock market indices are obtained from MSCI database, while the WTI futures price data are extracted from New York Mercantile Exchange (NYMEX). Figure 1 shows the dynamics of all sample prices. The graphs show a similar price pattern. The increase in world crude prices was largely due to the economic growth in the Asian region until the

July 2008 peak. Subsequently, remarkable price falls were observed from August 2008 to 2009 due to a drop in demand for energy commodity and the global financial crisis. In addition, most stock sample experienced remarkable price falls under the effects of the recent global financial crisis 2007-2009, sparked by the US subprime mortgage crisis.

The return series of all sample prices are computed by  $R_{i,t} = \ln(P_{i,t}/P_{i,t-1}) \times 100$ ,

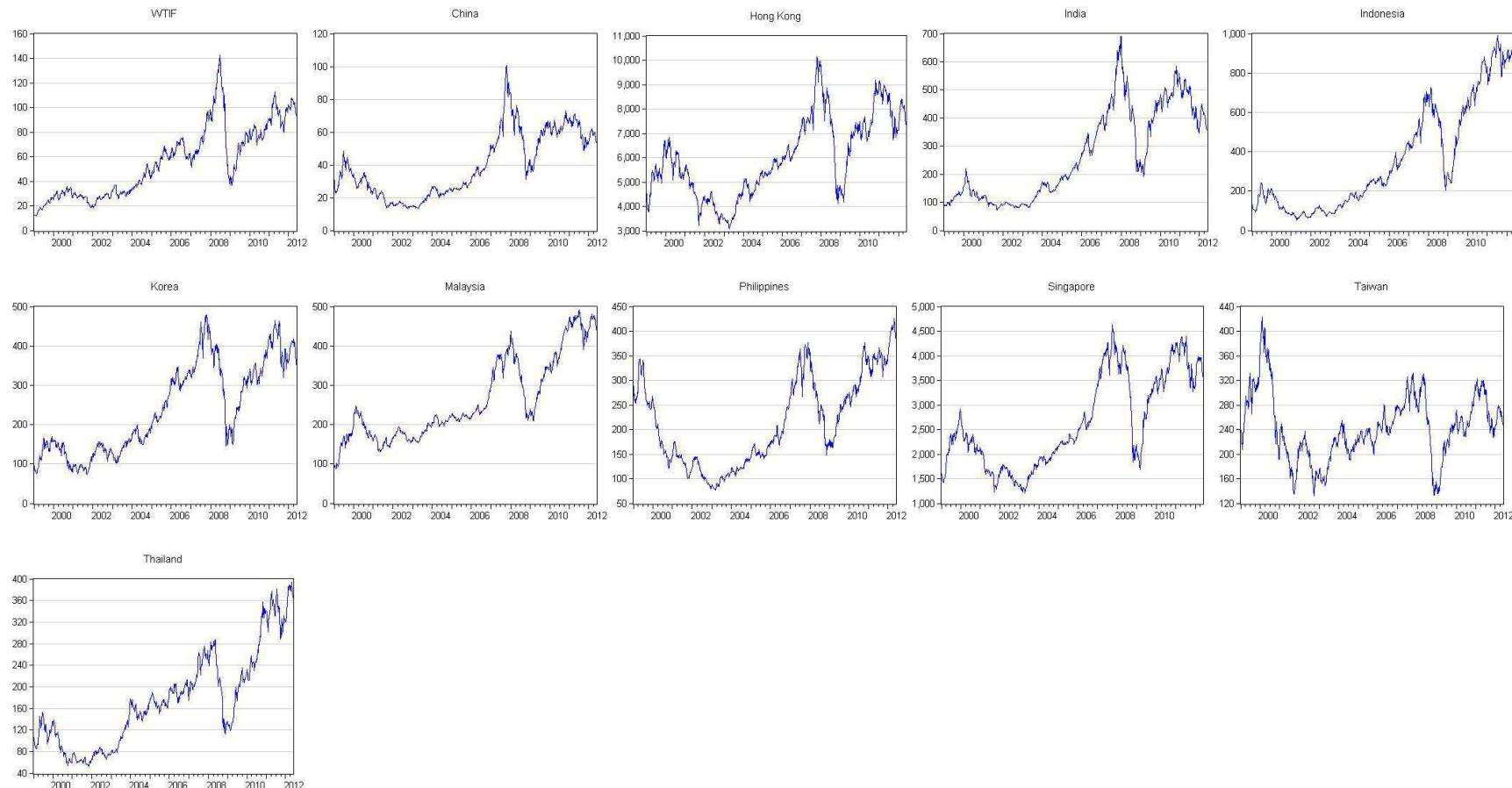
where  $R_{i,t}$  denotes the continuously compounded returns for each price  $i$  at time  $t$ ,

and  $P_{i,t}$  denotes the closing price  $i$  at time  $t$ .

Table 1 summarizes the descriptive statistics and unit root tests for the all sample return series. In Panel A, we report basic statistics of all return series. WTIF has the highest average returns, which is not surprising in view of the increasing trend in the price of oil over the last decade. Skewness (Skew.) is negative for all sample returns, except for the Malaysia returns. This means that extreme negative returns are likely to be realized for stock and oil market, respectively. Excess kurtosis (Kurt.) coefficients have significant values, indicating that outliers may occur with a probability higher than that of a normal distribution. Accordingly, the Jarque-Bera (J-B) test rejects the null hypothesis of normality for all sample returns at the 1% significant level. As also shown in Panel B, the calculated values of Ljung-Box test statistic,  $LB^2(24)$ , for the squared return series were extremely high, indicating the rejection of the null hypothesis of no serial correlation. These results are in favor of a model that incorporates ARCH/GARCH features.

In Panel B, we test for the presence of unit root in the returns of oil futures and stock market price indices using the Augumented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. Both the ADF and PP unit root tests have the same null hypothesis that a time series contains a unit root. As shown in Panel B, large negative values for the ADF and PP test statistics reject the null hypothesis of a unit root at the 1% significance level, indicating that all sample returns are stationary.

**<Figure 1> Dynamics of sample prices**



**<Table 1> Descriptive statistics of sample returns**

|                                 | WTIF    | China   | Hong Kong | India   | Indonesia | Korea   | Malaysia | Philippines | Singapore | Taiwan  | Thailand |
|---------------------------------|---------|---------|-----------|---------|-----------|---------|----------|-------------|-----------|---------|----------|
| Panel A: Descriptive statistics |         |         |           |         |           |         |          |             |           |         |          |
| Mean                            | 0.285   | 0.079   | 0.070     | 0.197   | 0.271     | 0.186   | 0.222    | 0.041       | 0.114     | 0.006   | 0.177    |
| S.D.                            | 4.268   | 4.535   | 3.274     | 4.223   | 5.179     | 5.078   | 2.868    | 3.650       | 3.358     | 3.923   | 4.407    |
| Max.                            | 15.53   | 17.93   | 9.823     | 18.37   | 21.54     | 28.63   | 14.37    | 15.24       | 18.51     | 19.36   | 17.26    |
| Min.                            | -18.95  | -22.13  | -17.14    | -21.88  | -26.84    | -27.90  | -12.54   | -20.80      | -19.80    | -14.40  | -29.26   |
| Skew.                           | -0.667  | -0.369  | -0.226    | -0.491  | -0.257    | -0.289  | 0.273    | -0.288      | -0.439    | -0.116  | -0.516   |
| Kurt.                           | 5.049   | 4.791   | 4.372     | 5.355   | 5.556     | 6.465   | 6.894    | 5.553       | 7.929     | 4.883   | 7.055    |
| J-B                             | 174.01  | 109.24  | 60.74     | 189.43  | 197.83    | 358.95  | 449.69   | 199.36      | 729.18    | 104.71  | 509.40   |
|                                 | [0.000] | [0.000] | [0.000]   | [0.000] | [0.000]   | [0.000] | [0.000]  | [0.000]     | [0.000]   | [0.000] | [0.000]  |
| $LB^2(24)$                      | 234.76  | 141.59  | 262.92    | 186.38  | 142.07    | 292.82  | 246.68   | 69.39       | 181.58    | 88.18   | 68.20    |
|                                 | [0.000] | [0.000] | [0.000]   | [0.000] | [0.000]   | [0.000] | [0.000]  | [0.000]     | [0.000]   | [0.000] | [0.000]  |
| Panel B: Unit root tests        |         |         |           |         |           |         |          |             |           |         |          |
| <b>ADF</b>                      | -22.44  | -27.09  | -26.11    | -15.77  | -12.55    | -27.94  | -24.46   | -25.67      | -25.20    | -26.73  | -13.72   |
|                                 | [0.000] | [0.000] | [0.000]   | [0.000] | [0.000]   | [0.000] | [0.000]  | [0.000]     | [0.000]   | [0.000] | [0.000]  |
| <b>PP</b>                       | -22.44  | -27.11  | -26.28    | -24.82  | -26.56    | -27.93  | -24.81   | -25.78      | -25.40    | -26.78  | -26.54   |
|                                 | [0.000] | [0.000] | [0.000]   | [0.000] | [0.000]   | [0.000] | [0.000]  | [0.000]     | [0.000]   | [0.000] | [0.000]  |

Notes: The Jarque-Bera (J-B) corresponds to the test statistic for the null hypothesis of normality in the sample return distributions. The Ljung-Box test statistic,  $LB^2(24)$ , checks for the serial correlation of the squared return residuals for up to the 24<sup>th</sup> order. \*\*\* indicates a rejection of the null hypothesis at the 1% significance level.

## 4. Empirical results

### 4.1. Spillover effect between oil futures and Asian stock markets

We investigate the mean and volatility spillover effects between oil futures and 10 Asian stock markets. In order to examine the spillover effect, we employ the VAR (1)-bivariate GARCH (1,1) model based on the BEKK approach. The estimation results of the VAR(1)-bivariate GARCH (1,1) model are reported in Table 2. Taking a close look at mean equations for all pairs, we find that the one period lagged oil future returns, denoted by  $\beta_{11}$  coefficients, significantly affect current oil returns in all cases. This finding indicates that some evidence of short-term predictability in oil price changes through time, which is inconsistent with the weak-form efficiency of international oil markets (Serletis and Andreadis, 2004; Tabak and Cajueiro, 2007; Elder and Serletis, 2008; Arouri et al., 2010, 2011). On the contrary, none of coefficients  $\beta_{22}$  for stock markets is significantly different from zero, implying that past stock returns do not help predict current stock returns in all cases.

Regarding the interdependence of return in mean equations, we find that lagged stock returns significantly affect stock market returns in all sample cases, due to the significance of coefficient  $\beta_{12}$ . The effect of stock returns on oil markets is positive because the economic growth in Asian oil-imported countries demands more oil production. Except for India, the oil futures returns do not have much impact on Asian emerging market index returns due to the insignificance of coefficient  $\beta_{21}$ . As a result, as far as mean spillover effect is concerned, previous stock returns in Asian stock markets tend to affect significantly and positively oil futures returns, while the impact from oil futures market to Asian stock markets is almost absent.

Turning out to conditional variance equations, the estimation results indicate that the estimates of ARCH and GARCH coefficients are significant at conventional levels in most cases. The current conditional volatility of Asian emerging stock markets depends on past own shocks affecting return dynamics due to the significance of ARCH-term, except for the WTIF-Philippines case. Moreover, the sensitivity to past own conditional volatility (GARCH-term) appears to be significant for all countries. This finding suggests that past value of the conditional volatility in Asian emerging markets is an important component for predicting their future volatility.

Now we consider the volatility spillover effects between oil and stock markets in the Asian emerging countries. We first investigate shock spillover effect between oil and stock markets. Due to the significance of coefficients  $\alpha_{21}$ , we observe that there is

shock spillover from oil market to stock market in six cases: China, Hong Kong, Indonesia, Malaysia, Philippines and Taiwan. This finding indicates that past oil shocks have significant effects on stock market volatility. Moreover, we observe that past oil volatility strongly affects stock market volatility, with the exception of Singapore and Taiwan. Thus, our empirical results suggest shock and volatility spillovers from oil market to Asian emerging stock markets.

To check the accuracy of the model specifications, we employ two diagnostic tests of residuals: the Ljung-Box statistic,  $LB_i^2(24)$ ; and the LM ARCH statistics,  $ARCH_i(10)$ . Note that the  $LB_i^2(24)$  test statistic checks for the serial correlation of squared standardized residuals and the  $ARCH_i(10)$  test statistic checks the remaining ARCH effect in standardized residuals. The insignificance of both  $LB_i^2(24)$  and  $ARCH_i(5)$  statistics indicates the appropriateness of the VAR(1)-bivariate GARCH(1,1) model.

Figure 3 displays the conditional correlation of oil futures and stock markets estimated from the VAR(1)-bivariate GARCH (1,1) model which are calculated by  $h_{1,2} / \sqrt{h_{1,1}} \sqrt{h_{2,2}}$ . The correlation coefficients are not constant, but vary greatly with time change in all sample periods. Note that the trend of correlations provides an guideline for building portfolio diversification. For example, WTIF-China pair of correlations show that there is a slight upwards trend or positive after 2008. This indicates that there is little scope for portfolio diversification between these two series.

In summary, our empirical results suggest that there is transmission of volatility and shocks from oil futures market to some of the Asian emerging stock markets. This volatility transmission provides an important guideline on cross-market hedging, optimal risk portfolios, and changes in common information.

#### **4.2. Optimal portfolio weights and hedge ratios**

Our previous findings suggest that the volatility transmission across oil market and sector stock markets is a crucial element for efficient diversified portfolios and risk management. Practically, portfolio managers are required to quantify the optimal weights and hedge ratios in order to effectively hedge oil price change risk. In this context, we now consider a portfolio composed of oil futures and stocks to minimize the exposed risk without reducing expected returns.

**<Table 2> Estimation results of the GARCH-BEKK model**

| Parameters               | WTIF-China |         | WTIF-Hong Kong |         | WTIF-India |         | WTIF-Indonesia |         | WTIF-Korea |         |
|--------------------------|------------|---------|----------------|---------|------------|---------|----------------|---------|------------|---------|
|                          | Coef.      | S.E.    | Coef.          | S.E.    | Coef.      | S.E.    | Coef.          | S.E.    | Coef.      | S.E.    |
| <b>Mean equation</b>     |            |         |                |         |            |         |                |         |            |         |
| $\mu_{10}$               | 0.236      | (0.159) | 0.233          | (0.159) | 0.222      | (0.160) | 0.226          | (0.160) | 0.228      | (0.159) |
| $\beta_{11}$             | 0.147***   | (0.038) | 0.141***       | (0.038) | 0.148**    | (0.037) | 0.147***       | (0.038) | 0.146***   | (0.038) |
| $\beta_{12}$             | 0.074**    | (0.036) | 0.156***       | (0.049) | 0.102**    | (0.038) | 0.064**        | (0.031) | 0.073**    | (0.038) |
| $\mu_{20}$               | 0.190      | (0.135) | 0.152          | (0.100) | 0.163      | (0.160) | 0.253          | (0.197) | 0.179      | (0.193) |
| $\beta_{21}$             | 0.078      | (0.040) | 0.046          | (0.029) | 0.074**    | (0.037) | 0.057          | (0.047) | 0.071      | (0.045) |
| $\beta_{22}$             | -0.039     | (0.038) | -0.001         | (0.038) | 0.061      | (0.061) | 0.003          | (0.038) | -0.069     | (0.038) |
| <b>Variance equation</b> |            |         |                |         |            |         |                |         |            |         |
| $c_{11}$                 | 0.737***   | (0.193) | 0.401          | (0.363) | 0.588**    | (0.266) | -0.308         | (0.309) | 0.549**    | (0.237) |
| $c_{21}$                 | 0.211      | (0.241) | -0.177         | (0.658) | 0.122      | (0.514) | 1.078***       | (0.216) | 0.167      | (0.560) |
| $c_{22}$                 | 0.512      | (0.872) | -0.559**       | (0.266) | 0.823***   | (0.155) | -0.000         | (0.140) | 0.961***   | (0.164) |
| $a_{11}$                 | 0.221***   | (0.028) | 0.179***       | (0.034) | 0.150***   | (0.053) | 0.136***       | (0.029) | 0.172***   | (0.029) |
| $a_{12}$                 | 0.063      | (0.038) | -0.034         | (0.038) | -0.025     | (0.089) | -0.104         | (0.062) | 0.020      | (0.048) |
| $a_{21}$                 | -0.151***  | (0.030) | 0.141***       | (0.052) | 0.087      | (0.062) | 0.068**        | (0.028) | 0.019      | (0.032) |
| $a_{22}$                 | 0.246***   | (0.035) | 0.369***       | (0.035) | 0.355***   | (0.041) | 0.350***       | (0.037) | 0.399***   | (0.035) |
| $b_{11}$                 | 0.944***   | (0.012) | 0.976***       | (0.012) | 0.976***   | (0.013) | 0.989***       | (0.008) | 0.979***   | (0.012) |
| $b_{12}$                 | -0.017     | (0.015) | 0.041          | (0.021) | 0.031      | (0.029) | 0.091***       | (0.031) | 0.037      | (0.026) |
| $b_{21}$                 | 0.038***   | (0.011) | -0.097***      | (0.024) | -0.059***  | (0.023) | -0.058***      | (0.013) | -0.035***  | (0.013) |
| $b_{22}$                 | 0.959***   | (0.011) | 0.909***       | (0.015) | 0.914***   | (0.017) | 0.902***       | (0.018) | 0.895***   | (0.017) |
| <b>Diagnostic tests</b>  |            |         |                |         |            |         |                |         |            |         |
| $LB_1^2(24)$             | 11.09      | [0.988] | 12.84          | [0.968] | 12.97      | [0.966] | 19.09          | [0.747] | 26.11      | [0.347] |
| $LB_2^2(24)$             | 23.35      | [0.499] | 28.48          | [0.240] | 19.63      | [0.717] | 8.046          | [0.999] | 14.29      | [0.939] |
| $ARCH_1(10)$             | 0.026      | [1.000] | 0.588          | [0.824] | 0.480      | [0.903] | 0.793          | [0.634] | 0.718      | [0.708] |
| $ARCH_2(10)$             | 0.844      | [0.586] | 1.233          | [0.265] | 0.609      | [0.807] | 0.165          | [0.998] | 0.642      | [0.778] |

Notes: P-values are in brackets and standard errors are in parenthesis. \*\* and \*\*\* indicate significance at the 5% and 1% levels, respectively.

**<Table 2> Estimation results of the GARCH-BEKK model (continued)**

| Parameters               | WTIF-Malaysia |         | WTIF-Philippines |         | WTIF-Singapore |         | WTIF-Taiwan   |         | WTIF-Thailand |         |
|--------------------------|---------------|---------|------------------|---------|----------------|---------|---------------|---------|---------------|---------|
|                          | Coef.         | S.E.    | Coef.            | S.E.    | Coef.          | S.E.    | Coef.         | S.E.    | Coef.         | S.E.    |
| <b>Mean equation</b>     |               |         |                  |         |                |         |               |         |               |         |
| $\mu_{10}$               | 0.222         | (0.160) | 0.239            | (0.160) | 0.226          | (0.159) | 0.241         | (0.160) | 0.225         | (0.159) |
| $\beta_{11}$             | 0.149***      | (0.037) | 0.155***         | (0.038) | 0.138***       | (0.038) | 0.149***      | (0.038) | 0.141***      | (0.037) |
| $\beta_{12}$             | 0.086         | (0.056) | 0.039            | (0.044) | 0.155***       | (0.048) | 0.065         | (0.041) | 0.107***      | (0.037) |
| $\mu_{20}$               | 0.202         | (0.109) | 0.031            | (0.138) | 0.100          | (0.127) | -0.005        | (0.149) | 0.182         | (0.168) |
| $\beta_{21}$             | 0.019         | (0.026) | 0.027            | (0.033) | 0.032          | (0.030) | 0.039         | (0.035) | -0.008        | (0.039) |
| $\beta_{22}$             | 0.067         | (0.038) | 0.019            | (0.038) | 0.036          | (0.038) | -0.021        | (0.038) | -0.007        | (0.038) |
| <b>Variance equation</b> |               |         |                  |         |                |         |               |         |               |         |
| $c_{11}$                 | 0.568***      | (0.207) | 0.879**          | (0.403) | 0.864***       | (0.209) | 0.718***      | (0.182) | 0.591***      | (0.172) |
| $c_{21}$                 | 0.026         | (0.133) | -1.138***        | (0.275) | 0.571          | (0.353) | 0.339         | (0.299) | 0.913***      | (0.276) |
| $c_{22}$                 | -0.289***     | (0.064) | 0.000            | (0.205) | 0.604**        | (0.281) | 0.492***      | (0.174) | 0.000         | (0.156) |
| $a_{11}$                 | 0.159***      | (0.031) | 0.029            | (0.045) | 0.226***       | (0.028) | 0.226***      | (0.025) | 0.085**       | (0.034) |
| $a_{12}$                 | 0.002         | (0.018) | 0.274***         | (0.033) | 0.069**        | (0.032) | 0.065**       | (0.033) | 0.106***      | (0.027) |
| $a_{21}$                 | 0.111***      | (0.038) | 0.119**          | (0.060) | -0.053         | (0.063) | -0.157***     | (0.047) | -0.071        | (0.051) |
| $a_{22}$                 | 0.260***      | (0.034) | 0.059            | (0.046) | 0.358***       | (0.047) | 0.257***      | (0.046) | 0.265***      | (0.035) |
| $b_{11}$                 | 0.976***      | (0.011) | 0.931***         | (0.034) | 0.953***       | (0.015) | 0.948***      | (0.010) | 0.949***      | (0.012) |
| $b_{12}$                 | 0.007         | (0.006) | -0.069***        | (0.024) | -0.019         | (0.029) | -0.014        | (0.015) | -0.157***     | (0.015) |
| $b_{21}$                 | -0.042***     | (0.012) | 0.219***         | (0.040) | -0.016         | (0.030) | 0.029         | (0.017) | 0.136***      | (0.019) |
| $b_{22}$                 | 0.959***      | (0.009) | 0.901***         | (0.036) | 0.896***       | (0.027) | 0.952***      | (0.014) | 0.944***      | (0.020) |
| <b>Diagnostic tests</b>  |               |         |                  |         |                |         |               |         |               |         |
| $LB_1^2(24)$             | 13.06 [0.965] |         | 14.40 [0.937]    |         | 13.70 [0.953]  |         | 16.85 [0.854] |         | 12.67 [0.971] |         |
| $LB_2^2(24)$             | 18.00 [0.803] |         | 24.86 [0.413]    |         | 18.59 [0.774]  |         | 19.28 [0.736] |         | 22.51 [0.549] |         |
| $ARCH_1(10)$             | 0.537 [0.864] |         | 0.595 [0.818]    |         | 0.818 [0.611]  |         | 1.217 [0.276] |         | 0.382 [0.954] |         |
| $ARCH_2(10)$             | 0.292 [0.983] |         | 1.050 [0.399]    |         | 0.726 [0.700]  |         | 1.217 [0.276] |         | 0.472 [0.908] |         |

Notes: P-values are in brackets and standard errors are in parenthesis. \*\* and \*\*\* indicate significance at the 5% and 1% levels, respectively.

**Figure 2. Time-varying conditional correlation coefficients**

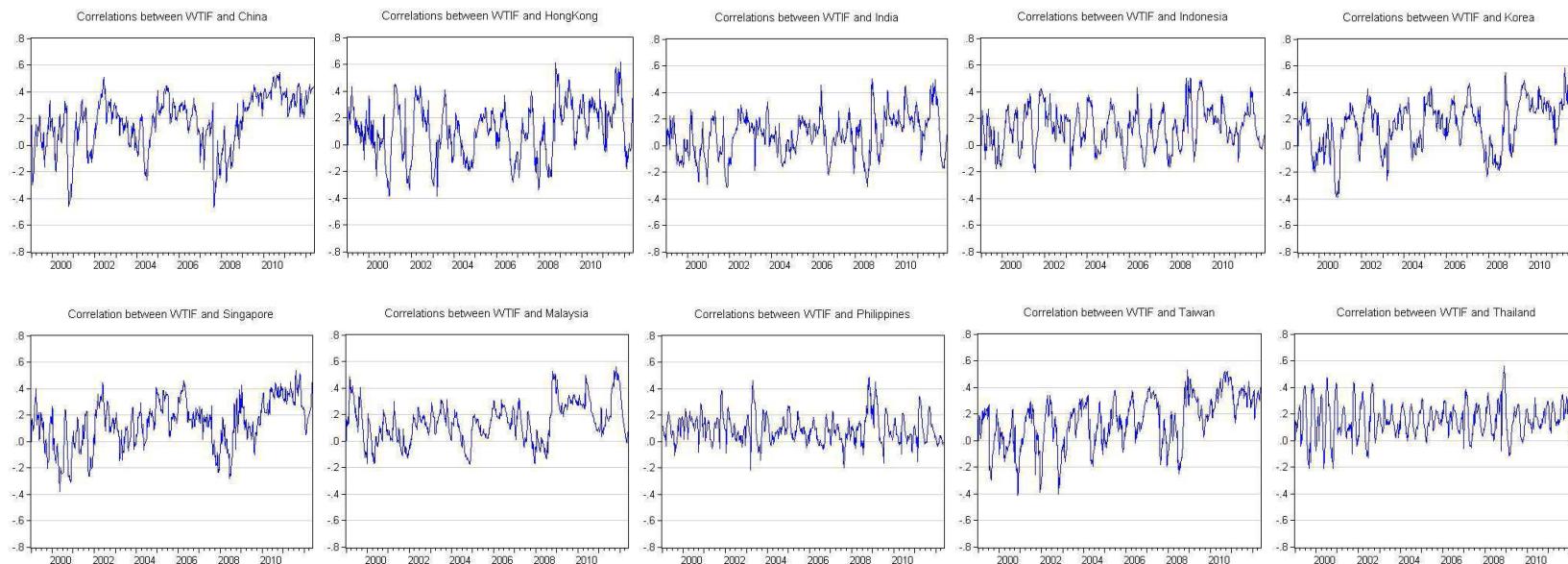


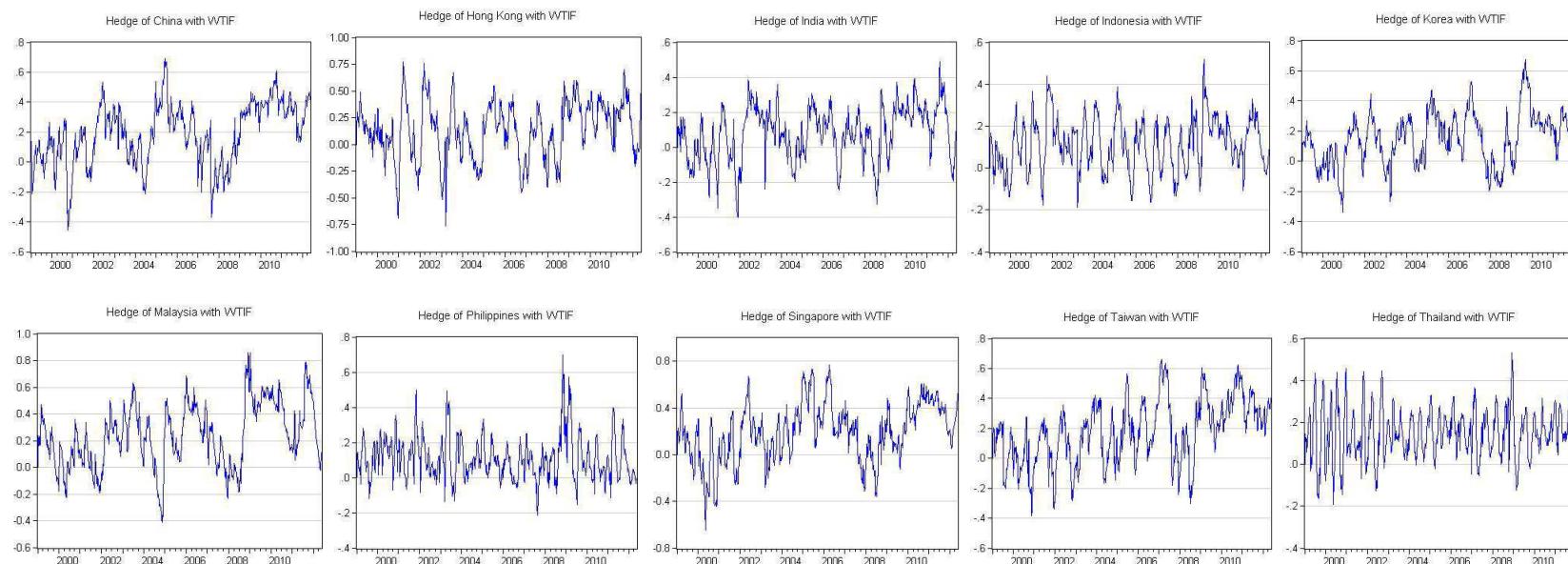
Table 3 reports summary statistics for portfolio weights between oil futures and sector stock markets. The highest average value of  $w_t^{OS}$  (optimal weights) for the WTIF-Indonesia portfolio is 0.592, indicating that the optimal weight of oil futures holding is 59% and the remaining proportion of 41% is invested in the stock market. The lowest average optimal weight for the WTIF-Malaysia portfolio is 0.265, suggesting that 27% should be invested in oil futures and the remaining proportion of 73% invested in the stock market.

**<Table 3> Optimal portfolio weights for oil and sector stock markets**

|                  | Mean  | St. Dev | Min   | Max   |
|------------------|-------|---------|-------|-------|
| WTIF-China       | 0.510 | 0.131   | 0.000 | 0.813 |
| WTIF-Hong Kong   | 0.359 | 0.129   | 0.000 | 0.791 |
| WTIF-India       | 0.489 | 0.126   | 0.000 | 0.903 |
| WTIF-Indonesia   | 0.592 | 0.126   | 0.000 | 0.966 |
| WTIF-Korea       | 0.563 | 0.151   | 0.000 | 1.073 |
| WTIF-Malaysia    | 0.265 | 0.141   | 0.000 | 0.728 |
| WTIF Philippines | 0.425 | 0.077   | 0.000 | 0.715 |
| WTIF-Singapore   | 0.345 | 0.139   | 0.000 | 0.865 |
| WTIF-Taiwan      | 0.444 | 0.125   | 0.000 | 0.753 |
| WTIF-Thailand    | 0.434 | 0.263   | 0.000 | 0.261 |

Table 4 shows the average optimal hedge ratios between oil futures and Asian emerging stock markets. Figure 3 shows time-varying hedge ratios in each pair. These hedge ratios range from maximum value 0.859 (WTIF-Malaysia) to minimum value -0.762 (WTIF-Hong Kong). Note that the low ratios suggest that the oil futures price change risk can be effectively hedged by taking a short position in stock markets. For example, the largest average hedge ratio, 0.237 (WTIF-Malaysia) indicates that one-dollar long position (buy) in oil futures should be shorted (sold) by 24 cents of the stock market. This is the most expensive hedge by means of long position in oil futures and short position in the Malaysia stock index. By contrast, the lowest average hedge ratio 0.076 (WTIF-India) implies that one dollar long in oil futures should be hedged with a short position of less than 8 cents in stock market. This suggests that the most effective strategy to hedge the oil risk exposure is to short India stock index.

**Figure 3. Time-varying hedge ratios**



In summary, our findings provide an important guideline on building optimal risk portfolios between oil futures and Asian stock markets and some benefits from the optimal diversifiable portfolio to minimizing the oil price risk without any impairment of expected returns.

**<Table 4> Hedge ratio for oil asset and Asian indices**

|                  | Mean  | St. Dev | Min    | Max   |
|------------------|-------|---------|--------|-------|
| WTIF-China       | 0.186 | 0.202   | -0.454 | 0.689 |
| WTIF-Hong Kong   | 0.129 | 0.266   | -0.762 | 0.771 |
| WTIF-India       | 0.076 | 0.154   | -0.403 | 0.489 |
| WTIF-Indonesia   | 0.112 | 0.126   | -0.187 | 0.517 |
| WTIF-Korea       | 0.145 | 0.171   | -0.341 | 0.677 |
| WTIF-Malaysia    | 0.237 | 0.237   | -0.413 | 0.859 |
| WTIF Philippines | 0.111 | 0.124   | -0.213 | 0.700 |
| WTIF-Singapore   | 0.191 | 0.249   | -0.646 | 0.767 |
| WTIF-Taiwan      | 0.176 | 0.211   | -0.385 | 0.659 |
| WTIF-Thailand    | 0.152 | 0.119   | -0.191 | 0.533 |

## 5. Conclusions

This paper investigated the transmission of price returns and volatility between oil futures and 10 Asian emerging stock markets using a VAR(1)-bivariate GARCH(1,1) model. We also analysed the optimal weights and hedge ratio for building optimal portfolios to minimize the exposure to oil price risk.

Our empirical results are summarized as follows. First, there is no the impact of oil returns to Asian stock returns, but the impact of stock returns on oil futures returns is positive due to the economic growth in Asian oil-imported countries. Second, we observed that there is strong evidence of volatility and shock transmission from oil futures market to some of the Asian emerging stock markets. Third, our examination of optimal weights suggests that adding the oil asset into a well-diversified portfolio leads to the improvement of its overall risk-adjusted return performance. Likewise, our hedge ratios between oil futures and stock markets permit us to effectively hedge the oil price risk using the short position of Asian stock indices.

These findings are of practical importance to financial market participants and may be useful in making optimal portfolio allocation decisions and developing cross-market hedging strategies. Thus, using the oil futures contracts, the portfolio investors might reduce their exposure oil risk to their investment assets in Asian stock markets.

## References

- Apergis, N. and Miller, S. M. (2009). Do Structural Oil-Market Shocks Affect Stock Prices? *Energy Economics*, 31(4), 569-575,
- Arouri, M. E. H., Dinh T. H. and Nguyen, D. K. (2010). Time-varying Predictability in Crude Oil Markets: The Case of GCC Countries, *Energy Policy*, 38(8), 4528-4539.
- Arouri, M. E. H., Jouini, J. and Nguyen, D. K. (2011). Volatility Spillovers between Oil Prices and Stock Sector Returns: Implications for Portfolio Management, *Journal of International Money and Finance*, 30(7), 1387-1405.
- Arouri, M. E. H., Jouini, J. and Nguyen, D. K. (2012). On the Impacts of Oil Price Fluctuations on European Equity Markets: Volatility Spillover and Hedging Effectiveness, *Energy Economics*, 34(2), 611-617.

- Arouri, M. E. H., Lahiani, A. and Nguyen, D. K. (2011). Return and Volatility Transmission between World Oil Prices and Stock Markets of the GCC Countries, *Economic Modelling*, 28(4), 1815-1825.
- Bollerslev, T. (1986). Generalized Autoregressive Conditional Heteroskedasticity, *Journal of Econometrics*, 31(3), 307-327.
- Boyer, M. M. and Filion, D. (2007). Common and Fundamental Factors in Stock Returns of Canadian Oil and Gas Companies, *Energy Economics*, 29(3), 428-453.
- Chang, C.-L., McAleer, M. and Tansuchat, R. (2009). Volatility Spillovers between Crude Oil Futures Returns and Oil Company Stocks Return, CIRJE-F-639, CIRJE, Faculty of Economics, University of Tokyo. Available at SSRN: <http://ssrn.com/abstract=1406983>.
- Chiou, J.-S. and Lee, Y.-H. (2009). Jump Dynamics and Volatility: Oil and the Stock Markets, *Energy*, 34(6), 788-796.
- Cologni, A. and Manera, M. (2008). Oil Prices, Inflation and Interest Rates in a Structural Cointegrated VAR Model for the G-7 Countries, *Energy Economics*, 30(3), 856-888.
- Cunado, J. and Perez de Gracia, F. (2005). Oil Prices, Economic Activity and Inflation: Evidence for Some Asian Countries, *Quarterly Review of Economics and Finance*, 45(1), 65-83.
- Elder, J. and Serletis, A. (2008). Long Memory in Energy Futures Prices, *Review of Financial Economics*, 17, 146-155.
- El-Sharif, I., Brown, D., Burton, B., Nixon, B. and Russell, A. (2005). Evidence on the Nature and Extent of the Relationship between Oil Prices and Equity Values in the UK, *Energy Economics*, 27(6), 819-830.
- Engle, R. F. and Kroner, K. F. (1995). Multivariate Simultaneous Generalized ARCH, *Econometric Theory*, 11, 122-150.
- Ewing, B., Forbes, S. and Payne, J. (2003). The Effects of Macroeconomic Shocks on Sector-Specific Returns, *Applied Economics*, 35(2), 201-207.
- Hamilton, J. D. (2003). What is an Oil Shock? *Journal of Econometrics*, 113(2), 363-398.
- Huang, R. D., Masulis, R. W. and Stoll, H. R. (1996). Energy Shocks and Financial Markets, *Journal of Futures Markets*, 16(1), 1-27.
- Jones, C. M. and Kaul, G. (1996). Oil and the Stock Markets, *Journal of Finance*, 51(2), 463-491.
- Kilian, L. (2008). Exogenous Oil Supply Shocks: How Big Are They and How Much Do They Matter for the U.S. Economy? *Review of Economics and Statistics*, 90(2), 216-240.
- Kroner, K. F. and Ng, V. K. (1998). Modeling Asymmetric Comovements of Asset Returns, *Review of Financial Studies*, 11(4), 817-844.
- Kroner, K. F. and Sultan, J. (1993). Time-Varying Distributions and Dynamic Hedging with Foreign Currency Futures, *Journal of Financial and Quantitative Analysis*, 28(4), 535-551.
- Lardic, S. and Mignon, V. (2008). Oil Prices and Economic Activity: An Asymmetric Cointegration Approach, *Energy Economics*, 30(3), 847-855.
- Lee, Y.-H. and Chiou, J.-S. (2011). Oil Sensitivity and its Asymmetric Impact on the Stock Market, *Energy*, 36(1), 168-174.
- Malik, F. and Ewing, B. T. (2009). Volatility Transmission between Oil Prices and Equity Sector Returns, *International Review of Financial Analysis*, 18(3), 95-100.
- Malik, F. and Hammoudeh, S. (2007). Shock and Volatility Transmission in the Oil, US and Gulf Equity Markets, *International Review of Economics & Finance*, 16(3), 357-368.
- Masih, R., Peters, S. and De Mello, L. (2011). Oil Price Volatility and Stock Price Fluctuations in an Emerging Market: Evidence from South Korea, *Energy Economics*, 33(5), 975-986.
- Narayan, P. K. and Narayan, S. (2010). Modelling the Impact of Oil Prices on Vietnam's Stock Prices, *Applied Energy*, 87(1), 356-361.
- Park, J. and Ratti, R. A. (2008). Oil Price Shocks and Stock Markets in the U.S. and 13 European Countries, *Energy Economics*, 30(5), 2587-2608.
- Sadorsky, P. (1999). Oil Price Shocks and Stock Market Activity, *Energy Economics*, 21(5), 449-469.

- Sadorsky, P. (2001). Risk Factors in Stock Returns of Canadian Oil and Gas Companies, *Energy Economics*, 23(1), 17-28.
- Sadorsky, P. (2012). Correlations and Volatility Spillovers between Oil Prices and the Stock Prices of Clean Energy and Technology Companies, *Energy Economics*, 34(1), 248-255.
- Serletis, A. and Andreadis, I. (2004). Random Fractal Structures in North American Energy Markets, *Energy Economics*, 26(3), 401-414.
- Tabak, B. M. and Cajueiro, D. O. (2007). Are the Crude Oil Markets becoming Weakly Efficient over Time? A Test for Time-varying Long-range Dependence in Prices and Volatility, *Energy Economics*, 29(1), 28-36.

# **Microfinance and the role of the State: No Pago Movement in Nicaragua**

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## **Abstract:**

Microfinances have proven to be a powerful tool for enabling access to credit to a part of society that would not get this access under normal banking institutions. The region of Central America has a quite developed sector of microfinances and out of that Nicaragua traditionally was a country with both largest amount of borrowers and resources borrowed.

In recent years, Nicaragua has suffered a huge setback in its microfinance sector, caused by various reasons. Although we are fully aware of the fact that there were other factors in play, we concentrate mainly on one particular factor – the role of the government and its support to the so called No Pago (Non-Payment) movement. We do that to show how the government's actions can influence the development of microfinances.

To be able to abstract from the other factors, that generally weakened the position of MFIs in Central America (as is the world finance crisis), we try to set the situation in Nicaragua into a broader picture by comparing the situation of microfinance sector in other Central American countries. This gives us the opportunity to really evaluate the role the Sandinista government played in the problems the MFIs have been undergoing in recent years.

## **Key words:**

Microfinance, Nicaragua, No Pago movement

## **Introduction**

Nicaragua belongs to the poorest countries in the western hemisphere and is the poorest country on the American continents. The county was torn apart by a civil conflict that has ended two and half decades ago and still influences its development. In this article we will try to describe its microfinance sector, that is currently generally perceived as a strong tool for development and poverty reduction in developing states (UNDCF 2005). Nicaraguan microfinance sector was until recently the by far the most advanced in the region of Central America, both as regards the number of borrowers<sup>3</sup> and the total portfolio of loans. Also, it has played a very important role for the poor part of the society.

In recent history we could witness a powerful popular upsurge – the No Pago movement – against the microfinance business in Nicaragua, that was in the start supported by Nicaraguan government. This has affected the performance of the microfinance business and also frightened the international investors. Our aim in this article is to evaluate the impact of the movement on the microfinance sector in Nicaragua and to examine the role the Nicaraguan government has played during last few years in the development of microfinances in Nicaragua.

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<sup>3</sup> In 2005, Nicaraguans formed roughly 40 per cent of the total borrowers in Central America (Arenas 2006).

We are fully aware that there were also other important factors in play. The world financial crises had affected severely the flow of financial resources and had large impact on the development of microfinance business. The Nicaraguan microfinance sector also suffered from inadequate regulation. To be able to evaluate more precisely the internal Nicaraguan factors, we have decided to put the situation in Nicaragua into a broader picture of microfinances in Central American region. By comparing the Nicaraguan data with the data from neighbouring states we are able subtract from general causes affecting whole region. We are aware our approach has certain limits, for example the fact that there were quite uneven prior development of the microfinance sector in individual Central American states. By being the most advanced in the region, the Nicaraguan microfinance sector would supposedly be hit hardest from all the states in the region by the lack of foreign financial resources. But we still believe that the comparison of data in the region and the evaluation of varying trends can help us to assess the role the internal Nicaraguan factors have played.

## Nicaragua, its history and Microfinance Sector

Nicaraguan history has a very large impact on shaping the nature of its microfinance sector. After the internal conflict in the 1980s many NGOs emerged in the country in 1990s to help with the after-war reconstruction. Certain number of these NGOs was later transformed to microfinance institutions, what lead to the fact that Nicaragua has currently the most numerous microfinance market in Central America.

In 2008, at the eve of the world financial crises, there were more than 20 microfinance institutions (MFIs) on the Nicaraguan market. Many of these MFIs had excellent ratings and Nicaragua was praised as a “poster child” of the international microfinance investors (Bastiansen – Marchetti 2011: 6). The country was ranked 6th in the ranking of microfinance business environment in whole Latin America (EIU 2008: 10), that is still the most advanced region as regards the microfinance business.

The number of borrowers in 2008 was around 500.000 persons according to ASOMIF (La AsociaciónNicaragüense de Instituciones de Microfinanzas – Nicaraguan Association of Microfinance Institutions) data. This number was by far the highest in Central American region.

## Origins of No Pago Movement and Microfinance Crisis

The Nicaraguan microfinance sector grew strongly up until they year 2008, when first signs of crisis started to emerge. Some authors point out that the main reasons of crisis were caused by the rapid growth of the microfinance sector itself, as it was both highly unregulated and both very competitive (Bastiansen – Marchetti 2011; Servet 2013).One of the main problems was the lack of analysis by the MFIs, that tried to catch as many clients as possible and largely ignored the risk factors. Excess liquidity from the foreign investors created a lending spree (CFI 2011). Lacking supervision from central authorities also contributed to the severity of the problem.

In 2008 the delinquency rate started to rise rapidly compared to previous years. Many borrowers became unable to repay their loans and the reaction of the banks was seizing their assets. The most problematic part of the country was the north, where large protests emerged. The protesters gradually got organized into a movement named No Pago<sup>4</sup>. Their main requests were the passing of the moratorium law, that would give the protesters several year of amortization of their debts, and at the same time a renegotiation of the conditions of their loan to a much lower level of interest<sup>5</sup>.

<sup>4</sup> „No Pago“ means „No Payment“ in English.

<sup>5</sup>The protesters demanded that the interest levels should have gone to 8 per cent forma n averageof 21 per cent (CFI 2009). According to the information of several ASOMIF members this would have ruined their business, as

The socialist president Daniel Ortega, leader of the Sandinist Party, that led the country during the 1980s and which was elected president in 2006, openly supported the protesters in July 2008 with following words: "We need to end this policy of usury! Go march and plant yourselves in front of the offices of the usurers! Be firm! The usurers don't have any other option: either they renegotiate or they renegociate" (Forman 2009). President Ortega did not address any particular MFI, but a microfinance system as a whole.

After this open support from the president, the No Pago movement grew stronger and rose to around 15.000 members<sup>6</sup>. These members put quite a pressure on the government to pass new legislation, that would put them into a more favourable position vis-à-vis the MFIs. This legislation was adopted in March 2010, when first the Parliament and then the President approved the so-called Moratorium Law. This legal act ordered to MFIs to renegotiate the conditions of the loans of delinquent borrowers and at the same time set the maximum interest rate to 16 per cent, much lower than actually the original interest rates were. Although ASOMIF and individual MFIs warned against the new legislation, saying that it would further strengthen a culture of non-payment (CFI 2010), its practical impact was quite marginal, either because clients preferred to opt for a separate restructuring or because they never intended to pay anyway<sup>7</sup> (Bastiansen – Marchetti 2011: 23).

At the same time, the adoption of the law sent a significant signal to the international investors, that were and still are crucial for the Nicaraguan microfinance market. These investors have lobbied the government not to further destabilize the unstable environment in microfinance sector and after the adoption of the law they have continued to shrink the exposure to Nicaraguan MFIs (CFI 2011).

Since the end of 2010 the No Pago movement was much less active and practically demobilized (Bédecarrats et. col 2013: 23). It had understood that final goal of large part of the members – the abolition of the loans, would not be real. But if we are to evaluate the role the movement played in the problems of microfinance sector in Nicaragua, its impact was more than decent. By being able to lobby moratorium law through, it has deepened the severity of the crisis, as the law did further undermine the stability of the microfinance business and scared off international investors.

## **The Impact of the Crisis on Nicaraguan Microfinance Market**

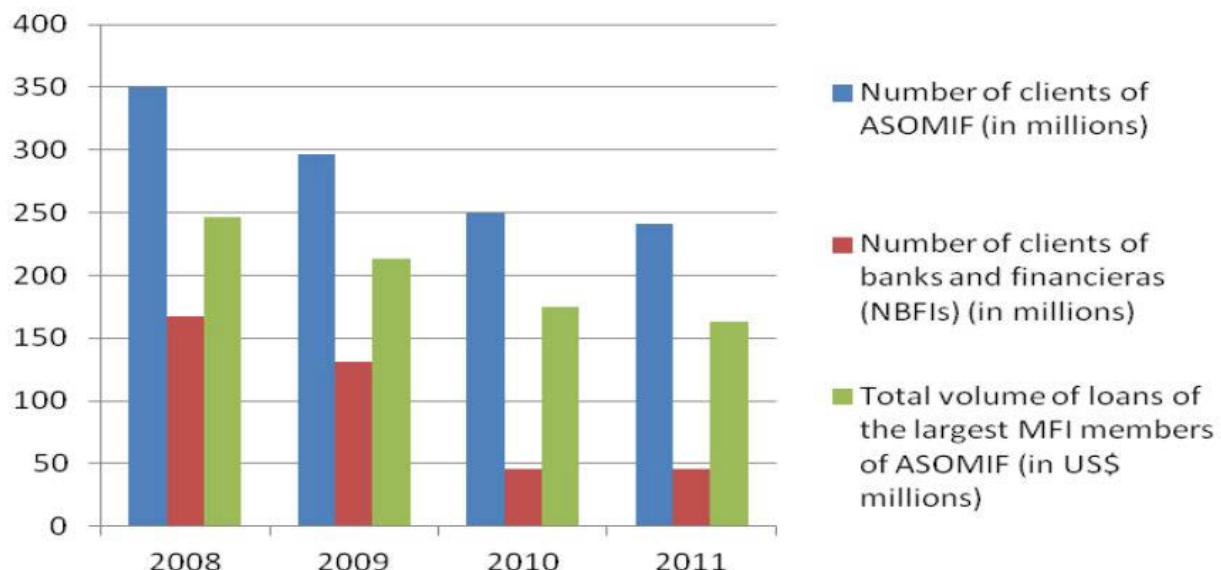
The impact of the microfinance crisis in Nicaragua was enormous. We can notice both strong downfall in the number of borrowers and the total portfolio of Nicaraguan MFIs. The total number of microfinance borrowers at both banks and ASOMIF members went down from 517.000 in 2008 to 286.000 in 2011. As for the total microfinance loan portfolio of MFIs and banks, it fell from US\$ 563 million to US\$ 266 million during the same period<sup>8</sup> (Servet 2013: 4). The crisis had hit the poorest potential borrowers more than other parts of the society, as they didn't have any alternative where to borrow financial resources.

<sup>6</sup> The average interest they pay to international investors is 8 per cent. That would leave no space for transaction costs and margins of Nicaraguan MFIs.

<sup>7</sup> This is still considered a low number, given the fact that the total number of borrowers in the country was over half a million persons.

<sup>8</sup> The hopes of a large part of the No Pago movement were that the government would decide they did not have to repay the loans at all.

<sup>9</sup> If we take ASOMIF members only, the real MFI excluding banking institutions, the total portfolio went down from US\$ 246 million in 2008 to US\$ 163 million in 2011. Only in 2012 the portfolio started to recuperate slowly to US\$ 170 million.



**Pic. 1 Number of microfinance clients in Nicaragua and total volume of loans of ASOMIF members**

Source: Servet 2013: 4.

We can also take a look at the crisis from a point of view of loan repayment. The repayment of loans is crucial for the functioning of microfinance business and is an important indicator of the health of the sector, above all for international investors sending money into the country. Between December 2007 and December 2010, the percentage of loans with over thirty or more days outstanding in their repayments rose from 3.6% to 14.2%, what is a huge downfall in the culture of repayment (Servet 2013: 4).

Apart from these problems there were also several financial institutions that went bankrupt due to the crisis. Of these by far most important was Banco del Éxito, commonly known as Banex. Banex was a regular bank and at the same time the largest microfinance player in Nicaragua. The bank suffered from severe portfolio deterioration due to the fact it pursued a very aggressive strategy and underestimated the risk of its loans.

If we are to put on the list three main aspects of the crisis, those would be (MIX 2010):

- reduction of MFI size due to a cleansing of client portfolios and exit of funds from the industry;
- severe deterioration of the institutions profitability, resulting in a limited capacity to cover their total expenses, including expenses for financial adjustments;
- fast growth of credit risk.

The overall decrease of the microfinance sector in Nicaragua was also reflected by international ratings. Nicaragua fell to 13th position in the Economist Intelligence Unit Microscope in 2010, due to the poor regulatory framework and the impact of No Pago movement (EIU 2010: 16). In 2012, it sunk even further to 28th position worldwide and was surpassed by many other Latin American countries, including Honduras and Panama from the Central American region (EIU 2012: 47). If we would take a look at decomposed parts of the rating, we would see that Nicaragua was performing very poorly in the area of political stability. In this part of the index, the country ranked 46th out of total 55 countries examined.

The microfinance crisis also had its positive outcomes. In June 2011, the new general law on microfinance was passed. The proposal was discussed for eight years (Arenas 2011), but it was the unstable situation on the market that made the government to speed up its work on the act. The law brings a lot of positive steps - establishes the National Commission

for Microfinance<sup>9</sup>as an industry oversight body, defines microfinance for the first time in Nicaragua, allows interest rates to be set freely<sup>10</sup>, and establishes consumer protection (EIU 2012: 13), among other developments. It also limits severely the possibility of non-repayment of the loans. These positive steps show that the Nicaraguan government took its lesson from the bad development in microfinance sector between the years 2008 and 2011 and adopted a more friendly position towards the MFIs with the goal of stabilizing their business. One of the reasons might have been that Nicaraguan government recognized, after its own faults, the importance of MFIs in the area of development and poverty reduction.

The more stable environment did pay off for the country in 2012. After four years of decline, the total portfolio had risen by 5 per cent in that year. As Nicaraguan MFIs are heavily dependent on foreign financial resources, this meant a gradual return of external funding. However, this return is rather slow and we can expect, that at the end of the year 2013 Nicaragua will only reach the total portfolio it had in 2006, two years before the crisis started.

Also, compared to other countries in the region, the number of Nicaraguan MFIs, currently 22, seems rather high for the after-crisis market. We might expect that several minor MFIs to go out of business, what would lead to a further concentration of microfinance business<sup>11</sup>.

## Nicaragua in Comparison with other Central American Countries

If we take a look at other Central America, we could see a very different picture form the Nicaraguan one. Despite the world financial crisis practically all countries in the region have been growing in last for years. The most evident example is Honduras, which surpassed Nicaragua in year 2010 in the total portfolio of loans and became a new regional champion of international investors<sup>12</sup>. This massive expansion of Honduran microfinance business was largely caused by a gradually developing regulatory framework.

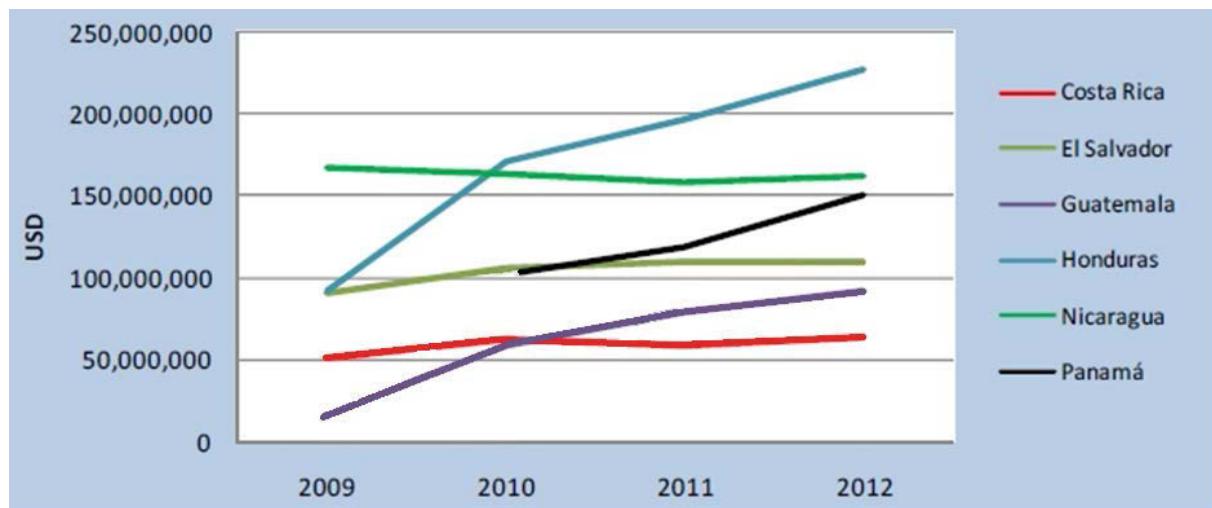
All Central American were affected by the financial crisis in 2008, loosing part of external funding from international investors. But, as we can see in Pic. 2, the pace of recovery and then further growth of the microfinance sector was much faster in most Central American states. As we have already mentioned, this could be caused partially by the fact that in the pre-crisis period Nicaraguan microfinance market was more developed than the market of other countries in the region, was thus hit harder than other Central American states and the recovery was more difficult. But we believe the inadequate regulatory framework together with strong non-repayment culture played an important role.

<sup>9</sup>Comisión Nacional de Microfinanzas – CONAMI. CONAMI went fully functional only in second half of the year 2012 and thus it is currently too early to evaluate its functioning.

<sup>10</sup> But at the same time barring them from imposing other types of charges on borrowers, thus bringing more transparency.

<sup>11</sup> Four largest institutions together made up 69% of the total microfinance supply in Nicaragua already at the end of 2008, what means before the crisis. One of them, Banex, went bankrupt, though (Bastiansen – Marchetti 2011: 12).

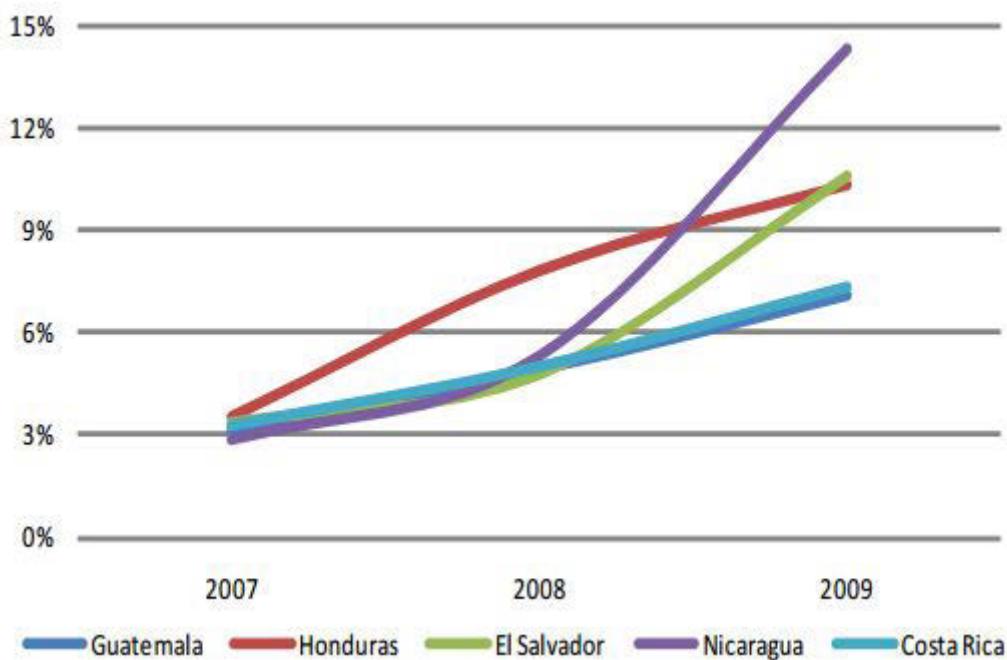
<sup>12</sup> In 2012, already three Central American countries ranked higher than Nicaragua in the Economist Intelligence Unit Microscope – El Salvador at 6th place globally, Panama at 9th place and Honduras at 20th place (EIU 2012: 16).



**Pic. 2 The total portfolio of loans in chosen Central American countries (2009 – 2012)**

Source: Authors based on MIX data

Very interesting data could be seen in Pic.3, that shows the inability to repay debts in a period larger than one month. We might notice a huge decline in repayment culture in Nicaragua compared with other countries in the region. As the decline naturally occurred in all countries in the region, due to for example lower prices of cattle, in Nicaragua the delinquency rate rose much higher. Strong factor in play there would in our point of view be the activity of No Pago movement.



**Pic.3 PaR> 30 days per Country in chosen Central American Countries**  
Source: MIX 2010.

## **Conclusion**

We have proven in the article that the impact of government policies on microfinance was huge and had affected the microfinance in a bad way. Both the unsatisfactory regulatory framework and the support of the socialist Sandinista government to the No Pago movement at first moments of its existence had made the once prominent country of Central America a country that had ceased to attract foreign financial resources due to an unstable environment. The outflow of money from the country was remarkable, caused financial shortage to the MFIs and at the same time lack of access to credit to the poorest part of the society.

These internal factors in Nicaragua led to a situation, where Nicaragua was surpassed by other countries in the region, both as regards the international ratings and the dynamics of the microfinance markets. Once a regional champion with a reputation of very good return on investment, will have to struggle hard to get back its position. And, despite some positive steps in recent years, it is quite unprovable that the Nicaraguan microfinance sector would be able to grow at the same pace as before the crisis.

The good news for Nicaragua currently is the fact that the worst crisis seems to be over and the microfinance market is recovering and have been growing slowly in last year. The Nicaraguan government took its lesson from the crisis years and the new microfinance law from 2011 contributed to a greater stability of microfinance business environment in Nicaragua and supported a better repayment culture, both badly needed to gain back the confidence of international investors. Yet we might say that the situation is still very fragile and should the Nicaraguan government again undergo steps against the microfinance sector, the impact could be quite devastating.

## **Literature**

- Arenas, C. (2006): Microfinance in Central America: Nicaragua's place in the industry, WCCN's Newsletter, Summer 2006, Volume 22, No. 2, available online, <http://wccn.org/node/162>.
- Arenas, C. (2011): A New Beginning for Microfinance in Nicaragua, WCCN's Newsletter, Summer 2011, Volume 27, No. 2, available online, <http://wccn.org/story/new-beginning-microfinance-nicaragua>.
- Bastiansen, J. – Marchetti, P. (2011): Crisis in Nicaraguan Microfinance: Between the Scylla of Business for Profit and the Charybdis of Clientelism, Antwerp, Institute of Development Policy and Management.
- Bédecarrats, F. – Bastiansen, J. – Marchetti, P. – Doligez, F. – Labie, M. (2013): Microfinanzas y la Nueva Izquierda en Latinoamérica: Entre la Competencia y la Cooperación, Amberes, FOROLACFR.
- CFI (2009): Nicaragua in Crisis, available online, <http://cfi-blog.org/2009/11/05/nicaraguan-microfinance-in-crisis/>.
- CFI (2010): Ley Moratoria (Moratorium Law) Passes in Nicaragua, available online, <http://cfi-blog.org/2010/03/23/ley-moratoria-moratorium-law-passes-in-nicaragua/>.
- CFI (2011): Nicaragua's Microfinance Crisis: Looking Back, What Did We Learn?, available online, <http://cfi-blog.org/2011/01/24/nicaraguas-microfinance-crisis-looking-back-what-did-we-learn/>.
- EIU (2008): 2008 Microscope on the Microfinance Business Environment in Latin America and the Caribbean, Economist Intelligence Unit, available online, [http://graphics.eiu.com/marketing/microfinance/English\\_Microscope%202008.pdf](http://graphics.eiu.com/marketing/microfinance/English_Microscope%202008.pdf).
- EIU (2010): Global Microscope on the microfinance business environment 2010, Economist Intelligence Unit, available online, [http://graphics.eiu.com/upload/eb/EIU\\_Global\\_Microscope\\_2010\\_Eng\\_WEB.pdf](http://graphics.eiu.com/upload/eb/EIU_Global_Microscope_2010_Eng_WEB.pdf).

- EIU (2012): Global microscope on the microfinance business environment 2012, EconomistIntelligenceUnit, availableonline,  
[http://www.ifc.org/wps/wcm/connect/467a47804ce326f793afd7f81ee631cc/EIU\\_MICROFINANCE\\_2012\\_PRINT.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/467a47804ce326f793afd7f81ee631cc/EIU_MICROFINANCE_2012_PRINT.pdf?MOD=AJPERES).
- Forman, L. (2009): No Pago! Reasons to Resist Microfinance in Nicaragua, available online, <http://www.mykro.org/no-pago-reasons-to-resist-microfinance-in-nicaragua/2009/11/>.
- Kawas, C. – Quinones, C. (2012): Microfinance in Central America, available online: <http://avargheseblog.files.wordpress.com/2012/11/mf-in-ca.pdf>.
- MIX (2010): BenchmarkingMicrofinance in CentralAmerica 2010, MicrofinanceInformationeXchange, available online, [http://www.themix.org/sites/default/files/Microsoft%20Word%20Benchmarking%20Microfinance%20in%20Central%20America%202010.pdf](http://www.themix.org/sites/default/files/Microsoft%20Word%20%20Benchmarking%20Microfinance%20in%20Central%20America%202010.pdf).
- Servet, J.-M. (2013): Origins and impactofthe No Pagomovement in northwestNicaragua, availableonline, [http://www.microfinance-in-crisis.org/wp-content/uploads/Research-and-Policy-Brief\\_5.pdf](http://www.microfinance-in-crisis.org/wp-content/uploads/Research-and-Policy-Brief_5.pdf).
- UNCDF (2005): Microfinance and the Millennium Development Goals: A reader's guide to the Millennium Project Reports and other UN documents. UNCDF and the International Year of Microcredit.

# **An exploratory study on the use of metaphors by Thailand and Singaporean executives**

**Chanatip Chandrubeksa<sup>1</sup>**

**Nirundon Tapachai<sup>1</sup>**

## **Abstract:**

Purposive metaphors have historically been key compositions in building figurative sentences for linguists, especially their usage in poems. Now, these metaphors are being widely used to develop both business and political speeches. People are aware of the effects metaphor have towards communication especially in the business arena and therefore proper studies into such subjects are necessary. Metaphor is a transferring or mapping of meanings from one entity to another unrelated entity relative to its similarities in characters. Business managers and other executives sometime include purposive metaphors in order to enhance communication. By doing this, metaphors could simplify the context and enable the speaker to send their key message across in a way that is easy to understand. The main objectives of this study are to explore and analyze the similarities and differences between conceptual metaphors under categorical domains used in Singaporean and Thai business executive speeches. Metaphors are included widely in Singaporean speeches more than the Thai speeches; this could be because of the nature of the English language and the culture itself. Thai speeches contain few metaphors, signifying that this literary vehicle is not popular with Thai business speakers. Thai people tend to understand and integrate metaphorical concepts and meaning differently than Singaporeans, both countries comprehend metaphors based on their culture, tradition, norms, values, and perceptions which affect the use of purposive metaphors respectively. By manually exploring the occurrence of metaphors from secondary data derived from Singaporean and Thai business executives' speeches, new research was completed for this study in the field of modern usage and perception of metaphors. The results of this study enhance the metaphorical understanding between cultures and the effects metaphors have upon audience's thoughts and action. It is necessary for the business executives to increase the usage of figurative language to improve business communication and develop more effective speeches.

## **Keywords**

Exploratory research, metaphor domains, conceptual metaphors, communication management, internal managerial speeches, Thai and Singaporean managers.

## **Introduction**

Human were born with the same physical structure, it is mostly believe that deep down human are all the same, but in fact, different countries have their own cultures leading to cultural diversity where human tries their best to minimize. Cultural differences leads to misunderstandings and misinterpretations between people from different countries. As the world is now globalized and convergent, with the information technologies available, people communicates internationally while there are still significant cultural differences, diversity of

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thoughts which are still increasing. Therefore, to respectfully create cross-cultural relations through communication especially in the international business communication arena, people must be more aware of these cultural differences.

As the establishment of the ASEAN community increases communication between the Asian countries of different cultures, each country were brought closer together facing cultural clashes and different style of communication. Business executives from different background, cultures and languages try their best to communicate effectively and successfully for mutual benefits in-spite of their cultural variation. The use of metaphors is one of the key methods for effective communication. People use these metaphors constantly, perhaps unconsciously and only few people are aware that they use metaphorical expressions in their every day conversation. Managers and other executives use metaphors with the purpose to enhance effective and powerful speeches. However, with the difference in language, culture, tradition, past experience, knowledge and many styles of metaphorical domains have been created and are being used widely. Some metaphors could be meaningful or could mean nothing to some countries; therefore metaphors must be carefully selected for appropriateness and successful communication.

Metaphor is part of figurative speech usually reserved for poets, writers, and other people in the creative arts. The figurative communication of executives between the ASEAN countries will enhance on relationship and bring great mutual benefits. This study is explorative study into the purposive metaphors and metaphor domains used by Thai and Singaporean business executives, this study will increase knowledge on successful metaphorical communication. Singapore economy is considered the best amongst the ASEAN countries where there are great opportunities for business growth therefore study into the purposive metaphors in business communication is necessary. There are many studies into metaphors and figurative languages but there are only few studies into the business field of metaphorical communication.

This study will extend the understanding upon purposive metaphors used in communication, how metaphorical terms could enhance executive's business speeches, what are the similarities and differences of metaphor and the various effects on human cognition between Thai and Singaporean metaphors. The patterns of metaphor used between cultures and nationalities create different effect to audiences who receives, integrates, processes and interprets the message differently based on their perception. Therefore this study will allow business executives to fully acknowledge different factors that metaphors have upon business communication, how to utilize metaphor appropriately and how human comprehend metaphors in the semantic field regardless of cognitive and cultural differences.

## **Objectives of the study**

The statements above have mentioned the problems we are facing nowadays in metaphorical businesses communication, therefore this study into the field of figurative languages used business communication between Thailand and Singapore will increase on what is lack for beneficial business purposes. There are 2 main objectives for this study as follows:

1. To explore metaphor domain used in speeches by Singaporean and Thai business executives.
2. To compare similarities and differences between metaphorical domains of the two languages.

## Literature review

### Meanings and Concepts of Metaphor

Aristotle originally suggested the definition of metaphor in his work *Poetic* as “*a figure of speech in which a descriptive term is transferred to some object to which it is not properly applicable.*” Where he meant that, meaning of a subject is declared to an unrelated subject to be somehow similar to each other. Metaphor is a analogy used in rhetorical speeches, associating two entities on its point of comparison and likeness to create figurative communication. Many linguist has extended their research into metaphorical communication and they have found that metaphors not only produce creative content but it also heighten communication effectiveness and stimulate human cognition. The review of past research done on this topic is found here and various definitions of metaphor were discussed and suggested.

Haase (2002) references Aristotle, who was the first to provide a scholarly treatment of metaphor. Haase shows that Aristotle actually went into more detail with his definition. Aristotle described a metaphor as consisting of giving something a name that actually belongs to something else. This can be done from genus to species, species to genus, species to species, or through analogy. Metaphors have two parts, which are called the '*topic*' and the '*vehicle*'. These two terms have a relationship used figuratively called the '*ground*'. All of these definitions have in common that they must have two terms that are related to each other because of their similarities. However, the relationship should not be too close, so as to control the procedure of metaphor from embellishing the language. Michael Reddy theory simply described the meanings of “*Conduit Metaphor*” as *objects and Linguistic expressions are containers*; where the speaker put the ideas of metaphors or its meaning into linguistic expressions and send them to the audience. *Communication is sending*; putting the objects into the containers and send them to the audience for the objects to be picked out of the containers.

According to the discovery by Ortony (1975), he has mentioned that metaphors are necessary and are not use just because it sounds nice. There are three reasons behind the used of metaphors. Firstly, there is the so-called '*inexpressibility*' case where metaphors are used for expressions that are difficult to explain with literal language. This refers mostly to abstract ideas, for example “ the thought slipped my mind like a squirrel behind a tree”. The second reason is called '*compactness hypothesis*'. This hypothesis says that people can express their ideas more detailed and in a more compacted or concise form through metaphors. With the phrase “my love is like a flower bouquet of roses”, where one can describe love as sweet, beautiful or many more through their imagination of flower bouquet associating to love. The last hypothesis, called '*vividness hypothesis*', stated that for metaphor to become clear and animated expressions such as “my love is like a blooming bouquet of roses”, with that you can see the positive experience of the speaker's through the vibrant metaphors. Metaphor also helps and supports learning and mnemonic because it stimulate figurative image in human mind which leads to information retention and provides semantic frames from long-term memory.

Aristotle's definition could be called the conventional understanding of metaphors, where Kövecses (2010) referring to George Lakoff and Mark Johnson from *Metaphors We Live By* (1980) that they assume metaphor is not only part of literal language and common language but also of thought and action because there are many existing complicated subjects and whatever happens becomes an experience in our minds. Most experience is an abstract concept and people would try to make it more understandable by comparing it to something or drawing a connection between two concepts and abstracts. Kövecses mentions that Lakoff and Johnson split the metaphorical concepts in three groups, starting with '*structural metaphors, ontological metaphors*' which pave the way for allegories. The metaphors are based on the '*orientation*' in space as well. Structural metaphors is a process

or a system that relates a complex entities with a more concrete metaphors while ontological metaphor is a process where metaphors of a more concrete entity is used as a 'personification'. The orientation metaphor is when concepts are spatially related to each other, more examples are reviewed on the next few paragraphs.

### Metaphorical Conceptual Mapping

According to Johnathan Charteris Black, he looked into the conceptual metaphor theory of Lakoff and Johnson that involves the mapping of the conceptual domain under a conclusive purpose from one to another subject. The concept meaning of one entity is mapped onto an unrelated entity which contains similar characteristic, making them associated and is somehow alike.

Lakoff and Johnson suggested about the categorization of metaphors under domains that it could be understood as an object totally in terms of a set of its intrinsic properties therefore the object is either in or out the categorized domains. Things are categorized according to a prototype according to Lakoff and Johnson such as a *chair* where it has *legs* and *back seats* while *bean bags* have none but also fall under the same categories of a *chair* where they both function for *sitting*. Therefore they suggested that categorization are open-ended and may lead to re-categorization. Richards added that the categorization of metaphor should be sufficiently flexible in order to cover wide range of possible subcategories. The objects, experience and events varied, where flexibility will allow the most diverse members of the set to be partially subcategorized.

The domain ARGUMENT IS WAR could be subcategorized as; (1)*your claims are indefensible* (2)*he attacked every weak point in my argument* (3)*his criticisms were right on target* (4)*he shot down all of my arguments*. These are common examples of English language metaphors that could occur in ordinary conversation. ARGUMENT IS WAR metaphor could be explained that the ARGUMENT entity and the WAR entity have the same or analogous characteristic therefore the meaning could be transferred comparatively between one another. In an ARGUMENT a person could win or lose like WAR, the attacking of soldiers physically in the war could be similar like the exchanges of strong words between people in the arguments which attacks each other psychologically. ARGUMENT concepts are not just words but such metaphorical concepts are how we perceive upon the characteristics in relative to WAR. It is the very systematic concept implanted deep down in our mind that leads to thinking of them in such a way and acts relatively to the way we perceive them. For examples of metaphor domain; TIME IS MONEY; (1)*you are wasting my time* (2)*I invested a lot of time in her* (3)*this gadget will save you hours*. Time is not really money, however, they have similarities and they could be used relative to one another as metaphors to enhance on human cognition, imagination and understanding towards the content.

On the contrary, there are another type of metaphors which are '*orientational metaphors*', some words and meanings are organized and transferred as a whole with respect to one another, such as the physical movement of UP and DOWN. Happy could be related to the motion of UP; HAPPY IS UP where SAD IS DOWN or I'M FEELING UP TODAY where Grunter Radden mentioned the correlations between feelings and facial expression. Facial movement is up when you are happy such as smiling and rising eyebrows. THE RISING OF THAI ECONOMY, Where the physical motion is related to the movement of graphs where the rising of the line on a graph means an increase of quantities. There are other examples like: much/most means high basis for this is the assumption that adding something means an increase: (1)*High rates of* (2) *High discussions* (3) *Big money* (4) *Growing numbers* (5) *Falling numbers*.

The theory of Lakoff and Johnson has suggested similar ideas that supported Ortony's discussions. These researchers saw metaphors as an extraordinary, creative, and

analogical expression rather than ordinary language, where metaphors play a role in human cognition and later causes of behavior. Metaphor is said to be a distributive language under the natural systematic metaphor, which explains how speakers and thinkers tend to not notice and use metaphors automatically. Every language contains certain forms of metaphors; therefore, one's past experience, the way that person thinks, and what that person does are shaped under a conceptual system of metaphors. They demonstrated the system of metaphorical concept that came by the nature of normal expressions used in our everyday life.

Kittay and Lehrer (1981) mentioned metaphor is a positioning of entire domains where ones must understand the relative stand to other terms in order to completely understand the relationship between the terms. Supported by Tournageau and Sternberg (1981) that metaphor domains are an interaction of one another. There is no reason why people will not be able to understand the idea of 'container' metaphor. Haase (2002), gave an example which followed Lakoff and Johnson, showing that human beings are containers with limits and an orientation of inside and outside. This approach is also used for other physical objects, but also non-physical objects such as events, actions, and activities. This concept really can be understood by 'transforming' physical objects with clear boundaries. Besides that, states and emotions are containers too. In the case of activities, the following are used: (1) *The problem will be discussed at the next debate* (2) *You can see his emotion in his writings*. Apart from this, situations and feelings are containers too, as shown in the following: (1) *Fell in love* (2) *We will be out of trouble soon*. A very important group of ontological metaphors are those that describe something as a person, as a personification. People give an embodiment to a concept. Certain examples include the following: (1) *This theory explains everything* (2) *The facts are against it* (3) *Life betrayed you* (4) *Love speaks through her words*.

A spatial relationship is concept of our experiences from the physical space that we have. Cognitive scientists should be cautious in drawing direct connections between language and thought. At the same time, it is interesting and important to ask why it is that people are talking about the world and their experiences in the way they do. Until the emergence of cognitive linguistics, scholars never acknowledged the systematic way of human conversation about love, to cite just one example, in a wide variety of languages, nor did scholars consider the idea that such discussions may reflect important generalizations about people's metaphorical conceptualizations of love. Some individual linguistic expressions are mostly dead, metaphor. We are talking about love in the way that we do just because of arbitrary convention that people agree to follow for communicative purposes.

As mentioned that metaphors could be either entirely or partially mapped between domains into subcategories. Different people could produce diverse conceptual metaphors and use them under different purposes to send different messages across through languages for communication. This is because of culture diversity, humans are brought up differently from backgrounds that shaped their cognition. Human perception towards the world and their mental or psychological process leads them to use metaphors differently.

### **Metaphors in communication**

Regarding to the fact that metaphors are the conceptual mapping and transferring of meanings from one subject to another, many factors on one's ability to comprehend metaphors create different effects on their mind and behavior. Therefore including metaphors in communication especially in the business arena where communication is used purposefully to gain an expected outcome, must be done appropriately. Business executives who include metaphor in their speeches are interested in researching into the effects metaphors have upon business communication.

According to *The Economist*, general metaphor is a part of our everyday language. Some of these metaphors are used so often that they ignore the metaphorical meaning and are no longer considered to be allegories. It is the goal of many studies to discover the relationship between metaphor and language, as was the case of Cacciaguidi-Fahy & Cunningham, as they referenced information from Cameron & Low (1999). Therefore, the default metaphor problems arise from the complexity of the relationship between thought and language.

Regarding the metaphors used in business, a study of various business publications must be done. As mentioned above, the concept of the public seems to be of paramount importance when choosing the language used within an enterprise. This focus on the importance of the public was also found in the work carried out by Maior & Mureş, referencing research by Posteguillo & Palmer (1997), which discussed the use of language in business objects found in newspapers. They distinguished between two types of articles. One type is the business press article, which is aimed at the actual business community to both give information and perhaps influence the economic development of the country (Posteguillo & Palmer, 1997).

*The Economist's* former editor Walter Bagehot, tried to publish conversational language, putting things in the most direct and graphic manner, as people talk to each other in common speech, and to remember to use expressive colloquialisms. Secondly, the use of metaphors in this type of journalistic discourse serves many different purposes, and it may sometimes offer a greater linguistic variety than would be expected from the use of metaphors in more technical economic registers (Posteguillo & Palmer, 1997).

In accordance with Cacciaguidi-Fahy & Cunningham, discussing research from Boers (2000), typically metaphorical themes used in economics include mechanisms, machines, animals, plants, and gardening, health and fitness, war, ships and sailing, and sports. Some of the issues reported by Boers have been found in the business press articles of the magazine *The Economist*. First of all, many of the metaphors associated with ideas of health and fitness, or the lack of these, were found, including the following:

- *He says that the recent fall in energy prices is a symptom of demand destruction with dire consequences for overall profitability.*
- *... the list of troubled companies now has expanded far beyond the business builders and suppliers...*

Many companies are now using metaphors in their official corporate literature, as a way to more quickly and effectively get their messages across.

### **Conceptual metaphors to human cognition**

Human are born with the same physical structure but with diverse psychological abilities according to their genetics and human were later brought up with different background and culture leading them to perceive the world differently. Their thoughts and actions differ and could somehow effect the usage of metaphorical domains. According to Jones & Zachary (2005), with reference to the information of Kelly and Keil (1987), evidence exists that '*transport*' can promote alignment in the domains area. The participants in their study rated concepts from two topic areas, such as magazines and food, using semantic differential scales. Participants in the experimental condition then paraphrased and rated the relevance of four metaphors linking the two sectors. For example, as Bowdle & Gentner (2008) discussed, one such metaphor was "The Wall Street Journal is the spinach of newspapers and magazines." After seeing this phrase, the same rating procedure took place. The experimental participants showed a change in ratings compared with a control group. Couples who made good metaphor connections became more similar to estimates

the associated ratings of semantic difference, and couples that made bad metaphors were less similar in their associated ratings. These findings were consistent with the allegation that metaphors can be studied and cause large-scale mappings of domains.

Keil (1986), the domain level of metaphors suggested that people accept large-scale conceptual metaphors such as LIFE AS A JOURNEY or JUSTICE AS BALANCING. Keil also discussed how children start to accept certain metaphors and how that affects their acceptance. This serves to increase global mappings of metaphor domains. This theory accounts for extensive metaphor use and acceptance, considering that people rely on domain level of the metaphor, as well as preinstalled conceptual mapping when addressing a local example of transfer. This promotes the tenacity of metaphors that exist now. Therefore, the semantic field and conceptual domains does lead the creation and integration of metaphors where Tourangeau and Sternberg (1981) suggested that the meaning shifts from one terms to another from the same semantic grounds is a process of metaphor 'tenor' and 'vehicle'.

Frank C. Keil paper (1986) referred to the studies of young children's ability to integrates metaphor by Gardner (1974) and Malgady (1977) that childrens develop their metaphorical competence in their late childhood as their generic cognitive stage was fully progressed. Their ability to interpret metaphors will increase and develop as they get older which could be explain in three classes. First class, Stemberg and Downing (1982) shows that reasoning and metaphor ability are intimately interconnected and the skills to comprehend '*complex order analogies*' of metaphor are reached in their adolescence. Showing that '*complexity factors*' does affect metaphorical development skills. Second class, mentioned by Vosniadou, Ortony, Reynolds & Wilson (1984) that '*practical and tactical factors*' could influences and alter the interpretation and utilization of metaphor. The final class targeted on the '*knowledge factor*' that the children have upon the terms involved in metaphor, the children will not succeed in the integration of the metaphorical meaning if they carry little knowledge on each metaphors. There are many studies that supported the idea by Winnger, Engel, & Gardner (1979), Malgady (1977), Vosniadou et al (1984), that the amount and quality of knowledge influences the comprehension of metaphors. An extension studies by Keil (1986) on the last class mentioned that a full skills and knowledge on the tenor and vehicle will allow better skills to interpret complex metaphor.

According to Goschler & Darmstadt, to mentions from Lakoff and his colleagues studies, the metaphorical nature of ordinary thinking about known issues as arguments or anger. Support that they can't think on these issues 'in their own words', because it is very abstract theefore it need to be filter through an embodied experience with more specific areas. The class of metaphor, for which this assumption is most compelling, is the spatial representation of sectors on abstract to the domains.

However, Sakamoto & Utsumi, mentions from Lakoff's cases, it is unlikely that the regularity in direct cognoscibility acquires: our experiences of these topics is at least embodied and concrete, and is accessible at least so early in life, as our experiences of the sectors in terms of which will characterize them metaphorically. For example, Lakoff mentioned *conceptual metaphor*: ANGER is *heat of liquid in a CONTAINER*. But children experience anger well before to understand the effect of heat in fluid pressure in closed container as *emotion metaphors*.

As Keil mentioned in his studies (1986) conceptual domains obviously cannot represent a complete metaphors due to many factors. Some metaphors in a semantic field could occur very *infrequently* and create *unfamiliarity* where it could be more difficult to interpret and the more complex metaphor, the more time it takes to comprehend. This is because two domain never made a perfect match as the 'tenor' will always have different measure on a given concept than the 'vehicle' and most of the relation between the two domains would have different '*alignable*' degree of correlation from each other.

All of these researches have supported one another and came into the same conclusion that metaphors are a mapping of a concepts or a transferring of meanings from one entity to another unrelated entity by associating the similar characteristic both subject holds and ignore all unfamiliar aspects. Human are able to process, translate and understand metaphor under cognitive and analogical reasonings base on systematic conceptual metaphors. The metaphor system contains domains and subcategories of flexible prototype embedded deeply in their mind and shapes human perception, behavior and selection of metaphors in their everyday.

Nowadays, metaphors were included widely in business speeches as audiences felt that metaphor enhance on imagination, allowing them to understand complex information easily and leads to better memories. The purposive metaphor occurs naturally in human conversation, and every country and every language have their own transports and their own levels of importance. Regardless of the theory proposed by linguists, transfers of meaning and the creation of domains are generated based on values deeply rooted in culture occur normally.

### **Metaphors and Cultural Influences**

Cultural background and past experiences are the main factors influencing ones perception and cognition towards the world. The way one makes decision on using languages or metaphors are entirely based on their perception, norms and cultures. Geert Hofstede's (1970) theory of cultural dimensions explained the theory of cross-cultural psychology, international management, and cross-cultural communication. Hofstede created factor analysis model to examine the results of a world-wide survey of employee. This author conducted an significant study on values associated to work among employees from multinational company with in more than 40 countries. The following five factors were adequate to distinguish among cultures:

#### **Geert Hofstede's Dimension of Thai Culture**

*Power Distance:* Thailand scores 64 on PDI index, it is a society in which inequalities are accepted; an strict chain of command and protocol are observed. Thus, the attitude towards managers is more formal, the information flow is hierarchical and controlled.

*Avoiding Uncertainty:* Thailand scores 64 on this dimension showing that Thai people tends to avoid uncertainty. To minimize level of uncertainty, strict rules are adopted. The ultimate goal of is to control everything to avoid the unexpected. The society does not readily accept change and is very risk adverse. Change has to be seen for the greater good of the group.

*Masculinity:* Thailand scores 34 and is thus considered a feminine society. This lower level is indicative of a society with less competitiveness where this situation also reinforces more traditional male and female roles within the population.

*Individualism:* With a score of 20 Thailand is a highly collectivist country. This is manifest in a close long-term commitment to the member 'group'. Loyalty to the in-group in a collectivist culture is dominant of most other societal rules and regulations. Personal relationship is mainly to conduct business and it takes time to build such relations.

*Long term orientation vs. short term orientation:* Long term oriented societies value more to the future. With a score of 56 Thailand is a Long Term Oriented culture where Thai respect for tradition and inequality between people. They value working hard and having a sense of moderation is dominant with personal relationships and network. Protecting one's face is important with non confrontational behavior. Thai favor long term oriented perspective and therefore deadlines are fluid.

## Geert Hofstede's Dimension of Singapore Culture

*Power distance:* Singapore scores high of 74 where the Chinese Confucian teaching has a fusion approach to religion, which dominates Singaporean perception. The stability of society is based on an unequal relationship between people. Power is centralized and managers rely on their bosses and on rules. Control is expected and attitude towards managers is formal. Communication is indirect and the information flow is selective.

*Individualism:* Singapore, with a score of 20 is a collectivistic society. This means that people belong to in-groups who look after each other in exchange for loyalty. Social relations should be conducted in such a way that everybody's face is saved. Communication is indirect and the harmony of the group has to be maintained, open conflicts are avoided. The relationship has a moral basis and this always has priority over task fulfillment.

*Masculinity:* Singapore scores 48 and is in the "middle" of the scale but more on the feminine side. Conflicts are avoided in private and work life and consensus at the end is important. During discussions being cautious is important, not to be too persistent.

*Uncertainty Avoidance:* Singapore scores 8 on this dimension and thus scores very low on this dimension. In Singapore people abide by many rules not because they have need for structure but because of high PDI.

*Long term orientation:* Singapore scores 48, which is rather in the middle. Yet Singapore shows cultural qualities supporting long term investment such as perseverance, sustained efforts, slow results, thrift; being sparse with resources, ordering relationship by status and having a sense of shame. Singapore with an immense economic success, emphasizing virtue, they always kept their options open and flexible.

Vasiloaia, Michelle Gaisoa – Issa suggested generally that the question is whether conceptual metaphor theory can represent at the same time universal and culture-specific aspects of metaphorical study. The metaphorical study in natural situations appears in two simultaneous pressures: '*the pressure of the personification*' and '*the pressure of the frame*'. It showed that natural framework system shapes the way we think metaphorically. Boers and Demecheleer (1997) studied in economics texts in English, French and Dutch on metaphors and found varieties in the ratio of metaphors across the languages differences which they assigned to cultural phenomenon. There is information showing that metaphors are common to a number of languages. Boers studied HEALTH economics transfer to a ten-year period, and found that the use of this metaphor is systematically more frequent in winter than in summer. While Wen Su (2002) mentioned, economy is HEALTH and potentially universal metaphor the use of which varies depending on the natural context of metaphorical study.

The most obvious dimension of metaphor is the cross-cultural dimension where variation in this dimension can be found in many different forms. One of them is what they call '*match*'. This is achieved between an allegory '*General-level*' and several '*Specific-level*'. Another reason is the case where a culture uses a set of different *source* areas for a particular *target* field, or vice versa, where a culture uses a particular *vehicle* sector for conceptualizing a series of areas of different objectives. Yet another situation includes cases where the set of conceptual metaphors for a particular *target* area is roughly the same between the two languages/cultures, but one language/culture, shows a clear preference for some conceptual metaphors employed. Finally, there may be some conceptual metaphors that appear to be unique to a given language/culture.

Metaphor is a general provision that fills from every civilization that has metaphor. When it is full, you receive the unique cultural content to a particular level. In other words, a

*general-level* of conceptual metaphor is instantiated in culture especially in a *certain-level*. It is a kind of variation on cross-cultural. Consider the following three additional cases. In one, according to Kövecses (2010), mentions information from Matsuki (1995), notes that all metaphors for ANGER in English, he mentions it as declared by Lakoff and Kövecses (1987), can also be found in Japanese. At the same time, that also notes that there are a large number of anger-related expressions that group around the Japanese sense of joy (literally, abdomen). This is a culturally important concept that is unique to the Japanese culture, and so the conceptual metaphor the ANGER is limited to Japanese.

The dimension of the subculture, by Littlemore, (2003), to explain that every society and culture, consists of a number of subcultures within the subcultures develop and their own transportation, and these transfers can fix the team. There is of course no subculture that defines itself through a completely new set of metaphors, but some of the members of the group use metaphors may be new compared to the mainstream. The personal dimension, people often have idiosyncratic allegories. These may be entirely novel or they can be versions of existing conceptual metaphors. So, you may have a view of the sexual relationship, such as the action of ‘pushing a wagon uphill’ where linguistic metaphor based on *love is a journey*, but adding to this aspect of which requires an efforts to maintain it.

According to Veale (2005), Thai language is quite different from other languages. First and foremost, it was observed that most of the expressions appear in the category of self-motion. This has to do with the fact that metaphors combine intransitive or transitive animate verbs and the word “caj” (“heart,” “mind”), which has a significant cultural meaning in Thai. The word for the biological heart, húa-caj (literally ‘head heart’), identifies not a body-part, but something like the center of the emotional life. (1) *sàdùt- caj* (*trip heart*) ≈ *suddenly realize* (2) *phûut dâj cò-caj* (e) (*make hole to someone heart*) ≈ *revealed something unpleasant about someone*.

In contrast, Singaporean metaphors grew from English. On the playgrounds, children from various linguistic backgrounds learn English at school. As more and more people come to experience learning English in school, English has become more widely spoken, along with many other languages of Singapore. The presence of other languages, especially various varieties of Malay and Chinese, alters Singaporean metaphors. Interestingly, metaphors are affected by the specific English of Singapore. The influence is especially evident in the kind of English used informally, generally called Singlish. Singlish is a mark of identity for many Singaporeans. Singaporean English usually comes from other languages spoken in Singapore, especially Malay and Hokkien. Speakers of Singlish are not necessarily aware of where their metaphor language comes from. Some examples of this include the following: (1)*Habis* = *finished* (2)*Makan* = *to eat* (3)*Chope* = *to reserve something*. The Singlish metaphor speakers usually will end their sentences with a distinctive exclamation word. The most common are “Oh,” “lah,” “ley” and “what.” Consider, for example, the following: *Ok lah, bye bye, I don't like that lah, You are going there ah?*. The metaphors could include jargons that are common to some countries but are unfamiliar to others. Background on the nature of languages for Thai and Singapore is necessary.

## Methodology

This study use deductive approach to research, which can be described as working from the general to the specific. Deductive reasoning begins from a series of general premises, which are then refined into a conclusion based on these findings (Blaikie, 2009). The research used published speeches from magazines, books, and the Internet as its primary data. These published speeches have been previously transcribed, making the analysis simpler to conduct. These speeches included speeches from Thai and Singaporean executives of any length, and topic or discussion area will not be limited.

There was no set sample size selection method for the approach selected (content analysis). Instead, the sample size for this research was based on a number of requirements, especially balancing the need for a substantial sample with the time and resource requirements available for analysis (Kothari, 2008). The research included 100 speeches, which splitted evenly between Singaporean and Thai executives. The speeches were selected on a number of criteria. The first is that the speaker must be a Singaporean or Thai citizen (respectively). This was intended to rule out inclusion of foreign CEOs, who could use different metaphors and figures of speech. The second criterion is that Singaporean speeches must be in English only, while Thai speeches must be in Thai only. (Thai speeches were translated to English for analysis.) This restriction was intended to ensure that the researcher has sufficient linguistic knowledge to interpret the metaphors used, as well as representing the dominant languages in business communication in the target countries.

The speeches were analyzed using content analysis. The choice of content analysis based on the researches found above in the literature review section, who used a similar approach in the metaphor analysis discussed. Content analysis was the process of qualitatively or quantitatively comparing the content of various texts or discourses in order to uncover patterns and meaning (Schreier, 2012). Content analysis first identifies units of meaning (such as phrases, words, or other aspects of communication), and then examined the frequency and distribution of these units of meaning (Schreier, 2012). In this research, the units of meaning targeted were metaphors used by the executives. These metaphors were identified based on the researcher's knowledge of the respective languages of the speech.

Following initial analysis of the metaphors, they were categorized and grouped into domains or themes based on the approach used by Lakoff and Johnson. Initially, domains will be constructed for each nationality, that is Singaporean and Thai executive speeches were initially constructed separately. Following this initial analysis, the domains of the different nationality groups were compared in order to identify similarities and differences. This comparison were discussed in a narrative approach, as well as presented using tables and graphs.

## Findings

The topic of metaphors has been an interesting area of research for many linguists. Business entrepreneurs were aware of the fact that metaphors do play a role in business communication, but there were not many studies done to understand business metaphors. Therefore, exploring and comparing Singaporean and Thai metaphors used in speeches mentioned in the objectives above is expected to enhance the understanding of patterns of metaphorical domains between the two languages. The domain name produced could definitely be done differently by anyone to represent the characteristic of each metaphors and its meaning. From the results shown in Figure 1-3, there are both similarities and differences in the selection of metaphorical domain by the Singaporean and Thai business executives in their speeches. The metaphors were all categorize into domain under the exact same condition based on the same idea that Lakoff and Johnson mentioned in their book "Metaphor we live by" by creating domain name upon their similarities in characteristic that were related and comparable

## Similarities Metaphors

From the results, there are more metaphors occurring in Singaporean speeches more than the Thai. Out of the 100 speeches from both Thai and Singaporean executives, a total of 30 domains containing 182 metaphors where each speech contains from 0-5 metaphors per speech.

| No.          | Domains          | Country | Amount    | Examples  |
|--------------|------------------|---------|-----------|---|
| 1            | Buildings        | S       | 5         | <i>We will build on this to create a hub for water technology...</i>          |
|              |                  | T       | 10        | <i>Tourist industry is the Industry without chimney....</i>                   |
| 2            | Human Structures | S       | 9         | <i>Thank you so much from the bottom of our hearts</i>                        |
|              |                  | T       | 9         | <i>Cut off bad finger to save the hand...</i>                                 |
| 3            | Nature           | S       | 3         | <i>Bracing ourselves for the storm ahead...</i>                               |
|              |                  | T       | 11        | <i>Stone becomes strong overtime....</i>                                      |
| 4            | Vehicles         | S       | 15        | <i>Talent has become a strategic driver of business growth....</i>            |
|              |                  | T       | 1         | <i>"Sailing for theft" or "let theft sailing for us"...</i>                   |
| 5            | Plants           | S       | 24        | <i>To address this growing demand for skilled maritime personnel...</i>       |
|              |                  | T       | 6         | <i>When you growing a big tree, do not keep all the fruits to yourself...</i> |
| 6            | Bursting Objects | S       | 2         | <i>Formation of asset price bubbles...</i>                                    |
|              |                  | T       | 1         | <i>No one force the crisis but it is us who enjoy with the bubble...</i>      |
| <b>TOTAL</b> |                  |         | <b>96</b> |   |

**Tab 1. Amount of Metaphorical Similarities**

Tab 1. Above shows the similarities of metaphors between Thai and Singaporean speeches that falls under the same domains or categories. There are 6 domains that contains total of 96 metaphors found to be similar from both countries, consisting of 38 Thai metaphors and 58 Singaporean metaphors.

## Thai Metaphor domains

While the Thai speeches contained 12 domains in total with only 53 metaphors occurring. Below is the result of Thai domains that differs from the Singaporean, there are 6 domains that are different from the Singapore which contain 15 metaphors in total. Even though it does not fall under the same domain as the Singaporean's but from the amounts, it does not occur often, despite, the 9 metaphors under the ANIMALS domain which seems to be common.

| No.          | Domains     | Amount    | Examples   |
|--------------|-------------|-----------|--|
| 1            | Animals     | 9         | <i>Eating must be fast but as elegant as a dragon..</i>  |
| 2            | Storage     | 1         | <i>The water can only fill a container. When the container is full, the rest of the water is for someone else.</i> |
| 3            | Spiritual   | 1         | <i>Detail is the God that can make the difference in business...</i>   |
| 4            | Sharps      | 2         | <i>Knowledge is a sword, the more you use, the sharper it gets</i>   |
| 5            | Accessories | 1         | <i>Work position is just a mask. It can come and go, nothing stays forever...</i>                                  |
| 6            | Money       | 1         | <i>The coin has two sides, similar to a human's life ..</i>  |
| <b>Total</b> |             | <b>15</b> |  |

**Tab 2. Numbers of Thai Metaphor Differences from Singapore**

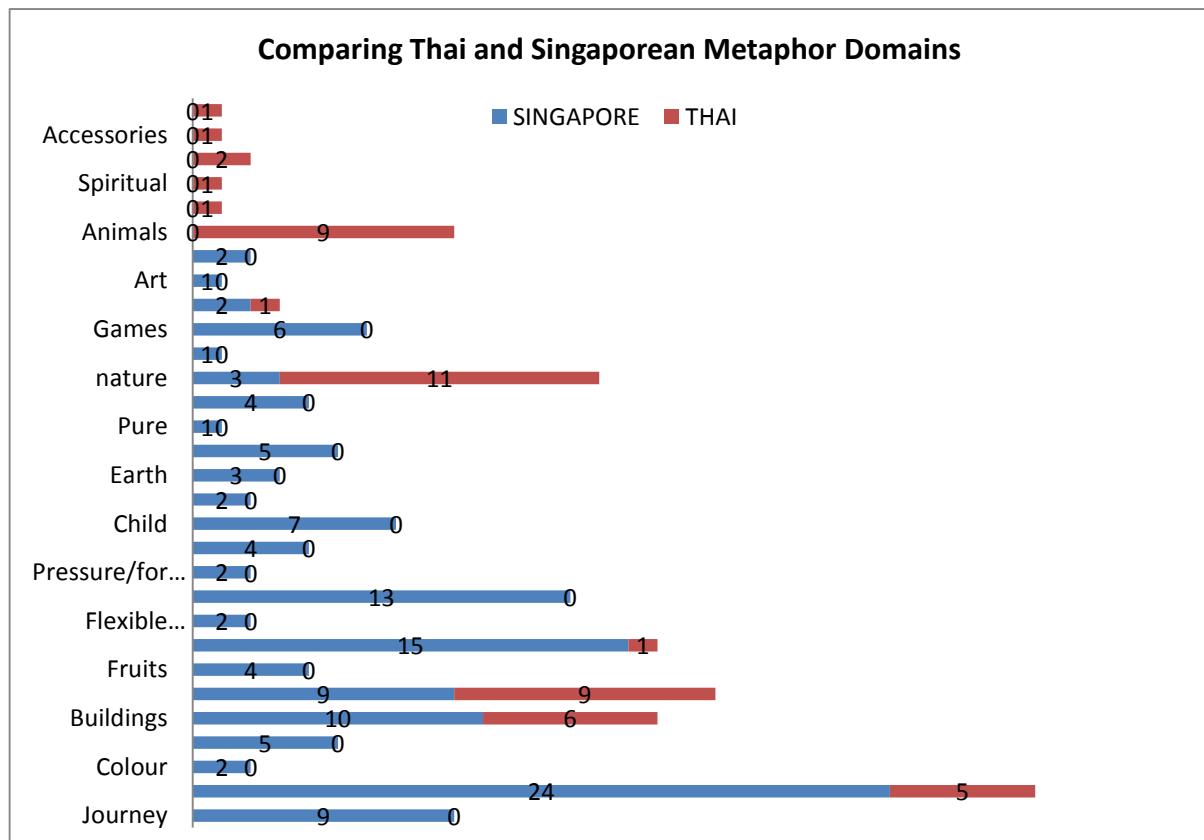
### Singapore Metaphor Domains

*Tab 3.* Below are the Singaporean metaphors that falls under domains that differ from the Thai metaphors. There are a total of 18 domains consisting of 72 metaphors which is consider to be a large number as the metaphors that differ took up 39.3% of the entire 183 metaphors.

| No. | Domains            | Amount    | Examples...   |
|-----|--------------------|-----------|---|
| 1   | Journey            | 9         | <i>Provides clear pathways for learning...</i>  |
| 2   | Colour             | 2         | <i>We are proud of the fact that we are clean and green...</i>  |
|     |                    |           | <i>Our experience in tackling our water challenges has helped to create a vibrant water industry...</i> |
| 3   | War                | 5         | <i>I also wish you a fruitful time today at this World Cities</i>                                       |
| 4   | Fruits             | 4         | <i>Summit. Thank you....</i>  |
|     |                    |           | <i>But I am also excited about how we can shape the future of the logistics industry together...</i>    |
| 5   | Formation          | 2         | <i>Stimulate more R&amp;D activities and provide greater boost to our efforts</i>                       |
| 6   | Orientalional      | 13        | <i>Industrialization in the emerging economies will place heavy demands on industrial...</i>            |
| 7   | Pressure/forces    | 2         | <i>We warmly welcome MIES to Singapore...</i>   |
| 8   | Temperature        | 4         | <i>This will groom global leaders to lead Sony's growth in Asia and beyond...</i>                       |
| 9   | Child              | 7         | <i>Companies have also made use of the Fund to spin off commercial products...</i>                      |
| 10  | Weapon             | 2         | <i>I look forward to great and ground-breaking achievements....</i>                                     |
| 11  | Earth□             | 3         | <i>courageous officers who have diligently worked away from the limelight....</i>                       |
| 12  | Lightings          | 4         | <i>Two year ago, I stood on a piece of virgin land..</i>  |
| 13  | Purity             | 1         | <i>This is a giant leap forward....</i>   |
| 14  | Power/Energy       | 4         | <i>This has enabled the committee to cast their net wider to include more companies...</i>              |
| 15  | Fishing□           | 1         | <i>We are also a major player in building offshore rigs for oil and gas exploration....</i>             |
| 16  | Game□              | 6         | <i>Global renowned companies are drawn to Singapore...</i>  |
| 17  | Illustration       | 1         | <i>Relearn to seize the opportunities...</i>  |
| 18  | Grasping an object | 2         |   |
|     | <b>TOTAL</b>       | <b>72</b> |   |

**Tab 3. Differences of Singaporean Metaphors**

After the results of the total domains found, both metaphorical domains from Thai and Singapore where then compared. In *Fig 1.* Shows better pictures comparing every metaphorical domain founds. The red colour is the Thai and the blue colour is the Singaporean, it is obvious that there are much more metaphors occurring from Singaporean speeches than the Thai and it is clear that Singaporean metaphors fall under nearly every domains while the Thai fall under only a few.



**Fig 1. Comparison between Singapore and Thai Metaphor Domains**

## Discussions

From the results, there are many sentences that fall under all the concept mentioned by Lakoff and Johnson for *structural metaphors*, *ontological metaphors* and *orientational metaphors*. Thai executives used *structural* and *ontological metaphors* but they used no *orientational metaphors* as shown below:

but as      Structural metaphors:      “Knowledge is a sword” or “Eating must be fast elegant as a dragon..”

Ontological metaphors by: “No one force the crisis but it is us who enjoys the bubble...”

While the majority of the Singaporean executives used '*ontological metaphors*' and '*orientational metaphors*' while structural metaphors were used very little. Such as :

Ontological metaphor: “Provides clear pathways for learning”

Oriental metaphors: “Stimulate more R&D activities and provide greater boost to our efforts”

In tab 1. the amount of Singaporean and Thai metaphors that fall under the same domain were compared. There are 6 domains that show similar metaphors between the two countries, metaphors under PLANTS domain is the domain that contains the highest number of Singaporean metaphors; while only 6 Thai metaphors fall under PLANTS domain.

The sentence of Singaporean executive “To address this growing **demand** for skilled maritime personnel...”, the word *demand* act as the “topic” which described by the “vehicle” word *growing*. The “ground” is the interpretation that the *demand is increasing*. The vehicle

was mapped onto the topic where the entities of PLANTS GROWTH were asserted to the INCREASE IN DEMAND. The entity of increasing demand was represented by the growth of plants.

*THAI: "When you growing a big tree, do not keep all the fruits to yourself... "*, this is a more linguistic, figurative and complex metaphors which in-depth knowledge on plants is needed to interpret, comprehend and understand the meaning. BIG TREE and its FRUITS is the “vehicle” that is mapped onto the “topic” SUCCESSFUL BUSINESS and INCOME. Where the organization is the BIG TREE and it’s FRUITS is the income or profits. The “ground” is that do not keep the fruits/income or profit all to yourself but you must share your fruits/income or profit when your business is successful. NATURE and BUILDINGS are the domains which contain the most Thai metaphors, where natural elements characteristic was mapped onto business entities such as;

***“Doing good thing is like walking against the water stream while doing bad thing is like following the stream”***

The meaning of these metaphorical concepts of “NATURE OF WATER MOTION” is that it is difficult to walk against the water stream but there is always clean and fresh water at the river entrance, while following water current will in the end reach the dirty water where everything flows to.

The Thai metaphors that do not fall under the same domain as the Singaporean metaphors are shown in *tab 2.*, these six domains contains few metaphors, however, ANIMALS metaphors are used most frequently and uniquely by the Thai executives. There are 9 sentences that express meaning through comparing entities similar to ANIMALS. Metaphorical concept animals were used based on cultural and traditional believes and values as show below:

*“Eating must be fast but as elegant as a dragon..”*

*“Don’t kill ally. Must act like tiger, protect and help each other..”*

Dragon is an animal that is believed to be the most powerful and elegant animal while tiger is seen an animal that is strong, brave and holds great leadership character. Therefore animal is always perceived as a positive comparison to human characteristic. On the other hand, out of the 50 speeches by the Singaporean executives, they did not use ANIMALS metaphor at all but they tend to compare human characteristic with VEHICLES as shown in *tab 1.*

From the example in *tab 2.* most of the word in the sentences are highlighted with bold fonts, representing the metaphorical terms while the Singapore executives used only one or two metaphorical words in their sentences. This portrays that even though Thai used less metaphors than the Singaporean, but when they used them, the metaphor tends to be more complex and difficult to comprehend. As you can see the example for the CONTAINER metaphors in *tab 2.*, where the entire sentence are metaphor where the audience or the listener must comprehend and interpret the meaning themselves in relative to the context of the speeches.

The sentences from the executive's speeches that include more metaphor phrases could assume to be complex and difficult than those that contain one or two. Looking at *tab 1.* Under the same domain, Singapore examples of metaphor sentences in comparison to the Thai obviously contain fewer metaphors and therefore are less complex. In *tab 3.* every examples of the Singaporean metaphorical sentences contains only one or two metaphor words showing that it is less complex. Stemberg and Downing suggested the '*complexity factors*' that could effect human cognition upon the metaphorical comprehend process. This mean more specific entity is needed to be mapped on and more allegorical meanings

are needed to be comprehended. Therefore Knowledge upon the comprehension while listening to the Thai executive speeches as mentioned by Vosniadou, Ortony, Reynolds & Wilson is necessary. To increase the ability to interpret the metaphors, Thai executives must consider whether their audience have full knowledge upon the '*topic*' and the '*vehicle*' as mentioned by Keil in semantic field otherwise they could fail to comprehend the context. Suitable metaphor utilization by the executives that is appropriate to the audience knowledge would allow the audience to take less time to comprehend, interpret and allow better '*practical*' and '*tactical*' used.

The theory of '*inexpressibility, compactness, vividness hypotheses*' suited most to the Thai executive's metaphor as Thai used metaphors with the purpose to describe complex context that are difficult to explain. Thai executives used full sentence metaphors to describe the entire context by mapping the entire concept of domain instead of just partially mapping them like the Singaporean do. Such as the sentences above about walking against the water stream, metaphor help better describe the idea than normal wording, shortened or '*compact*' the sentences as well as making them more vivid and imaginative. The Singaporean mostly used one word metaphors that represent only a partial characteristic of a domain therefore it could help with '*inexpressibility*' but not much with '*compactness or vividness*'.

Posteguillo & Palmer's (1997) discussion supported the results that metaphors are used in communication to liven up the content, to decrease the complexity, and make them more direct and similar to common everyday conversation. Maior & Mures included Lakoff & Johnson's (1980) conclusions showing that metaphors are not only a stylistic strategy used to embellish speech, but that it really does stimulate human cognition. Business analysts use metaphors to simplify the complex description of content, sending the core value out to the audience and allowing them to see a picture in their minds.

From the example *Nurturing Talents to Grow the Maritime Sector Continues to Be a Key Endeavor of SMF*, one can see that the speaker tries to use metaphor to convey meanings and to represent the content in a more understanding way, allowing the audience to imagine the organization of the maritime into pictures and represent the processes of maritime activities. Nurturing and growth relate the organization development to how people take care of their plants. When people nurture or water the plants well, it will boost the growth like how people work together properly to take care of the organization in order to create organizational development.

As presented in *tab. 2* and *3* there are more domains that are different between the two languages. This shows an obvious clash between the cultures of Thailand and Singapore as some metaphors used in Singaporean speeches have no meaning in Thai language at all. This is shown in the example, "I also wish you a fruitful time today at this World Cities Summit. Thank you." A fruitful time as explained in the thesaurus is a synonym for a valuable and productive time related to the growing of fruit. If the word *fruitful* is translated directly into Thai languages, the relationship between them will not exist. This is again due to cultural differences; Singapore values the relationship of fruit, while fruit has no positive cognitive effects to Thai people's cognition at all. According to Veale's example, it is shown that the words "*tok jai*" or "*heart fall*" have different meanings when compared to other languages, as Thai has a significant cultural meaning related to "*heart and mind*." The word "*jai*" (*heart*) is used widely with diverse intentions, and it has different conventional emotional effects cognitively.

The graphs *Fig 1.* concluded the comparison of the overall metaphors found in both Singaporean and Thai speeches. The brief history of the Singaporean people shows that English is used as their official language; however, Mandarin, Malay, and Tamil are also their main languages. Singapore is a mixed culture with people of different ethnicities; therefore, there are many cultures and subcultures in the society nowadays as mentioned by Littlemore

(2003) where metaphors and slang words vary. Even though English is the official language, there are metaphors that are not common to traditional English, such as "I am heartened by the unwavering support." Traditional English does not commonly use heart as a metaphor to relate to the feeling of honor, but it is mostly related to the feeling of love.

## **Limitations & Recommendation for further research**

The data collection did not cover every business executive from every demographics such as genders, industries and location therefore the data does not represent the entire population of Thai and Singaporean executives and could not conclude any new theories or findings. This is because the difficulty in collecting secondary data from different type of medias. Singapore speeches are available more than the Thai but both still does not cover every industry of executives. Therefore in the future, studies should separate executives into demographics such as gender, industries, age and business size. This will allow the data to represent the entire population of Singapore and Thai business executives and able to draw conclusions on certain points.

## **Conclusion**

From the results, shown that metaphorical domain commonly used by the Thai and Singaporean business executives in speeches varies. In spite the fact domains of the two countries differ, it is necessary for business executives from both countries learn and understand the pattern and the appropriateness of metaphor utilization in communication between the two countries. As Thais tends to include structural metaphors which are longer but relate a complex entities to a concrete concept more directly. While Singaporean executive use mostly ontological metaphors which are short and concise but with no straight forward relationship of two concepts which could these metaphors could be interpret differently. Therefore Singapore metaphor is used to communicate to other countries or culture such as Thai, misunderstand or misinterpretation could happen because the indirect relation of ontological metaphors could lead to more complex and ambiguous meaning. Despite the diversity of metaphors, there are many metaphors from the two nationalities that fall under the same domain. With careful selection and proper knowledge of metaphors based on appropriateness to cultural norms, successful communication between countries of different language and culture could easily be achieved.

## References

- Javier, V., & Cristina, S. Looking at metaphors: A picture-word priming task as a test for the existence of conceptual metaphor, 1, 1-15.
- Matt, B. Introduction to the On-Demand Lecture. Professor of Political Science Maxwell School of Syracuse University, 1, 1-20.
- Kövecses, Z. (2010). Metaphor: A Practical Introduction, 1, 1-24.
- Haase, C. (2002). Understanding metaphors in everyday language. Introduction to Cognitive Grammar, 1, 2-30.
- Ortony, A. (1975). Why metaphors are necessary and not just nice. Reprinted in *Cultural Metaphors: Readings, research translations, and commentary*, Ed. M. J. Gannon, 2001, Sage Publications.
- Ahrens, K., & Alicia, L. T. Mapping Image-Schemes and Translating Metaphors, 1, 1-8.
- Lara, L. J., & Zachary. (2005). Metaphor comprehension as attributive categorization, 1, 1-6.
- Brian, F. B., & Gentner, D. Metaphor Comprehension: From Comparison to Categorization, 1, 1-15.
- Goldwasser, O. (2005). Where Is Metaphor? : Conceptual Metaphor and Alternative Classification in the Hieroglyphic Script, 20(2), 95–113.
- Gokcesu, B. S. Comparison, Categorization, and Metaphor Comprehension, 1, 1-6.
- Frank, C. K. (1986). Conceptual Domains and the Acquisition of Metaphor, 1, 73-96.
- Michael, S. C. T., & Mareschal, D. Metaphor as Categorization: A Connectionist Implementation, 16, 5–27.
- Raymond, W., & Gibbs, Jr. (1996). Why many concepts are metaphorical, 1, 309-319.
- Boers, F. & J. Littlemore (eds.) (2003) Cross-cultural Differences in Conceptual Metaphor:
- Camp, E. (2006). Metaphor in the Mind: The Cognition of Metaphor, 1, 154-170.
- Goschler, J., & Darmstadt. Metaphors in Cognitive and Neurosciences. Which impact have metaphors on scientific theories and models? , 1, 1-14.
- Sakamoto, M., & Utsumi, A. Cognitive Effects of Synesthetic Metaphors Evoked by the Semantic Interaction, 1, 1-6.
- Spike, W. S. L., & Schwarz, N. (2012). Metaphor in Judgment and Decision Making, 1, 1-24.
- Sease, R. Metaphor's Role in the Information Behavior of Humans Interacting with Computers, 1, 1-8.
- Fineman, B. (2004). Computers as people: Human interaction metaphors in human-computer interaction, 1, 1-52.

James, W. P. (2003). Social Physics: The Metaphorical Application of Principles of Physics to Social Behavior, 1, 1-4.

Sophie, C. F., & James, C. The Use of Strategic Metaphors in Intercultural Business Communication, 1, 1-23.

Maior, P., & Mureş, T. The use of metaphors in business press articles, 1, 1-8.

Vasiloaia, M., Michelle, G. I., & Nora, V. I. Metaphors Business Linguistic Culture Lives, 1, 1-9.

Regina, G. P. A Cross-Cultural Analysis of Heart Metaphors, 1, 1-32.

Kövecses, Z., & Loránd, E., (2010). Metaphor and Culture, 2, 197-220.

Lilyl, W. S. (2002). What Can Metaphors Tell Us About Culture?, 3, 3: 589-613.

Littlemore, J. (2003) The effect of cultural background on metaphor interpretation. Metaphor and symbol, 18(4), 273-288.

Gentner, D., & Wolff, P. Metaphor and Knowledge Change, 1, 1-48.

Veale, T. Computational Aspects of Metaphor, 1, 1-203.

Transnational Social Spaces and Singaporeans in Sydney, 1, 1-39.

Randall, M. English, Mother Tongue or Singlish? Factors affecting the spelling of primary school pupils in Singapore and pedagogic implications, 1,1-10.

# **Impact of capital account liberalization on economic growth in Africa: A case study of South Africa**

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## **Abstract:**

The increased interest in capital flows has made it imperative to understand how it impacts on economic growth. The Global drive for an interlinked world economy has increased the need for monetary authorities and Governments to be able to effectively deal with any negative spins off from capital flows and also be able to take advantage of positive effects capital flows may have on an economy. The study therefore seeks to establish how the change to lift restrictions on capital flows into the South African economy may have impacted on economic growth. The study analysed the relationship that exist between capital flows, measured with foreign direct investment (FDI) and portfolio investment (P\_I) and economic growth. Empirical results revealed that there is a long-run relationship between the variables of interest. Therefore the results implies that to maximise capital account liberalization, the economy should maintain sound macroeconomic policies. This will help shield the economy from the external shocks and this maintain economic growth.

JEL: F32, F33, F36

## **Key words:**

Capital account; Economic growth; South Africa; VAR

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## **SECTION 1: INTRODUCTION AND BACKGROUND**

When the political climate in South Africa changed in the mid1990s, policies were enacted to re-integrate the country to the rest of the world. Exchange control regulations were changed and some of these changes included the relaxation of the restriction on non-resident investors, the relaxation of the rules governing corporate and institutional investors, with the aim of increasing capital flows.

The authorities opted for a gradual approach as opposed to the big bang approach, which is a form of a cold turkey policy. The gradual approach in contrast to the big bang approach allows the capital account to be liberalized over time so as to allow the economy to adjust.

Liberalizing the capital account was done with the aim of attracting international investors to come and invest in South Africa therefore increasing external savings within the South African economy. The capital inflows and the domestic savings would together stimulate economic growth as capital inflows are expected to increase productivity, leading to improved production and ultimately economic growth.

Capital account liberalisation, though still relatively young in the post-apartheid South Africa is a concept that has long intrigued economists. Over the years the focus on capital account liberalisation has begun to shift from it being a requirement for economic development and growth, to it being viewed as a potential deterrent of economic growth, in the process adding to the uncertainty already surrounding its real effect on economic growth.

Thus, the study seeks to investigate the impact capital account liberalisation on economic growth in South Africa for the period 1994 to 2010. The paper is structured as follows: Following section 1 which is the introduction, section two looks at the overview of economic growth and capital liberalization in South Africa; Section three reviews relevant literature; Section four looks at the methodology and estimation techniques; whilst section five focuses on interpretation and conclusion.

## **SECTION 2: OVERVIEW OF CAPITAL CONTROLS AND ECONOMIC GROWTH IN SOUTH AFRICA**

In the 1930s South Africa was under pervasive capital controls, which were quantitative restriction aimed at residents. The main idea being to encourage local savings to be channelled to domestic investment. In the 1960s, the government then introduced dual exchange rate arrangements meant to target the non-resident investors and limit the effect of the volatile capital flows, mainly short term capital flows.

In 1961 the South African Government introduced an extra set of measures by amending the “Currency and Exchanges Act 9 of 1933”. The measures implemented consisted of both targeted capital controls and pervasive capital controls. The “Currency and Exchanges Act of 1933” was the first regulation to affect South Africa though it was done under the collective name of the sterling area. The sterling area comprised of countries which adopted the British sterling or had their currencies pegged against British Sterling. South Africa was under the sterling Area from 1933 till its demise in the mid-1970s. This was so even after the 14<sup>th</sup> of February 1961 when the South Africa economy changed from using the South African pound to the South African Rand.

In his article Henshaw, (1996) highlights that South Africa benefitted from the sterling area because it was Britain's biggest source of agricultural produce at that time, and was able to export to Britain at constant rates, was able to sell its gold produce through London which

was a cheaper and more efficient system and Britain was a source of capital that was a vital to the development of the mining industry.

According to Schulze,(p.01) the “Currency and Exchanges Act 9 of 1933” was introduced to curb the outflows of capital to countries that were not in the sterling area. This means that at the time the countries within the sterling area could experience capital flows amongst themselves but not with a non-member country. This maintained the amount of reserves held in the sterling area.

In 1960 the Sharpeville massacre, which was the climax of the build-up of political tensions and instability in the early 1960's was a trigger for the amendment of the “Currency and Exchanges Act 9 of 1933.” The political instability negatively affected the credibility and ultimately the image of South Africa in relation to foreign countries. The Government had to make the amendment to try and limit the impact of a pending crisis which was brought about by capital flight.

Having built up its gold and currency reserves by participating in the sterling area, South African monetary authorities were faced with serious crisis whereby its foreign and gold reserves were falling. Reserves were falling as a result of the political instability. The unrestrained capital outflows were putting pressure on the capital account and ultimately the balance of payments, which forced the monetary authorities to use the reserves they had to finance transactions. The result was that the foreign currency reserves and the gold reserves dropped significantly.

Although foreign reserves in 1960 were already declining, the drop in reserves during April was more pronounced. There was 29% drop in the month of April, immediately after the massacres. The 29% drop was a significant in relation to the drops in February and March which were at 9% and 14% respectively. The drop in foreign currency reserves is attributed to the negative effect of a drop in capital inflows, which meant reserves, had to be used to finance the current account balance.

### **Capital account liberalisation (1995- 2009)**

The post-apartheid era was ushered in by a Government of national unity. The Government sought to normalize the country and rebuild it. Under the reconstruction and development policy, the Government saw the need to restructure the economy. The debt crisis, high unemployment levels and falling GDP per capita

The Government chose to take a less radical approach to removing the controls that were present in the economy. The controls were affecting both the current account and the capital account. The authorities adopted the gradually approach to relaxing capital account controls. The gradual approach allowed for the sequential removal of controls on the capital account that existed in the economy based on the strength of structural economic reform. The monetary authorities based their choice on the recommendations made by studies such (McKinnon, 1993) and (Edwards S. , 1984).

(Grové) highlights the general sequence that was followed focused on the non-residents, then the current account, then resident institutions and the residents. To kick start the process, the financial rand was replaced by a unified currency. Just as in 1983, the dual exchange rate system was scrapped. The difference this time was that the political climate was in a better state and the financial discount was around ten percent. The timing of the liberalisation of the capital account in 1995 was better than in 1983. The timing of capital account liberalisation is an aspect that is vital to the success of the policy. The table below highlights some of the relaxations that have been carried under the gradual opening up of the capital account

**Table 2.1: A summary of relaxations on controls**

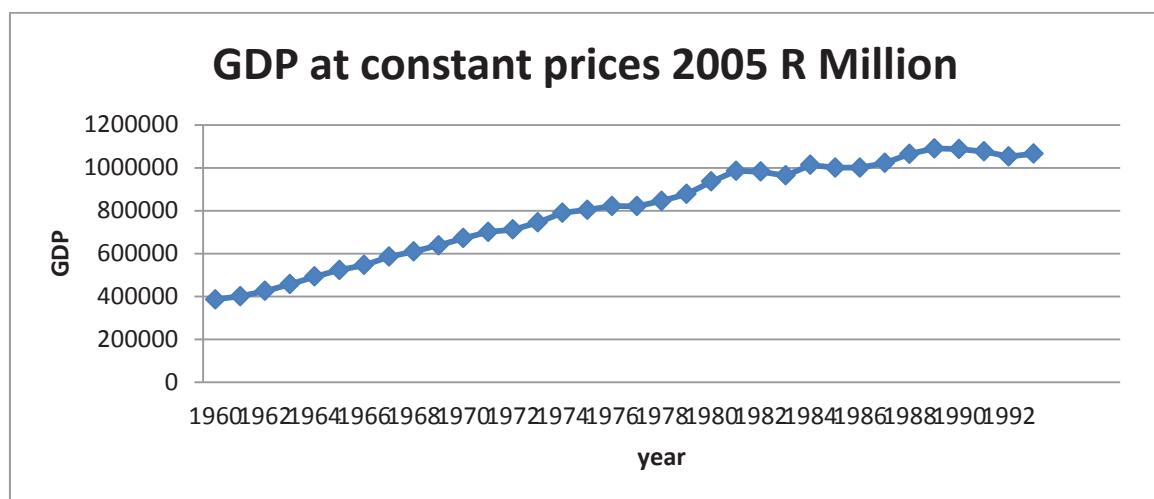
|            |   |
|------------|---|
| 01/04/1995 | <ul style="list-style-type: none"> <li>Resident companies could invest abroad and raise foreign funds against their balance sheets</li> </ul>   |
| 14/07/1995 | <ul style="list-style-type: none"> <li>The use of asset swaps was by institutional investors was allowed. The institutional investors still had to get approval to be able to invest in foreign assets using the swaps.</li> </ul>  |
| 21/06/1996 | <ul style="list-style-type: none"> <li>The amount of foreign assets an institutional investor could acquire via swaps was increased to 10% from 5%.</li> <li>The purchase of outright foreign investments was legalized and limited to 10% of an institutions total asset value.</li> </ul>   |
| 01/07/1997 | <ul style="list-style-type: none"> <li>Registered fund managers offering private client asset management were included into the list of institutional investors.</li> </ul>   |
| 22/07/1997 | <ul style="list-style-type: none"> <li>Only asset swaps transactions that involved an exchange in cash or portfolio assets were allowed.</li> </ul>   |
| 21/02/2001 | <ul style="list-style-type: none"> <li>The asset swap mechanism for new transactions was terminated.</li> <li>New foreign investments by long-term insurers, pension funds and unit trust management companies were, however, limited to 10 per cent of the net calendar 2000 inflow, subject to the overall asset limits.</li> </ul> |
| 23/02/2001 | <ul style="list-style-type: none"> <li>Individual residents above 18 years could invest up to R750 000 abroad.</li> </ul>   |
| 2003       | <ul style="list-style-type: none"> <li>Dividends from foreign arms of resident companies could be used to invest in foreign direct investments after approval by authorities.</li> <li>Allow resident companies to open foreign currency accounts.</li> </ul>   |
| 07/10/2009 | <ul style="list-style-type: none"> <li>Foreign Capital for residents increased to R4 million from R2 million</li> <li>Increase company limit to invest abroad from R50 million to R500 million</li> <li>Scrapping of the 3:1 ratio for local borrowing on non residents who own 75% stake and over in companies.</li> </ul>           |

Source: author's compilation

## Economic growth under capital controls

Figure 2.1 GDP at constant prices (2005) R

Million



Source: adapted from SARB

Under capital controls the economic output increased in a linear form. Looking at the graph above output attained in 1960 was within doubled in 14 years. Fedderke & Simkins, (2009:26) Note that using growth accounting the main driver of economic output growth was capital accumulation. The increase in output is attributed to the increased use of physical factors of production. This is in line with the growth theory that was put forward by economists such as Harod and Domar who are credited with the Harod-Domar framework, which basically was of the view that to increase output the factors of production and to also be increased in the same proportions as substitution between factors of production was not possible.

The economy experienced an improvement towards infrastructure in the mining sector which led to increased output in mining, and the discovery of more mineral deposits helped increase the output in mining. The increased capital realized from mining was then used to for diversification by the venturing into agriculture and manufacturing, as was noted by Hackland, (1980:03).

Manufacturing grew at its fastest during the 1950s. The development of new industries within manufacturing was the main reason for the increase in manufacturing within South Africa. The development of the motor industry, the diamond, the steel industry and even the textile industry all contributed to the growth. The increased investment in factories and in the use of factors of production including labour meant capital accumulation was vital under capital controls. The supply of labour was readily available therefore the cost of production was cheap with regards to labour input. The focus on the factors of production is what drove the growth of output prior to capital account liberalisation.

For the period from 1960 – 1980 the amount of investment the government and public corporations spent on capital accumulation was almost always equal to what the private sector was spending. This highlights that the focus of the government and its policies was towards capital accumulation and it helped encourage the private sector do the same.

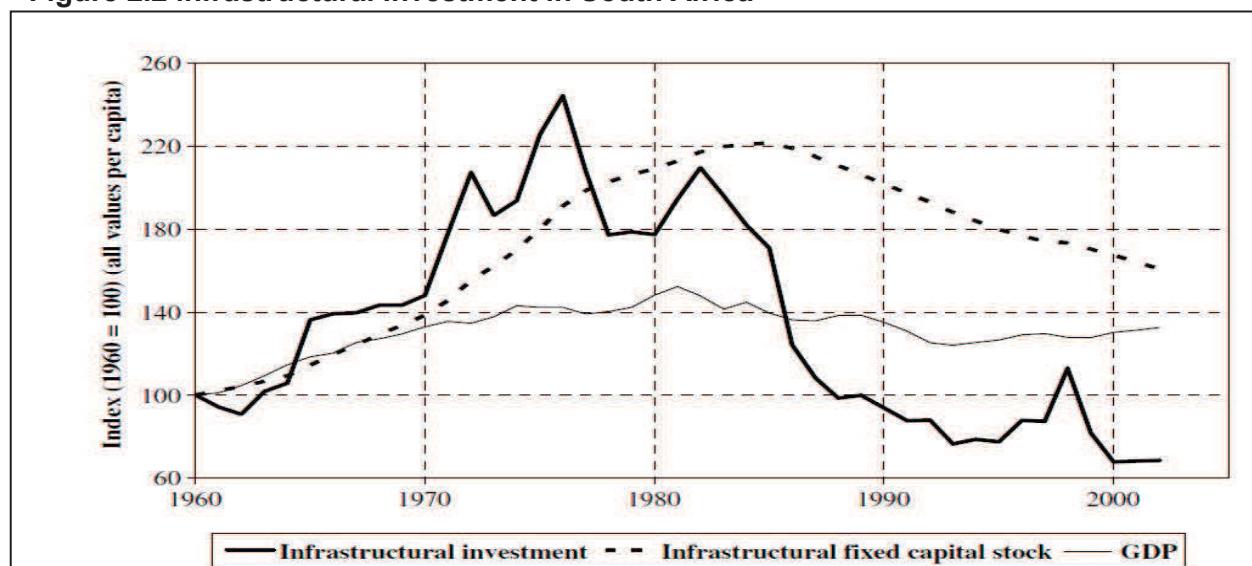
The period under 1980 – 1994 saw the economy experienced a slowdown in terms of economic growth. The increase in gold price which helped the economy in the early 1980s boosted the growth of the economy but with its subsequent drop, the performance of the economy began to decline. The uncertainty that existed at the time was a catalyst for drop in economic growth. According to Fedderke & Simkins, (2009) the 14 years prior to

independence in 1994 saw the economic growth slow to an extent that GDP per capita fell by approximately eighteen percent. This can be seen from the diagram below.

The rate of increase as can be seen from the graph above shows that after a period of fourteen years from 1960, the output doubled but from 1980 to 1994, the rate of growth was significantly slower relative to the 14 year period from 1960. One reason for this drop in economic output could because of the drop in investment per capita.

Capital stock which has a medium to long term lifespan began to decline in the mid-1980s. This meant the based for economic growth from the investment point of view was shrinking, and thus did not predict a good future trend for economic growth. The graph of economic output shows that it has been on a decreasing trend, although that trend has been reversed after the turn of the century.

**Figure 2.2 infrastructural Investment in South Africa**



Infrastructural investment was peaking, foreign investment was the highest contribute among three sources of capital, namely household saving, corporate savings and foreign investment. Household savings and corporate saving can be combined to be known as domestic savings. With foreign investment towards capital formation after capital account liberalisation, the reversal of the effect of a drop in infrastructural investment has begun. The expectation is that in the period under 2005-2009 infrastructural investment will increase as will economic output.

**Table 2.2 Financing of gross capital formation (% of GDP) (R million)**

| Period             | 1960-1969 | 1970-1979 | 1980-1989 | 1990-1994 | 1995-2004 | 2005-2009 |
|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Household saving   | 0.10266   | 0.1793    | 0.38335   | 0.81358   | 0.45523   | (0.19449) |
| Corporate saving   | 0.03945   | 0.16203   | 0.7939    | 2.076776  | 3.21219   | 2.60875   |
| Foreign investment | 0.0055    | 0.7132    | (.219684) | (0.4239)  | 0.65854   | 6.34206   |

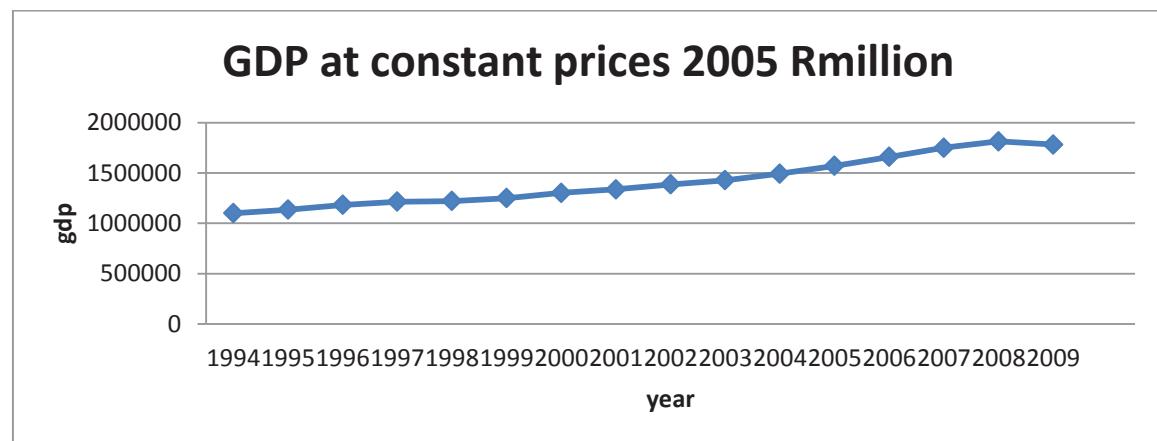
Source: adapted from SARB (2010)

## Economic growth under Capital Account Liberalisation

The start of the process of capital account liberalisation witnessed an increase in the rate of GDP growth. Within ten years the economic output had increased by approximately fifty percent. This is in contrast to the fourteen year period prior to capital account liberalisation.

This increase in economic output occurred when investment on infrastructure was declining just as was the case fourteen years before capital account liberalisation. This means the effect of investing in factors of production can be said to have been reduced. Therefore the probable effect that was now dominating can be said to be productivity of the available factors of production. Du Plessis & Smit, (2007:07) list total factor productivity (TFP) as the main driver of growth in economic output.

Figure 2.3 GDP constant prices 2005 1994 – 2009



Source: adapted from SARB (2010)

TFP is driven by efficiency and improvements in technological processes rather than an increase in factors of production. This means for a given level of factors of production, the output can be increased if changes are made to processes and attention is given to efficiency.

One aspect of productivity that has come to the fore in South Africa is labour productivity. The graph below shows that towards independence in 1994, the productivity levels within the labour force were beginning to pick up. After capital account liberalisation productivity in non-agriculture sectors began to increase significantly, while the productivity levels of manufacturing which had dropped after the debt crisis had begun to improve to previous levels. At the beginning of the 21<sup>st</sup> century manufacturing labour productivity continued to increase to new highs but then dropped in 2009 while the non agriculture sectors experienced a dip in labour productivity at the turn of the century which stabilized at levels maintained at the approximate level of 80 in the index.

The combined improvement in labour productivity was part of the driving factor behind the increase in economic output. This trend is in line with the increase in foreign investment coming into the economy. Although some of the foreign investment was used for infrastructural development the main benefactor of this investment looks to have been the TFP side. The existing infrastructure was used to increase economic output while in previous years the output had stagnated or even declined. This is attributed to TFP.

Looking at the average annual GDP rate, the trend line shows that prior to 1994, GDP was on a general decline but post 1994 the trend has been one of an increase. This can be attributed to the number of factors which include the political environment and macroeconomic policies. Before 1994 the variation of the levels of the GDP rate was wide.

The standard deviation is higher than that of post 1994. Post 1994 shows stability within the levels of GDP growth rates.

## **SECTION 3: REVIEW OF RELEVANT LITERATURE AND THEORETICAL FRAMEWORK**

When defining capital account liberalisation Henry (2007:1) highlighted that it is a shift in Government policy from a system that limited capital flows to and from foreign economies to a system that encourages capital flows to and from foreign economies. This means there should be a well pronounce and clear move from any previous policy that encouraged controls.

Economic theory says that capital account liberalisation is expected to result in a situation whereby capital from capital rich countries will flow to capital poor countries based on the view that capital account liberalisation leads to the efficient allocation of resources. Economic theory also highlights that there is an expectation that capital will flow from economies with low rate of return which are usually the developed countries to the developing which have significantly higher levels of return.

Fischer (1997:4) highlights how the possibility of capital account liberalisation influences the policies within the local economy. Capital account flows are believed to be sensitive to macroeconomic policies, therefore the policies set out by authorities within the economy will have a huge influence on capital flows. In order for the capital flows within the economy not be negatively affected by market forces the policies implemented should be good policies as inappropriate policies will have a disastrous effect on the economy.

It has to be acknowledged that for the liberalisation to be effective there is the need for sound macroeconomic policies as highlighted by (Fischer, 1997). There is a need to properly manage the interest rate, the exchange rate and the performance of the economy as a whole so as to aid in the growth of the economy. This means that the performance of the financial system is of the utmost importance. The stability of the financial system will be a priority, highlighting the importance of regulation and monitoring of the financial sector by the authorities. Free capital accounts rely less on bureaucrats and empower the monetary policy authorities, thus avoiding the problem that arises out of poor resource allocation by bureaucrats.

There are a number of benefits which accrue from capital account liberalisation. When capital controls are removed, the result is there will be an inflows and outflow of capital. The capital flows will be either short term capital or long term capital, popularly referred to as foreign direct investment. Economic theory is divided on the effects of short term capital. The neo-classical theorists are of the view short term capital will improve the balance of payments. They say that short term capital has similar effects as trade liberalisation. In reference to opening up the capital account the neo-classical economist are of the view that short term free capital inflows have a similar effect as trade liberalisation, that is are beneficial to an economy. Gray & Dilyard, ( 2005) in their book highlight that, neo classical economists are of the view that external free short term capital flows will result in a general improvement in aggregate consumption pushing the demand for goods and services up, which will translate to an improvement in production. Based on the effect of trade in the Hecksher –Ohlin framework, Epstein (2005) notes that economic theory expects that capital account liberalisation will result in an increase in productivity via the factor of production which is abundant.

Eichengreen, (2004) notes that economic theory is of the view that capital flows will bring into an economy resources, technological knowhow and also mould the local institutions into better models that will improve economic performance and economic output.

Capital account liberalisation is anticipated to aid the development of financial markets because of its positive effect on the liquidity levels of the different asset in the financial markets. Shirakawa,(2009:1) notes that the liquidity of the financial markets has become a concept, which cannot be side-lined when creating policies for the economy and points out that the bank of Japan in its capacity as the lender of last resort has the role of being the caretaker of liquidity within the Japanese economy. Capital account liberalisation will affect the financial markets, influencing the liquidity levels of the different asset classes in the financial markets. The main asset classes are grouped as capital, equity and money.

Another way Capital account liberalisation aids the development of financial markets is through the technological transfers, as it gives foreign investors the right to purchase shares and bonds in the country's markets, while simultaneously allowing domestic investors the right to invest abroad. The ability to trade in foreign securities is a process economists has termed migration of securities activities, will require that financial markets be more interlinked. The integration of the domestic financial markets and the foreign financial markets means gives rise to competition and improved efficiency, which is achieved through the improvement of technology which the domestic financial markets import from the foreign financial markets and thus improve on their intermediation.

Gruben & McLeod, (2001), Notes that capital account liberalisation in itself will help regulate the monetary policy as it will lead to a situation whereby if there is a loose monetary policy then, capital account liberalisation will discipline the authorities. Since capital account liberalisation will result in the local market accessing external markets with the ability to invest and thus diversify portfolios a loose monetary policy will mean it is possible for the local currency to depreciate as local demand for foreign currency increases and the reserves drop within the economy. An out of control depreciation of the local currency can result in inflation.

Economists have tied capital account liberalisation with the development of financial markets. Bacchetta, (1992:466), in an article pointed out that it is possible to have the liberalisation of the financial markets and the capital account occur at the same time. The article further states that the liberalisation can be in two ways, either as a policy decision whereby the authorities voluntarily remove restriction in the financial sector that are coupled with the capital account restrictions. Also the liberalisation of the financial markets can be a result of market forces that arise because of the liberalisation of the capital account as the local market becomes in direct competition with the external markets. The liberalisation of the financial markets can be in a number of forms, but Dulbecco, Courbis, & Allegret, (2003: 74) note the following as the main forms (i) the deregulation of interest rates (ii) the introduction of competition between the different channels of financing and (iii) the external opening of the financial system.

According to Fischer, (1997:3) capital account liberalisation is the trigger for the development of an economy that is why all developed economies have open capital accounts. In other words in order for an economy to develop it will need to have an open capital account. Fischer (1997) was of the view that for an economy to develop, it has to be integrated with other economies. This would enable it to benefit from the transfers made by the other economies. His view was in line with the observation that all developed countries had open capital accounts.

Henry (2003) notes that the cost of capital is composed of two variables, the risk free rate and the risk premium. Both these variables are expected to fall as a result of capital account liberalisation. Epstein, (2005:17) notes that opening capital accounts should increase growth by enhancing the potential for risk diversification. The fall in the risk free rate is attributed to the increased potential for risk diversification. The drop in the risk premium is attached to the domestic market and Economic theory highlights that financial liberalisation which improves financial depth and development of the domestic market can arises through indirect channels as a result of capital account liberalisation. Therefore capital account liberalisation is expected to reduce the cost of capital.

However, there are dangers associated with capital account liberalization. Singh (2003:4) highlights that the theory on free trade which is advocate for by the neo classical economists has its shortcomings. The shortcomings are viewed from the point of view of being operational as the article highlights that there is need for stringent policies which are not traditionally adopted.

Other economists argue and say short term capital is extremely volatile and thus if an economy relies on short term capital inflows, it is likely to experience a financial crisis especially with developing economies, which are still, likely to be still developing their financial systems. This is a view supported by Rajan & Prasad, (2005), who highlight the possibility of the domestic currency appreciating to unanticipated levels when a situation arises whereby there are sudden inflows of short term capital, the effect is that the economy cannot adjust fast enough and thus leading to a pressure situation. This is one example of an external shock that is not well dealt with by the financial sector, and the result will be the unanticipated appreciation of the domestic currency.

Yew, (2008) in a book highlights how the new Keynesian theory postulates that in general the information available to borrowers is not the same as that available to lenders. With capital account liberalisation this scenario becomes more pronounced as the borrowers the domestic economic agents will have more knowledge as compared to the lenders who are foreign economic agents in relation to the domestic market. This will raise the problem of adverse selection. In order to protect themselves lenders will then only invest in projects that they deem will give them a predetermined rate of return, which in most cases tends to be very high and excludes a significant investments projects. This will result in the economy failing to attain the optimal level of economic welfare.

Overall, a number of studies have been carried out to establish the relationship between capital account liberalization and economic growth; however, conclusions have been varied. There are studies which have found a positive relationship between economic growth and capital account liberalization Arteta, Eichengreen and Wyplosz (2001); Bekaert, Harvey and Lundblad (2001); Glick, Guo, & Hutchison, (2004); Edwards (2001). There are also studies which have found a negative relationship between capital account liberalization and growth (Ferreiro et al 2008; Aker and Aker 2009; Licchetta 2006; Milesi-Ferretti and Grilli 1995; Kaminsky and Reinhart's 1999). On the other hand there are studies which have concluded that there is no relation between the two variables (Alfaro, Chanda, kalemali-Ozcan, & Sayek 2004; Tang 2006; Rodrik 1998). The relationship between the two is inconclusive therefore.

## **SECTION 4: METHODOLOGY AND ESTIMATION**

The study will rely on the endogenous growth model. With the endogenous model, the long run growth rate is not determined separately from the model but is determined by the model itself. The advantage of the endogenous model is that it has the underlying assumption that there are non-decreasing returns based on the selected factor of production as highlighted by Seth & Varma,( 2009). This allows the study to predict that any long run growth changes

in South Africa under the period under review will be as a result of changes in capital flows. The model is a linear relationship between growth rate and the independent variables in the form:

$$Y = f(K, L) \dots \quad 4.1$$

Adapting the linear growth model to the study it will follow the set up for the basic benchmark growth regression, which was used by Epstein, (2005), whereby the study seeks to regress economic growth against capital flows and the country specific conditions, which will also include the financial sector development variables. The basic set up for the benchmark growth regression is in the form:

Where

Y represents GDP growth

CAL refers to the variable for capital flows

X represents a vector of control variables

The “two gap” theory explains the importance of the savings gap and the import gap in relation to economic growth. The vector of control variables will have to represent channels within the economy that will facilitate the effect of savings, and the effect of imports in influencing economic performance.

The empirical model is as follows:

# Estimation Techniques

The first step in our analysis is to test for stationarity of our variables. Gujarati (2003) suggest that a stationary stochastic process implies that the mean and variance are constant overtime, and the covariance between two periods depends only on the lag between the two time periods and not the actual time at which the covariance is computed. This implies therefore that a non-stationary time series will have a varying mean or varying variance or both. Using non stationary data may therefore result in spurious regressions. It is imperative therefore to analyse the time series properties of the data.

The statistical and time series properties of the data set were first carried out using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) to test for unit root. Mallik and Choudhry (2001) and Ahmed and Mortaza (2005) point out that the PP test can properly distinguish between stationary and non-stationary time series with a high degree of autocorrelation and presence of structural break.

The study will employ the Johansen cointegration approach to establish if there is a long-term relationship between the variables of interest. The Johansen approach is based on the vector autoregressive model and assumes all the variables are endogenous. The variance decomposition and impulse response will be constructed.

Data from 1994 to 2010 for the study was sourced from the South African Reserve Bank (SARB). The data for all variables (capital flows, private sector claims, human productivity, and trade balance) were all obtained from the online statistical query under the SARB website.

## SECTION 5: ECONOMETRIC PROCEDURE, RESULTS AND CONCLUSION

Time series properties of the data were carefully evaluated through the Augmented Dickey Fuller (ADF) and Phillip-Peron (PP) tests. All variables were regarded as non-stationary at their levels. The variables were tested for stationarity at first differences. The results indicated that all variables are stationary. The results confirmed therefore that differencing once was all that was required to bring these variables to stationarity at all levels of significance. This suggests that our variables are integrated of order one  $I(1)$ . Having established the existence of unit roots, cointegration tests were conducted.

The optimal lag order was determined empirically. Based on several criteria (AIC, SIC, FPE, LR and HQ), a lag order of 1, which produced a stable VECM, was selected.

The Johansen Cointegration test was conducted and the results are shown in table 5.1:

Date: 06/16/11 Time: 16:07

Sample (adjusted): 1975Q3 1994Q1

Included observations: 75 after adjustments

Trend assumption: Linear deterministic trend

Series: GDP FDI P\_I CLA PRO TRA

Lags interval (in first differences): 1 to 1

### Unrestricted Cointegration Rank Test (Trace)

| Hypothesized<br>No. of CE(s) | Eigenvalue | Trace<br>Statistic | 0.05<br>Critical Value | Prob.** |
|------------------------------|------------|--------------------|------------------------|---------|
| None *                       | 0.525797   | 159.1466           | 95.75366               | 0.0000  |
| At most 1 *                  | 0.470258   | 103.1875           | 69.81889               | 0.0000  |
| At most 2 *                  | 0.339355   | 55.53507           | 47.85613               | 0.0081  |
| At most 3                    | 0.194576   | 24.44469           | 29.79707               | 0.1823  |
| At most 4                    | 0.084461   | 8.215740           | 15.49471               | 0.4426  |
| At most 5                    | 0.021076   | 1.597580           | 3.841466               | 0.2062  |

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

### Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized<br>No. of CE(s) | Eigenvalue | Max-Eigen<br>Statistic | 0.05<br>Critical Value | Prob.** |
|------------------------------|------------|------------------------|------------------------|---------|
| None *                       | 0.525797   | 55.95904               | 40.07757               | 0.0004  |
| At most 1 *                  | 0.470258   | 47.65245               | 33.87687               | 0.0006  |
| At most 2 *                  | 0.339355   | 31.09038               | 27.58434               | 0.0170  |
| At most 3                    | 0.194576   | 16.22895               | 21.13162               | 0.2118  |
| At most 4                    | 0.084461   | 6.618160               | 14.26460               | 0.5352  |
| At most 5                    | 0.021076   | 1.597580               | 3.841466               | 0.2062  |

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Author's Computation using Eviews 7

As indicated in table 5.1, the Johansen cointegration test proved evidence of three cointegrating vectors. Based on the results of cointegration, the VECM was specified which provided the parameter estimates for the long-run relationship.

Normalized cointegrating coefficients (standard error in parentheses)

| GDP      | FDI                   | P_I                   | CLA                   | PRO                    | TRA                   |
|----------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| 1.000000 | 25.15116<br>(3.29059) | 17.57894<br>(2.44730) | 0.087982<br>(0.22508) | -19234.80<br>(5508.63) | 3.154974<br>(1.53169) |

The normalised equation indicates that FDI, P\_I, PRO and TRA are significant in the model. To get the t-statistic the coefficients are divided by the standard error term for each. FDI, P\_I and TRA are expected to have a positive relationship with GDP.

The empirical results indicates that an increase in FDI, P\_I AND TRA result in an increase in GDP. This is in line with economic expectations. PRO has a negative coefficient which indicate that there is a negative relationship between PRO and GDP. A drop in PRO will have a positive impact on GDP growth. This relationship does not have an economic backing. The general view is that the relationship is positively correlated.

CLA which represent the financial sector development is insignificant even though it has a positive coefficient. CLA is considered insignificant in the model as shown by the results. This result is consistent with Arteta, Eichengreen, & Wyplosz, (2001). The authors made an interesting observation stating that financial depth does not play a role in aiding the economy to benefit from capital account liberalisation. However, the authors also note that capital account liberalisation will aid economic growth provided the macroeconomic imbalances are removed and is the sequencing of trade and financial liberalisation are done in the right order. This is in consonance with Bekaert, Harvey and Lundblad (2001) who noted that most countries had higher economic growth rates five years after liberalisation than the five years prior to liberalisation. The authors concluded that approximately 40% of the increase in economic growth is attributed to liberalisation.

## 6. CONCLUSION

The study set out to analyse the impact of capital account liberalization on economic growth in South Africa. After an analysis of literature an endogenous model was adopted to analyse the relationship between the variables of interest. Empirical results indicated that all measures of capital account liberalization are significant and carries the correct sign. In conclusion, the study does find that opening the capital account in the case of South Africa did increase capital flows and also increase the grow rate of economic production. The effect of intermediation was minimal as it became less pronounced after liberalisation.

Coupled with the increase in the economic growth rate the economy also became more susceptible to an economic crisis. This means that the benefit of opening the capital account can easily be nullified by a financial crisis. This is in line with the view taken by economist against the neo classical view. Economists against the neo classical view put forward the view that the short term capital flows are volatile and subject to abrupt changes and thus have negative effects on the economy. Therefore as in Gray and Dilyard (2005) capital account liberalisation dependent on short term inflows will result in the possibility of a financial crisis particularly in developing countries.

## 7. REFERENCES

Ahmed S, Mortaza G (2005). Inflation and Economic Growth in Bangladesh, 1981- 2005, *Policy Analysis Unit (PAU) Working Paper 0604*

- AKER, S., & AKER, A. H. (2009). *Capital Account Liberalization and the Exchange Rate Regimes in Developing Countries*. Retrieved 07 20, 2010, from ebscohost: <http://web.ebscohost.com>
- Alfaro, I., Chanda, A., kalemali-Ozcan, s., & Sayek, S. (2004). *FDI spillovers, Financial markets and economic growth wp/03/186*. Retrieved 07 29, 2010, from IMF: <http://www.imf.org/external/pubs/ft/wp/2003/wp03186.pdf>
- Arteta, C., Eichengreen, B., & Wyplosz, C. (2001, 08). *When Does Capital Account Liberalization Help More than It Hurts? :working paper 8414*. Retrieved 11 20, 2010, from NBER: <http://www.nber.org/papers/w8414>
- Bacchetta, P. (1992). Liberalization of Capital Movements and of the Domestic Financial System. *Economica, New Series, Vol. 59, No. 236*, 465-474.
- Bekaert, G., C.Harvey, & Lundblad, C. (2001, 04). *does financial liberalization spur growth? working paper 8245*. Retrieved 11 22, 2010, from Nber: <http://www.nber.org/w8245>
- Du Plessis, S., & SMIT, B. (2007, 03). *South Africa's growth revival after 1994:Stellenbosch Economic Working Papers: 01/06\*. Retrieved 10 21, 2010, from ideas: <http://ideas.repec.org/p/sza/wpaper/wpapers15.html>
- Dulbecco, P. H., Courbis, B., & Allegret, J. P. (2003). Financial Liberalization and Stability of the Financial System in Emerging Markets: The. *Review of International Political Economy, Vol. 10, No. 1*, 73-92.
- Edwards, S. (1984, 12). *The order of liberalization of the balance of payments: working paper number 710*. Retrieved 10 16, 2010, from world bank: <http://www-wds.worldbank.org>
- Edwards, S. (2001, 01). *capital mobility and economic performance, Are emerging economies different?: working paper 8076*. Retrieved 11 20, 2010, from nber: [http://www.cedeplar.ufmg.br/economia/disciplinas/ecn933a/crocco/Liberalizacao\\_regulamentacao\\_contas\\_capitais/EDWAR~18.PDF](http://www.cedeplar.ufmg.br/economia/disciplinas/ecn933a/crocco/Liberalizacao_regulamentacao_contas_capitais/EDWAR~18.PDF)
- Eichengreen, J. B. (2004). *Capital flows and crises*. MIT press paperback.
- Epstein, G. A. (2005). *Capital flight and capital controls in developing countries*. Massachusetts: Edward Elgar publishing Ltd.
- Fedderke, J., & Simkins, C. (2009, 07 14). *Economic Growth in South Africa since the late nineteenth century: working paper number 138*. Retrieved 10 25, 2010, from econrsa: [http://www.econrsa.org/papers/w\\_papers/wp138.pdf](http://www.econrsa.org/papers/w_papers/wp138.pdf)
- Ferreiro, J., Correa, E., & Gomez, C. (2008). Has Capital Account Liberalization in Latin American Countries Led to Higher and More Stable Capital Inflows? *International Journal of Political Economy, vol. 37, no. 4*, , 31-63.
- Fischer, S. (1997). *Capital Account Liberalization and the Role of the IMF*. Retrieved April 20, 2010, from <http://www.piie.com/fischer/pdf/Fischer141.pdf>

Glick, R., Guo, X., & Hutchison, M. (2004, 06). *Currency Crises, Capital Account Liberalization, and Selection Bias*. Retrieved 11 19, 2010, from  
[http://www.ny.frb.org/research/conference/2004/fin\\_global/hutchison.pdf](http://www.ny.frb.org/research/conference/2004/fin_global/hutchison.pdf)

Gray, P., & Dilyard, J. R. (2005). *Globalization and financial instability*. Cheltenham: Edward Elgar publishing limited.

Grové, C. (n.d.). Retrieved 10 16, 2010, from <http://www.anwaltamkap.com>

Gruben, W. C., & McLeod, D. (2001). *Capital Account Liberalization and Disinflation in the 1990s*. Retrieved 01 07, 2011, from NBER: <http://ideas.repec.org/p/fip/feddc1/0101.html>

Hackland, B. (1980, 10). *The Economic and Political Context of the Growth of the Progressive Federal Party in South Africa, 1959-1978*. Retrieved 10 25, 2010, from jstor:  
<http://www.jstor.org/stable/pdfplus/2636783.pdf?acceptTC=true>

Henry, P. (2007). *Capital Account Liberalization: Theory, Evidence, and Speculation* .: Retrieved 11 08, 2010, from <https://faculty-gsb.stanford.edu/henry/Homepage/PDF/Henry-Liberalization-Oct-07.pdf>

Henshaw, P. J. (1996). *British, South Africa and the Sterling Area: Gold Production, Capital Investment and*. Retrieved 08 30, 2010, from jstor:  
<http://www.jstor.org/stable/pdfplus/2639946.pdf?acceptTC=true>

Kaminsky, G. L., & Reinhart, C. M. (1999). *AssociationThe Twin Crises: The Causes of Banking and Balance-Of-Payments Problems :The American Economic Review, Vol. 89, No. 3 (Jun., 1999), pp. 473-500*. Retrieved 10 29, 2010, from jstor: <http://www.jstor.org/stable/pdfplus/117029.pdf>

Licchetta, M. (2006). *Macroeconomic effects of capital account liberalization in emerging countries*. Retrieved 11 20, 2010, from University of Roma:  
[http://dep.eco.uniroma1.it/phd/wp/01200604\\_licchetta\\_macroeconomicseffects.pdf](http://dep.eco.uniroma1.it/phd/wp/01200604_licchetta_macroeconomicseffects.pdf)

Mallik G., Chowdhury A. (2001). Inflation and Economic Growth: Evidence from Four South Asian Countries, *Asia-Pacific Development Journal*, 8, 1, June, 2001.

McKinnon, R. (1993). *The order of economic liberalization*. Baltimore maryland: John Hopkins university press.

Milesi-Ferretti, G. M., & Grilli, V. (1995). *Economic Effects and Structural Determinants of Capital Controls: International Monetary Fund, Vol. 42, No. 3 pp. 517-551*. Retrieved 11 20, 2010, from jstor:  
<http://www.jstor.org/stable/3867531?origin=JSTOR-pdf>

Rajan, R. G., & Prasad, E. S. (2005). Controlled Capital Account Liberalization: A Proposal. *IMF Policy Discussion Paper PDP/05/xx*.

Rodrik, D. (1998). *WHO NEEDS CAPITAL-ACCOUNT CONVERTIBILITY?* Retrieved 11 15, 2010, from  
<http://people.umass.edu/econ721/rodrik.98.princetonessay.PDF>

Schulze ,H. (n.d.). *EXCHANGE CONTROL: South Africa further relaxes exchange controls*. Retrieved 08 30, 2010, from off shore investments: <http://www.offshoreinvestment.com/residency/pdfs/sa4.pdf>

Seth, A., & Varma, S. (2009). *Capital Account Convertibility and Growth: A Developing Country Perspective*. Retrieved 07 21, 2010, from Ebscohost: <http://web.ebscohost.com>

Shirakawa, M. (2009). Financial System and Monetary Policy Implementation. Tokyo.

Singh, A. (2003). Capital Account Liberalisation, free long term capital flows, financial crisis and economic development. *Eastern economic journal Vol 29 No 2 pp191-216*

Tang, D. (2006). *The effect of financial development on economic growth: evidence from the APEC countries 1981–2000*. Retrieved 7 21, 2010, from ebscohost: <http://web.ebscohost.com>

Yew, c. (2008). *Capital account liberalization*. Norderstedt. Books on demand GmbH

# **Global Crises – Local Impacts: Study of Different Approaches of Industrial Companies in the Czech Republic to Tackling the Global Negative Economic Situation**

Ondřej Konečný<sup>1</sup>

Ondřej Šerý<sup>2</sup>

## **Abstract:**

The negative effects of the global economic crisis (especially in 2008-2010) were namely observed in the field of industry. Industrial companies had to face a decline in orders and demand for their products. For many companies, therefore, finding the most appropriate combination of anti-crisis measures appeared to be a key task whose realization subsequently reflected in the overall socio-economic situation in the territory. The authors of the text use as an example the South Moravian (Czech Republic) companies of electrotechnical and mechanical and vehicle manufacturing industries to demonstrate that strategic decisions of top management include a wide spectrum of measures adapted to the need to effectively overcome the economic crisis and take into account national, regional and local specificities of the territory in which the companies operate - with different impacts on local economy and labour market.

## **Key words:**

Global Economic Crisis, the Czech Republic, Electrotechnical Industry, Mechanical and Vehicle Manufacturing Industry, Companies, Anti-Crisis Measures

## **Introduction**

Current industrial companies are significantly globally interconnected, and even if some of them do not operate outside the boundaries of one state, the current process of economic globalization has reached them. Since 1960s, especially multinational companies have gradually become its bearers, as their primary characteristic is an ability to operate outside (or beyond) of nation-states frame (many such companies dispose nowadays of even greater economic importance than some countries). Aoyama, Murphy and Hanson (2011, p. 122) directly state that „economic globalization is being driven by the geographical dispersal of markets, the functional integration of production activities, and the increasing interconnections and interdependencies between people and places in the world economy“. Giddens (2003) indicates the volume and speed of global links in the 21st century as unprecedented, creating entirely new opportunities but also threats.

And one of these threats significantly manifested itself several years ago in the world economy, which was hit by global economic crisis (the largest since the Great Depression in 1930s). Its causes can be found in the mortgage crisis in the U.S. between 2007 and 2008, which eventually led to global financial crisis in autumn 2008. It gradually turned into an economic recession which also rapidly spread worldwide and caused a significant decline in economic performance - especially in manufacturing industry. Therefore, millions of people

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lost their jobs, the huge number of companies went bankrupt and the remaining firms faced significant problems. It seemed that the world economy has begun to stabilize and return to standard development during the years 2010 and 2011, but large government budget deficits raise fears of another wave of global economic crisis. Disproportionately over-indebted economies, whose debts exceed even more than half of annual GDP, are represented especially by economically developed countries where there are located headquarters of most multinational companies dominating the current globalized economy.

Many multinational companies control the global production network within which production even of relatively simple products is currently organized and many companies are involved in these networks. The asymmetry in the management and decision making is described within the network, when the dominant firms (flagships) control resources and decision-making power in the network (Ernst 2003) - decisions about the strategic direction of companies branch and anti-crisis measures is therefore often dealt outside the region in which the branch is located (Massey 1984). Therefore, this approach pays attention to the distribution of power within the chain of companies involved in the production of a product (from research to marketing and distribution) and the process of value creation and transfer (Henderson et al. 2002).

It is generally recognized that even within the same industry, firms differ in terms of their strategic priorities (e.g. selective attitudes of companies to product, process and functional upgrading - see Pavlínek and Ženka, 2011), attitudes to the workforce or the nature of relationships with suppliers (Henderson et al., 2002). Markusen (1985 in Blažek and Uhlíř, 2002) mentioned the crucial importance of different behavioural strategies of corporations in various stages of product cycles and prosperity of the regions deriving from it.

## Method

This paper follows and complements first studies of the authors (Konečný and Šerý, 2011) in this field and employs the same methodological framework (different target group of readers is, however, expected) and utilizes the results obtained therein. The authors are concerned with different effects of the global economic crisis and the different ways of tackling it using as an example electrotechnical and mechanical and vehicle manufacturing companies in the South Moravian region (SMR) of the Czech Republic (Europe). First part of the paper uses some of the findings of the "*Employment Surveys*" - an annual survey of economic subjects of the SMR organized since 2003 by the Regional Office of the SMR. The surveys seek to obtain detailed information about the structure of employment and its annual and predicated development. Despite its voluntary nature, surveys involve a relatively representative participation of companies and numbers of employees. Only about 20% of the South Moravian companies with more than 20 employees has not been involved in the surveys and the overall share of employees found out by surveys exceeded at least 2/5 (in manufacturing industry even ½).

Development in individual industries according to number of employees was quantified on the basis of the surveys findings, and then electrotechnical (23 firms) and mechanical and vehicle manufacturing (23 firms) industries (firms for which it was possible to obtain data of the number of employees at least for the years 2007-2011) were selected for a more detailed study at the company level. It was based on an analysis of the information contained in final (annual) reports of companies and their web presentations, newspapers and thesis one of the authors (Šerý, 2010). The narrowing of analysis only to the manufacturing industry was purposeful, as the global economic crisis manifested first (and very strongly) at these industries and rather secondarily transferred into the service sector.

## Selected characteristics of the South Moravian Region

### Labour market during the crisis

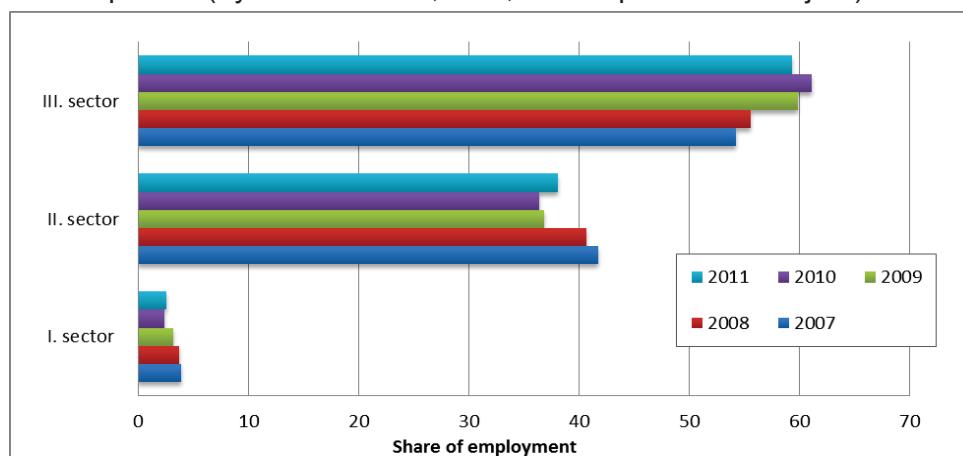
Labour market of the SMR is one of the more problematic among regions of the Czech Republic (CR), the unemployment rate as well as the numbers of applicants per vacancy, exceed the average of the Czech Republic in the long term. While at the end of 2007, the South Moravian labour market exhibited positive trends, first impacts of the global economic crisis already started to appear in 2008, such as a rapid decrease in the number of vacancies by 40%. Therefore, the year 2007 was chosen as the beginning of the studied period in the present paper.

The economic recession reflected more significantly during 2009. The dramatic annual increase of job seekers by more than 50% has not been recorded since the beginning of the transformation of the Czech economy and the possibility to find a job significantly narrowed due to the low number of vacancy. The unemployment rate even exceeded 10% in the SMR. In the following year, characteristics of the labour market even worsened, but the tempo clearly slowed. The year 2011 finally witnessed the drop of the unemployment rate once again below 10 percent in the SMR, but the number of vacancies still remains very low. Job opportunities however strongly differentiated - while unemployment rate did not rise above 10% during the crisis in the districts Brno-City and Brno-Country, in Znojmo and Hodonín reached 17% with more than 45 job seekers per vacancy (in Brno-City only 13).

### Manufacturing industry and employment of the South Moravian Region

Secondary sector for long ensured approx. 2/5 jobs in studied region, but especially in the last two years, this sector recorded an important decrease as one of the negative impacts of the global economic crisis. Constant increase of jobs has taken place in the tertiary sector in the region over the past two decades; it accounted for 61% of all jobs in the last quarter of 2011, thus exceeding the level of the Czech Republic. Apart from traditional manufacturing and electro technical industries (case studies in this paper), branches focusing on computer technology, telecommunications, software development and other hi-tech branches of the service sector develop dynamically in the region currently.

The majority of employees in companies operating in the monitored electrotechnical and mechanical and vehicle manufacturing industries is concentrated in Brno - other centres are important secondarily. Although giant electrotechnical or mechanical companies with thousands of employees might not be found as before 1989 (e.g. Zetor, Zbrojovka Brno or Královopolská engineering plant), there are also several companies now employing more than one thousand person (Tyco Electronics, ABB, or European Data Project).

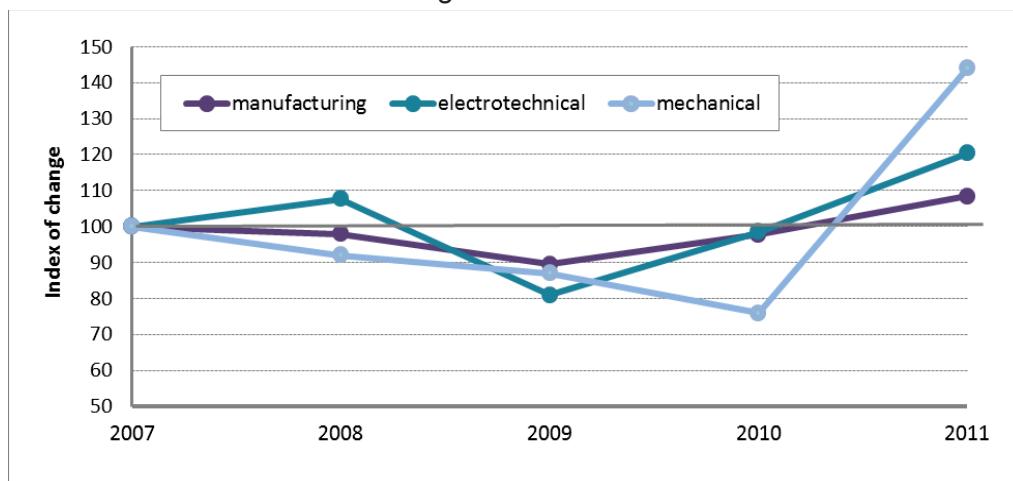


**Pic. 1 Share of employment in sectors in the South Moravian Region in the period 2007 - 2011 according to the Employment Surveys**

Employment Surveys show that the importance of electrotechnical and mechanical and vehicle manufacturing industries, as well as the manufacturing industry generally, decreased

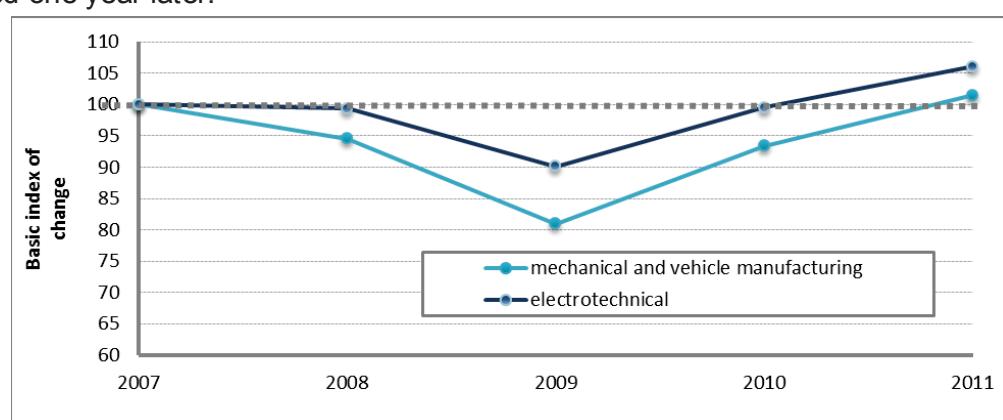
in the time of the crisis (2007-2010), as while employees in the mechanical industry still represented 7.5% of all workers captured by the survey (6.6% electrotechnical) in 2007, by the end of 2010, their number restricted to only 4.5% and was already lower than in the electrotechnical industry (5.6%). The decline intensity of this industry was comparable to the overall tempo of decrease of the manufacturing industry, but still the decline of mechanical and vehicle manufacturing industry was more rapid. In 2011, the situation reversed, and manufacturing industry as well as the secondary sector increased their impact - at the expense of services where the crisis developed later.

Mechanical and vehicle manufacturing industries reached the same level of impact as in the pre-crisis period and the electrotechnical industry even expanded. Gradual increase and finally even significant recovery in 2011 were reported after a period of decline in employment in the monitored manufacturing industries until 2009.



**Pic. 2 The annual change in the number of employed in selected industries in the South Moravian Region in the period 2007 - 2011 according to the Employment Surveys**

In 2008, no significant dismissal of employees took place in the case of the monitored companies, but at the end of 2009 the number of employees fell by almost 1/5 in the mechanical firms and by 10% in the electrotechnical companies (the dismissal of about one thousand person in each industry). However, this negative trend resulting in the release of workers was terminated and the monitored companies in electrotechnical industry already employed the same number of workers as they did prior to the global economic crisis in 2010. In the case of the mechanical and vehicle manufacturing industries, this trend manifested one year later.



**Pic. 3 Basic index of change in the number of employees in selected companies in the South Moravia Region in the period 2007 - 2011 according to the Employment Surveys**

This identified trend is also evident in the attitudes of individual companies towards dismissing or hiring of new employees, as while firms dismissing their workers prevailed in the period 2007 – 2009, a reversal was observed in the last year. In the last two years (2010 and 2011), on the contrary, turnover was reported and companies that create new jobs or do not close existing jobs prevailed.

**Tab. 1 Share of studied mechanical and vehicle manufacturing companies and electrotechnical companies in the South Moravian Region in the period 2007-2011 according changes of employees number (Employment Surveys)**

| Employment changes | Mechanical and vehicle manufacturing |     |      | Electrotechnical |      |      |
|--------------------|--------------------------------------|-----|------|------------------|------|------|
|                    | +                                    | 0   | -    | +                | 0    | -    |
| 2007-2009          | 21,7                                 | 4,3 | 73,9 | 43,5             | 0,0  | 56,5 |
| 2009-2010          | 78,3                                 | 4,3 | 17,4 | 65,2             | 13,0 | 21,7 |
| 2010-2011          | 69,6                                 | 8,7 | 21,7 | 56,5             | 8,7  | 34,8 |

### Different Ways of Industrial Companies to Coping with global economic crisis - individual attitudes

The economic crisis had affected more or less all companies in the SMR (although it differed in intensity, duration and specific factors) - the decline of orders was significant which then reflected in lower sales and profits. Manufacturer of power plant boilers Alstom Power Brno recorded drop of orders by 38% in the fiscal year 2009, which ultimately led this firm to the decision to close its plant in Brno. Volume of orders of the engineering firm Antreg Vyškov dropped to the 2004 level and significant declines in orders were reported also from EDP Rousínov, the metallurgy and engineering company Kovolit Modřice, Fritzmeier Vyškov or the electrical company Metra Blansko.

Companies were forced to respond to these worsening conditions on the demand side in various ways which they considered effective to reduce the impact of the crisis to a minimum. Some companies decided to limit the standard working week, usually to four days, for example Kovolit Modřice already used these part-time jobs in three months. The manufacturer of sewing machines Minerva Boskovice implemented the work week with free Fridays for 65% of the average wage. From February to October 2009, also the manufacturer Zetor Tractors Brno applied the four-day work week. Employees of Zetor received 80% of salary and only 70% of salary after one month for free Fridays.

Some firms reacted even more vigorously as they decided to shut down production. Adast Adamov – a company engaged in the production of components for printing machines – proceeded to shutting down production until early 2009; this measure however did not take effect, so it resulted in liquidation in April 2009. Not only companies linked with automotive industry, such as the IAC Group Hodonín and Kovolit Modřice but also Metra Blansko and Minerva Boskovice experienced shutdowns in the late 2008 and 2009.

Some employers also introduced an offer of the voluntary termination of employment agreement for which higher compensation was paid than prescribed by law. Unionists of Alstom Power were probably able to provide the highest compensations in the CR for the redundant employees, amounting to 16.6 average wages per one employee.

Little or no wage increasing and limiting employee benefits during collective bargaining represents yet another form of response. For example, unionists of ČKD Blansko Holding demanded three per cent wage increases at the end of 2009. The company however proposed to either meet its demands, which would mean a partial dismissal, or to agree with conservation of wage and number of employees. Eventually, wages increase by one percent was negotiated.

Some companies took advantage of the "Educate Yourself" project, an initiative of the Ministry of Labour and Social Affairs of the CR. Firms could send their staff to training and educational courses, thus not having to make them redundant (employees increased their qualification and were not present in the workplace where no work was there for most of them anyway). Fritzmeier Vyškov and Otis Břeclav can be named from the South Moravian companies.

Finally, companies decided to suspend or revoke various investment projects, which included expansion of production, construction of new buildings and halls or introduction of new models. Novibra Boskovice put into operation a new production hall at the beginning of 2008. However, due to the crisis the hall was not used fully as originally planned, with only a limited number of work shifts. The Zetor Tractors had to postpone the start of production of new models of Forterra Power and Maxterra due to the crisis and the lack of funds for investment.

Many companies (see Picture 2) had to respond to global economic crises by dismissal of employees. First, agency workers (often foreigners) were made redundant, followed by employees with fixed-term contract and finally the regular staff, as Kislingerová (2009, 167) states: "*termination of employment with long-term employees is a measure which the managements try to avoid as long as possible*". Thus, employees who worked in companies for a shorter time, who were single or for whom loss of employment did not represent a social burden had to leave in the first waves of dismissals. Celestica in Ráječko first made redundant more than one hundred temporary and agency workers, but later decided to sell its plant to the competitive company Tyco Safety Products Kuřim. In the company Apos Auto Blansko, dismissals significantly affected members of the Mongolian community (the largest in the CR). Kovolit Modřice dismissed preferably those employees whose performances were evaluated as lower by managers. "Forced" retirement of older workers into early retirement was another often used method.

Some companies, despite these negative effects, managed to improve their performance by the late 2011 so that they extended their production and created new jobs, such as the Mikulov branch of Austrian cable manufacturer Gebauer and Griller Kabeltechnik, American ADC Czech Republic, Ltd. providing comprehensive information technology solutions, a Great Britain manufacturer of motion control technologies for fluid flow and management IMI International Norgren CZ, the USA microscope manufacturer FEI Czech Republic located in Brno or the similarly focused Czech company Tescan Brno, which acquired a majority share of Tuscan USA inc. in 2010 and increased sales by 80% in 2011. Except the Czech company Tescan, all listed companies are joined with large multinational companies embedded in global production networks.

## Conclusions

The financial crisis brought about in the U.S. in 2008, confirmed a significant global interconnectedness of national economies and evolving into world economic crisis, it had negative impact on individual states and regions - the specific influences of the crisis on economic performance and the labour market varied in their intensity due to the local specificities of the territory (industry specialization, degree of openness of the economy, regional policy, etc.). These differences were not limited only to the level of regions, but also to individual companies which were forced to choose their own strategy to cope with the unfavourable consequences of declining sales due to weakening demand of customers. Managements of companies deciding about anti-crisis measures were forced to react to global economic development, but in their final decision, they took into account national, regional and local specificities of the territory in which the companies operate.

Study of reactions of electrotechnical and mechanical and vehicle manufacturing industry companies operating in the South Moravian Region showed the different individual strategic decisions of top managements adapted to the need of effectively bridging the economic crisis and low consumer interest. One of the most documented effects of the crisis

(also in the set of the studied companies) – dismissals - represented only one of many other reactions of companies; these can be broadly classified into several groups, although the real solutions applied by the firms significantly differed in their scale, targeting and/or duration:

- reducing of standard working week
- shutdown of production
- liquidation of the company
- dismissals
- motivation for voluntary termination of employment
- restrictions of employee benefits and increase of wages
- use of educational programs organized by public administration
- restrictions of investment activities

Even at the beginning of the crisis, there were many companies whose management was confident about its ability to use the crisis to significantly strengthen the company's market position and profitability (Kislangerová, 2009). Suitable measures taken by some companies not only met the request to bridge the global economic crisis with the minimum of negative consequences, but in some cases, companies actually became "healthier", more competitive and even increased the number of employees and importance of the firm in the market. Especially, we can point out the companies mainly focused on higher added value products such as the FEI or Tescan located in Brno.

## Literature

- Aoyama, Y., Murphy, J. T., and Hanson, S. (2011). *Key concepts in economic geography*. London: Sage.
- Blažek, J. and Uhlíř, D. (2002). *Teorie regionálního rozvoje: nástin, kritika, klasifikace*. Praha: Karolinum.
- Ernst, D. (2002). Global Production Networks and the Changing Geography of Innovation Systems. Implications for Developing Countries. *Journal of the Economics of Innovation and New Technologies*, 11(6), 497 -523.
- Giddens, A. (2003). *Runaway World: How Globalization is Reshaping Our Lives*. New York: Routledge.
- Henderson, J., Dicken, P., Hess, P. M., Coe, N. and Yeung, H., W. (2001). Global production networks and the analysis of economic development. *Review of International Political Economy*, 9(3), 436-464.
- Kislangerová, E. (2010). *Podnik v čase krize*. Praha: Grada.
- KÚ JMK. (2007 – 2011). *Průzkum zaměstnanosti v Jihomoravském kraji*. Brno: KÚ JMK
- Konečný, O., Šerý, O. (2011). The influence of the global economic crisis and local context on decision-making of industrial companies. In Mácha, P., Drobík, T. (eds.): *The Scale of Globalization - Think Globally, Act Locally, Change Individually in the 21st Century* (pp. 150-156). Ostrava: OSU.
- Massey, D., B. (1984). *Spatial divisions of labour: social structures and the geography of production*. London: Macmillan.
- Ministry of Labour and Social Affairs (2011). "Employement". Retrieved March 31, 2013, from <http://portal.mpsv.cz/sz>
- Pavlínek, P. and Ženka, J. (2011). Upgrading in the automotive industry: Firm-level evidence from Central Europe. *Journal of Economic Geography*, 11(3), 559-586.
- Šerý, O. (2010). *Český průmysl po roce 1989 (s důrazem na období globální ekonomické krize)*. Thesis, Masaryk University.

# The value of agricultural landscape in Slovakia

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Jan Pokrivicak<sup>3</sup>

## Abstract:

The article deals with the landscape as one of the key public goods produced by agriculture. The vast majority of our territory is covered by agricultural landscape and forests. The emphasis is on agricultural landscape especially small farms and large farms and their inevitable role in determining both the health of rural economies and the rural landscape. The absence of a market for landscape implies that there is no immediately observable price. The objective for economic valuation in this context is to provide the relevant willingness to pay for landscape. The author estimated the willingness to pay of Slovak citizens for both small farms and large farms in Slovakia.

## Key words:

Landscape, agricultural landscape, small farms, large farms, willingness to pay

## Introduction

Landscape is one of the key public goods produced by agriculture (Ciaian, P., Gomez y Paloma, S., 2011). The vast majority of our territory is covered by agricultural landscape and forests. Agricultural landscape is a complex good. The European Landscape Convention defines landscape as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*" (Council of Europe, 2000).

The European Landscape Convention stimulates its member states to identify their own landscapes that cover their territory, to analyse significant features that characterise them. Moreover the member states ought to assess already identified landscapes, taking into account the particular values assigned to them by the interested parties and the population concerned (Council of Europe, 2000). Landscape is one of the most commonly cited elements of the multifunctional characteristics of the agricultural sector (Cahill, 2001).

The emphasis is on agricultural landscape especially small and large farms and their inevitable role in determining both the health of rural economies and the rural landscape. The absence of a market for landscape implies that there is no immediately observable price. The objective for economic valuation in this context is to provide the relevant willingness to pay for landscape. The author estimated the willingness to pay of Slovak citizens for small and large farms in Slovakia.

The story of valuing landscape goes back to the 1960s, when various numerical methods of landscape evaluation were proposed, in response to the perceived need to incorporate aesthetic factors more systematically in planning and decision making (Price, 1994). Based on former valuation studies, the non-market value of the agricultural landscape varies notably according to the geography of the case study area and the number and type of landscape attributes. For example, Rosenberger and Walsh (1997) suggested a value of \$121/household/year to protect open space agriculture. Howley et al. (2010) and Van Den Berg and Koole (2006) present that the place of residence has also been found to have a significant impact on landscape preferences.

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## Methods

The data were collected via a questionnaire survey. The target groups were all citizens from Slovakia, minimum age of 18. The time period of the questionnaire survey includes period from May 2012 to November 2012. To allow quantification of the potential difference between use and non-use value of landscape, both urban and rural respondents were included in the survey with approximately equal proportions. The participants to the interview conducted in the city of Nitra and in the near villages were selected randomly. Each interview started with an introduction explaining the purpose of the research to the respondent and a briefing on the questions to avoid interpretation problems.

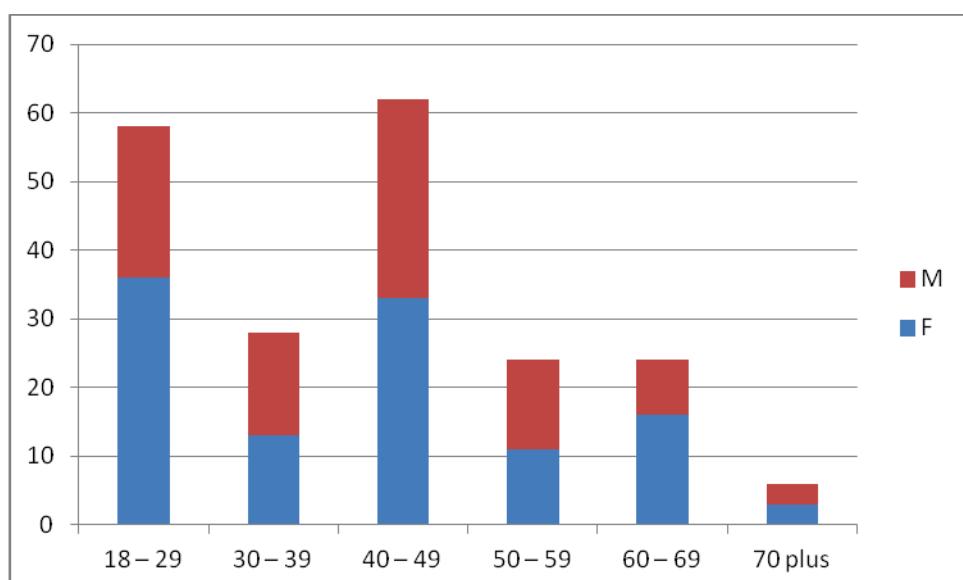
The aim is to assess the agricultural land that includes the following elements:

- the scenic value of agricultural land for respondents
- preservation of agricultural land for future generations.

## Discussion

Agriculture in Europe is not only responsible for the supply of food and raw materials. Agricultural land in Europe presents about 40 per cent of the land area. Consequently it has a powerful influence on the state of the rural environment and the opportunities for its enjoyment (Baldock, D., Hart, K., Scheele, M. 2011). It plays a key role in rural economies, in the management of natural resources and services and in preserving biodiversity and landscapes (Loudjani, P. Devos, W. 2012). Rural landscape is now valued for its cultural and aesthetic qualities, as well as the amenities it offers (Strano, A., Hudson, T., Neal A. et al 2011). Rural areas cover 90 % of the EU territory, of which more than half is farmed (Loudjani, P. Devos, W. 2012).

Total number of all respondents was 202. The respondents from both city and villages as their residence were 90 males and 112 females. 100 respondents were from the urban areas and 102 respondents live in rural areas. The age of respondents is in the picture 1. The majority of respondents were from 40 to 49 years old represented by 62 respondents, 29 males and 33 females. The second largest group were the respondents aged between 18 to 29 years, out of it 36 females and 22 males. The third largest group is represented by the respondents between 30-39 years old, 15 males, and 13 females.



*Pic. 1 The age of respondents*

The largest group of the respondents were respondents with secondary education, total amount of 89 individuals, both from cities and villages. Majority of the respondents have net monthly income between 300 € to 499 € per month. The second most frequent net income of respondents in the city of Nitra and surrounding villages is from 500 € to 699 € per month.

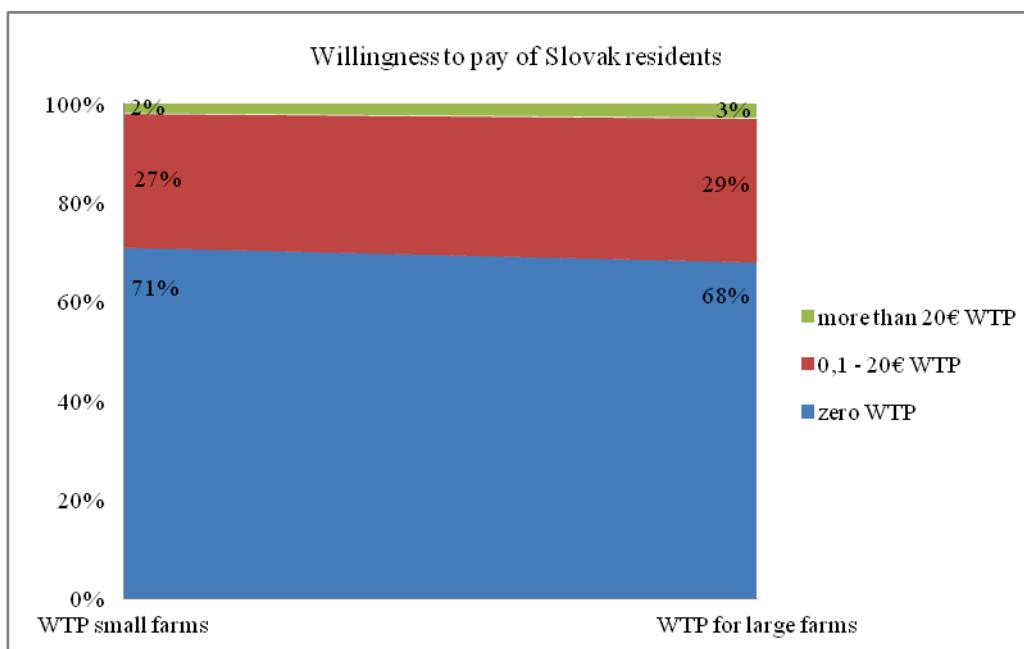
As Martins, C., Tosstorff, G. (2011) indicate, the size of each farm is always relative to the distribution of each country's UAA among the holdings. In Slovakia, the larger farms are all above 1000 ha. Totally 135 respondents (67 %) out of 202 are supportive for preserving the current agricultural landscape under the assumption that there would be no added costs.

However, if the support is associated with a payment of at least 1 euro per month, the group of respondents willing to participate in the payment for the landscape decreased to 32 % of total respondents, roughly split in half between urban and rural respondents. According to the survey results, 64 respondents attributed to current agricultural landscape value ranging from 30 cents to 50 euro. Only 59 respondents expressed value between 20 cents and 80 euro a month as the maximum monthly amount that they would be willing to pay for keeping of agricultural land by small family farms.

The average WTP for large farms is 26,04 €/person/year: 68 percent of respondents had zero WTP, 29 percent had WTP between 0.1 and 20 €/person/year and 2 percent had WTP higher than 20 €/person/year (Picture 2).

The role of EU farming sector is not only to produce food but also to guarantee the survival of the countryside as a place to live, work and visit. Therefore we aimed our research at the adult Slovak citizens coming both from urban areas (city of Nitra) as well as rural areas (surrounding villages). We estimate the willingness to pay for the small family farms. The willingness to pay is estimated for residents for whom the scenic landscape has use value or non-use value. As the 27 EU member states are different, it is not simple to define exactly what a small farm is. The physical size can serve us for imagination of a small farm. It is most commonly characterised by the number of hectares of UAA. By applying this criterion, small farms are often defined as those farms having less than 2 or less than 5 hectares of UAA (European Commission, 2011).

The average WTP for small farms is 22,2 €/person/year: 71 percent of respondents had zero WTP, 27 percent had WTP between 0.1 and 20 €/person/year and 3 percent had WTP higher than 20 €/person/year (Picture 2).



*Pic. 2 Willingness to pay of Slovak respondents*

The average amount of money that the respondents coming both from urban and rural areas are willing to pay for protection of the current agricultural landscape as well as for small farms is provided in the Table 1.

**Tab. 1 The average WTP for large farms and small farms in €/person/year**

|                                 | Urban respondents | Rural respondents | Total |
|---------------------------------|-------------------|-------------------|-------|
| WTP for large farms/person/year | 37,2              | 15,12             | 26,04 |
| WTP for small farms/person/year | 33,24             | 11,4              | 22,2  |

Source: own research

Regarding the place of residence of the respondents, there is difference between urban and rural respondents in the WTP as for small farms as for large farms. This partial survey was taken without regards to the income which might affect their attitudes and preferences.

When the respondents were asked about their willingness to pay a portion of these costs at the amount of at least 1 euro as a tax, 138 respondents out of 202 expressed their unwillingness to contribute. The main reasons provided by respondents are that the government should pay for it from current taxes (32 urban residents and 36 rural residents) or they refuse to pay higher taxes (28 urban residents, 14 rural residents).

## Conclusion

In many countries in the world agricultural landscapes create an important role in shaping the landscape mosaic (Medley et al., 1995, Härdter et all., 1997, McConnell et al., 2004). Large parts of the European landscapes have been in agricultural use for centuries (Meeus et al., 1990). Rural landscapes in Europe have significantly changed during the past decades. Economic valuation involves placing monetary value (price) on the agricultural landscape (Lankoski, J., 2003). Due to the absence of a market for landscape the citizens are not able immediately know the price of it. The objective for economic valuation is to provide the relevant willingness to pay for landscape. The amount of the money that the respondents are willing to pay for current agricultural landscapes in Slovakia varies. The reasons are different. The amounts of money vary according to the age of respondents, net income, and the place of residents.

The WTP is estimated on the basis of the survey data consisting of 202 observations. Respondents represent adult population from Nitra city out of which 49,5 percent are urban residents and 50,5 percent are rural residents. The majority of respondents are from 40 to 49 years old and the largest group of all respondents are individuals with secondary education. Overall 67 percent of respondents are supportive for preserving the agricultural landscape kept by large farms under the assumption that there would be no added costs. However, if the support is associated with a payment of at least 1 euro per month, the group of respondents willing to participate in the payment for the landscape decreased to 32 percent of total respondents, roughly split in half between urban and rural respondents. The average WTP for large farms is 26,04 €/person/year and the average WTP for small farms is 22,2 €/person/year.

## References

- Baldock, D., Hart, K., and Scheele, M., 2011. Public Goods and Public Intervention in Agriculture, European Network for Rural Development.  
[http://enrd.ec.europa.eu/search/en/websearch\\_home\\_en.cfm?queryText=Public+goods+and+public+intervention+in+agriculture](http://enrd.ec.europa.eu/search/en/websearch_home_en.cfm?queryText=Public+goods+and+public+intervention+in+agriculture)
- Cahill (2001). In Vanslembrouck, I. – Van Huylenbroeck, G. (2005). Landscape Amenities, Economic Assessment of Agricultural Landscapes. Dordrecht, The Netherlands: Springer.
- Ciaian, P., Gomez y Paloma, S. (2011). The Value of EU Agricultural Landscape.  
<http://ageconsearch.umn.edu/>
- European Landscape Convention (2000). Council of Europe.  
<http://conventions.coe.int/Treaty/en/Treaties/html/176.htm>
- Härdter et al. (1997). In Abdullah, S.A., Nakagoshi, N. (2008). Changes in agricultural landscape patterns and its spatial relationship with forestland in the State of Selangor, peninsular Malaysia. [www.sciencedirect.com](http://www.sciencedirect.com)
- Howley, P. et al. (2010). Landscape aesthetics: Assessing the general publics' preferences towards rural landscapes. [www.sciencedirect.com](http://www.sciencedirect.com)
- Lankoski, J. (2003). The Environmental Dimension of Multifunctionality: Economic Analysis and Implications for Policy Design. <http://orgprints.org/15749/1/met20.pdf>.
- Loudjani, P. Devos, W. 2012. Land Parcel Information Systems for implementing the CAP. *Supporting the CAP & land management*. <http://ies.jrc.ec.europa.eu/our-activities/support-for-member-states/lpis-iacs.html>
- Martins, C. – Tosstorff, G., 2011. Agriculture and Fisheries.  
[http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-SF-11-018/EN/KS-SF-11-018-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-11-018/EN/KS-SF-11-018-EN.PDF)
- McConnell et al. (2004). In Abdullah, S.A., Nakagoshi, N. (2008). Changes in agricultural landscape patterns and its spatial relationship with forestland in the State of Selangor, peninsular Malaysia. [www.sciencedirect.com](http://www.sciencedirect.com)
- Medley et al. (1995). In Abdullah, S.A., Nakagoshi, N. (2008). Changes in agricultural landscape patterns and its spatial relationship with forestland in the State of Selangor, peninsular Malaysia. [www.sciencedirect.com](http://www.sciencedirect.com)
- Meeus et al. (1990). Agricultural landscapes in Europe and their transformation. In Mander, Ü., Palang, H., Ihse, M. (2003). Development of European landscapes.  
[www.sciencedirect.com](http://www.sciencedirect.com)
- Price (1994). In Vanslembrouck, I. – Van Huylenbroeck, G. (2005). Landscape Amenities, Economic Assessment of Agricultural Landscapes. Dordrecht, The Netherlands: Springer.
- Rosenberger, Walsh (1997). In Grammatikopoulou, I., Pouta, E., Salmiovirta, M., Soini, K. (2012). Heterogeneous preferences for agricultural landscape improvements in southern Finland. [www.sciencedirect.com](http://www.sciencedirect.com).
- Strano, A., Hudson, T., Neal A. et al 2011. The provision of environmental public goods through agriculture. In EU Rural review, Public goods and rural development.  
[http://enrd.ec.europa.eu/app\\_templates/filedownload.cfm?id=26065290-F2AE-D77F-BDE0-4DF8472225BE](http://enrd.ec.europa.eu/app_templates/filedownload.cfm?id=26065290-F2AE-D77F-BDE0-4DF8472225BE)
- Van den Berg and Koole (2006). In Rogge, E., Nevens, F., Gulink, H. (2007). Perception of rural landscapes in Flanders: Looking beyond aesthetics. [www.sciencedirect.com](http://www.sciencedirect.com)

# **Grocery products shopping pattern by senior consumers**

**Dagmar Lesakova<sup>1</sup>**

## **Abstract:**

Seniors form potentially significant market segment for the near future. In spite of the size of senior's group, little attention was devoted to this segment in Slovakia and more research is needed to identify their shopping behaviour and to develop relevant marketing strategies. Considering the need for understanding this market segment, the objective of our paper is to identify the preference factors in the choice of shopping place by seniors and key factors influencing seniors decisions in grocery stores. To explore views and opinions of older people in relation to preferred place of shopping, a research sample of 126 senior participants was created. Decision factors and motives in 5 areas have been explored: price policy, product policy, staff policy, store characteristics, communication policy. Because the seniors are rather multidimensional and very complex segment, three age subgroupings in the large segment of seniors were formed: seniors aged 60-69, seniors aged 70-79, seniors aged 80+. The principle purpose of the exploration was to determine characteristics affecting store choice and shopping behaviour of older people. Recommendations on how the retail industry could respond best to silver consumers were also developed based on the empirical outcomes.

## **Key words:**

Seniors, shopping behaviour, grocery products, retail industry.

## **Introduction**

Seniors constitute large and constantly growing group of consumers. They form potentially significant market segment for the near future. According to the Office of National Statistics in Slovakia, this segment has at present nearly a fifth (19 %) of the Slovak population and is expected to grow in the next decade due to decreased fertility and increased longevity. An aging population has implications for healthcare policy, pension policy, but also marketplace policy. Silver consumers build a remarkable market for many products and services and have unique shopping habits. Even though a substantial part of the seniors are poor, they represent a market, which is greater than the youth market, which is more attractive for many firms.

In spite of the size of senior's group, little attention was devoted to this segment from retailers in Slovakia and extensive research to identify their shopping behaviour is expected in order to suggest relevant marketing actions [Lesakova, 2010].

Older consumers are (because of age) more experienced, request more information about the products than younger customers and have enough time to verify the obtained information. Their time spent on purchase decisions is longer in comparison with a young buyer. Senior customers have different needs and desires to compare with younger people when they choose shopping places and stores. Such attributes as low prices, smaller package sizes, store location, staff courtesy or easy access to the stores, etc. cause satisfaction or dissatisfaction of older shoppers.

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There is a tendency in the practice to treat everyone over 60 years old as „a one-dimensional, monolithic market“, despite the literature and research on the richness and diversity of the older people and seniors consumer behaviour.

With the successive age people become more diverse. As a result, within the large seniors market exist smaller subsegments (subgroupings), requiring different marketing strategies. Responding to the demographic changes involves an understanding of the growing diversity within the older population [Moschis, 2004].

Older people have less in common with each other than younger people have with each other, because they are no longer overloaded by the career, children and family formation. Seniors do not live with the unifying influence of new technologies and global media that creates high commonality among younger generations. There are some characteristics of older consumers that differentiate them from the younger consumers. These include: tendency to risk avoidance, higher levels of store loyalty, convenience and simplicity of products. These characteristics have implications for retailers.

Moschis and Mathur (1993) have emphasized the importance of understanding the heterogeneous nature of the senior's market. They argue that numerous life experience results in a wide range of personality-building circumstances produce greater heterogeneity to compare with younger age segments. The complexity of this segment indicates that it could be more difficult to successfully target the whole 60+ segment than exploring needs and preferences of smaller subgroupings within this segment.

Within the existing literature there is agreement that low prices, attitudes of service staff, avoiding long queues at checking points and accessibility of products on shelves are particularly important to seniors shopping. It is also important for seniors that shopping places have easy access.

In next sections the importance of factors influencing seniors decision-making in selection of grocery shopping places is explored, based on the results of interviewing focus groups.

## Aims and Methods

This paper is the output of the research grant VEGA 1/0612/12 „Determinants of level, structure and trends in individual consumption and consumer behaviour of seniors in the context of pricing and pension policy in SR“.

To communicate more effectively with older consumers, the retail industry needs to understand this segment. Considering the need for understanding this market segment, the purpose of our paper is to identify shopping requirements of the senior market. In order to serve seniors effectively, retailers need a clear understanding of the seniors needs and wants.

Two main goals were stated as key for our research: 1) the identification of preference factors in the choice of a shopping place for grocery products by seniors and 2) selection of factors influencing seniors decisions in grocery stores. We raise questions: „what are the factors that influence seniors decisions for particular grocery store selection“ and „what are the implications for retail management“.

Grocery shopping was chosen as the focus of the research for two reasons. First, grocery industry is extremely important, because food represents one of the key components of health and wellbeing. Second, food expenditures represent one of the largest items in the seniors household budget. The development of the grocery retail sector has brought various store alternatives in terms of size, location, product sortiment and customer services [Lesakova, L., 2011]. In this context there is an essential question, why seniors choose and prefer particular store to others.

We are aware that age alone is not the most significant factor in explaining differences in shopping behaviour [Lesakova, 2012b]. However, older age has an impact on decreasing

family size. Also such factors like multiple sources of income (pension, part-time work), mobility and health conditions have significant influence on shopping behaviour.

To understand views and opinions of older consumers in relation to preferred place of shopping, research sample of 126 seniors was explored. Questions regarding patterns of shopping were raised. Interviews took place during February and March 2012.

In order to indicate the key characteristics in the shopping behaviour of seniors, three age subgroupings in the whole large segment of seniors were formed: seniors aged 60-69, seniors aged 70-79, seniors aged 80+.

The principle purpose of the interviewing was to determine factors affecting store choice and shopping behaviour of older people. Recommendations on how the retail sector could respond effectively to this were developed based on the empirical outcomes.

The preference factors in store selection were identified by asking the respondents to indicate which of the 13 factors was important to them for preferring a specific store (see Table 1). They were asked to indicate as many factors as they needed [Lesakova, 2011]. The factors were grouped into five categories representing the key policy areas of retailers: price policy, product policy, communication policy, staff policy and store accessibility with store characteristics. The percentage given in Table 1 is the proportion of the subsample indicating the particular factor.

## **Research results and discussion**

Customers may prefer stores for a number of reasons. Thirteen store choice attributes were explored in our research: price level, price discounts, quality of products, sortiment breath, familiarity of brands, knowledge and courtesy of staff, products display in stores, location and access to stores, cleanliness in stores, advertising and same-age people influence to visit the store.

Some of the attributes have been documented in the literature: price-level, adequate access to and within the store, problems associated with queuing. Courtesy and behaviour of store staff are described in the literature also as an important aspect.

Respondents were asked to indicate what factors of the 13 given factors apply to their decision to select a certain store. Responses given by older shoppers (over 60 years) are summarised in Tab. 1 and Tab. 2.

The results show that the perception of the importance of the 13 factors in choosing stores changes with age, as indicated by our 3 subgroupings of seniors (Tab. 1).

**Tab. 1 Importance of factors in store selection by senior subsegments (in %)**

| Factors                          | Age subsegments |                 |               |      |
|----------------------------------|-----------------|-----------------|---------------|------|
|                                  | 60-69<br>(n=62) | 70-79<br>(n=39) | 80+<br>(n=25) | Mean |
| <i>Price policy</i>              |                 |                 |               |      |
| Low prices                       | 82.4            | 86.5            | 94.9          | 87.6 |
| Price discounts                  | 80.9            | 83.9            | 94.9          | 86.6 |
| <i>Product policy</i>            |                 |                 |               |      |
| High quality products            | 70.4            | 64.2            | 60.2          | 64.9 |
| Broad sortiment                  | 66.9            | 62.5            | 40.2          | 56.5 |
| Carry brands familiar to seniors | 63.7            | 69.2            | 83.7          | 72.2 |

|                                   |      |      |      |      |
|-----------------------------------|------|------|------|------|
| <i>Staff policy</i>               |      |      |      |      |
| Knowledgeable staff               | 67.4 | 66.6 | 69.1 | 67.7 |
| Staff helpful, courteous          | 69.0 | 69.2 | 69.1 | 69.1 |
| <i>Store characteristics</i>      |      |      |      |      |
| Location near senior's home       | 63.7 | 72.1 | 87.7 | 74.5 |
| Easy access to entrance / exit    | 48.0 | 62.9 | 73.0 | 61.3 |
| Products display in store         | 55.5 | 55.1 | 51.2 | 53.9 |
| Cleanliness in store              | 46.4 | 47.2 | 44.6 | 46.0 |
| <i>Communication policy</i>       |      |      |      |      |
| Advertising                       | 50.3 | 35.1 | 30.5 | 38.6 |
| Recommendation by same-age people | 58.6 | 62.5 | 67.7 | 62.9 |

Source: own calculation

Younger seniors place highest importance among all subgroups on aspects of product policy and lowest importance on aspects of price policy. Aspects of brand familiarity or store location were considered less important for them, probably because they have the transport means and are flexible in store choice.

In generally, seniors aged between 70-79 years are price-sensitive, cautious, demanding staff courtesy (highest value among all subgroupings). Large differences were identified between 60-69 age group and 70-79 age group in accessibility factors and communication policy.

The oldest seniors put in their store choice highest value to price and store accessibility. Shoppers in this group were identified often living alone, female, with a lower social and economic status. As a result of restricted mobility and economic situation, these seniors would give up many aspects of store offer to the lowest possible prices and accessibility requirements. While they placed high emphasis on price aspects, it was secondary for them the breath of assortment or quality of products.

Based on Dunn Test 4 groups of factors were indicated across all age sub-groups (Tab. 2):

A (most relevant factors): low prices, price discounts, brands familiarity, location near one's home

B (very relevant factors): products quality, easy access to store, knowledge and courtesy of staff, recommendations by others to visit the store

C (relevant factors): breath of sortiment, products display in store

D (slightly relevant factors): advertising.

General results for the whole segment of seniors without differentiating into subsegments (Tab. 2) indicate that low prices were mentioned by nine in ten of seniors as a reason in their decision to patronize certain stores. Price proved to be the most important factor in buying decision in all subsegments. The same applies to price discounts.

Further, nearly three quarters of all senior respondents indicated that the location plays an important role in the selection of a certain store. Location near the respondent's residence

is highly influencing factor. More than two thirds of seniors in all subsegments indicated that their preference was motivated by familiar brands or items.

There was a high level of agreement among respondents that sales staff is of importance to older customers.

Opinions and views presented by older shoppers should be of concern for the store managers and store staff, in order to satisfy effectively the needs and wants of seniors and to gain their loyalty.

**Tab. 2. Factors influencing store selection by seniors as a whole (in %)**

| Factors                           | All senior subsegments |                       |                   |   |   | p       |  |
|-----------------------------------|------------------------|-----------------------|-------------------|---|---|---------|--|
|                                   | Frequen-<br>cy         | Mean of<br>importance | Groups of factors |   |   |         |  |
|                                   |                        |                       | A                 | B | C |         |  |
| <i>Price policy</i>               |                        |                       |                   |   |   |         |  |
| Low prices                        | 126                    | 87.6                  | x                 |   |   | p<0.001 |  |
| Price discounts                   | 126                    | 86.6                  | x                 |   |   | p<0.001 |  |
| <i>Product policy</i>             |                        |                       |                   |   |   |         |  |
| High quality products             | 126                    | 64.9                  |                   | x |   | p<0.001 |  |
| Broad sortiment                   | 126                    | 56.5                  |                   |   | x | p<0.001 |  |
| Carry brands familiar to seniors  | 126                    | 72.2                  | x                 |   |   | p<0.001 |  |
| <i>Staff policy</i>               |                        |                       |                   |   |   |         |  |
| Knowledgeable staff               | 126                    | 67.7                  |                   | x |   | p>0.001 |  |
| Staff helpful, courteous          | 126                    | 69.1                  |                   | x |   | p>0.001 |  |
| <i>Store characteristics</i>      |                        |                       |                   |   |   |         |  |
| Location near senior's home       | 126                    | 74.5                  | x                 |   |   | p<0.001 |  |
| Easy access to entrance / exit    | 126                    | 61.3                  |                   | x |   | p<0.001 |  |
| Products display in store         | 126                    | 53.9                  |                   |   | x | p>0.001 |  |
| Cleanliness in store              | 126                    | 46.0                  |                   |   | x | p<0.001 |  |
| <i>Communication policy</i>       |                        |                       |                   |   |   |         |  |
| Advertising                       | 126                    | 38.6                  |                   |   | x | p<0.001 |  |
| Recommendation by same-age people | 126                    | 62.9                  |                   | x |   | p<0.001 |  |

Source: own calculation

### a) Staff policy

The staff was described as a very important determinant of the satisfactory shopping experience for older people.

Both two factors representing staff policy were considered important by about 66 to 69 per cent or more respondents (Tab. 1). Slightly larger percentage rated courteous and friendly staff higher than professional knowledge of the retail staff. Several respondents mentioned the quality of service received in the past by small grocery stores as a strength and an opposite to big stores with their non-personal culture in recent years.

The friendly, helpful and courteous staff is considered equally important by all three subgroups. At present, the idea of relationship marketing requires a lot of attention among retailers. A positive staff-customer relationship with older consumers is a very strong preference motive, with evidence that this factor becomes more important with age.

### **b) Product policy**

In the category of product policy importance of two factors declines with successive age: quality of products and sortiment's breath. On the contrary, brand familiarity shows an increase with age: a larger percentage of older seniors than younger seniors value their familiarity with brands.

A larger percentage of youngest subsegment (66,9 percent), in comparison with 40,2 percent in oldest subsegment patronize stores because of their sortiment. Seniors putting emphasis on sortiment (60-69 years) expected the possibility of broader choice. Based on these results we could conclude that the reasons for store choice that were considered to be important by the younger seniors show a bias towards product-related rather than store related attributes. The product-related factors such as quality and broad sortiment have been highest valued by the youngest age category (60-69). They consider product quality and product features as central issues.

Brands familiar to the shopper are of greater importance to the oldest seniors, with 83,7 percent, reporting this factor to be relevant in their store preference decision, in comparison with 63,7 percent in the youngest subsegment.

Unexpected to our assumption, product quality was not rated as the highest priority and most important factor by more than one third of the respondents. The importance of quality shows a slight decline with age.

During interviews some other important product features have been mentioned by seniors. Small size of text on products has a consequence that seniors with eye and reading deficiencies hardly understand information about prices and products attributes. Reading product and package labels can be a problem because of small print size. Seniors have also difficulties to differentiate colors of similar intensity. Pastels, as well as dark colors could be particularly difficult. These aspects should be taken into account in marketing decisions when developing packaging, product materials, advertising illustrations or store design.

Also most of delivered package size seems to be too large for senior households. Family-size packages are not appropriate for older people both for their budget constraints and usually smaller food portions consumed by seniors. Hence, grocery stores should incorporate small packages popular by older people into their merchandise offer.

### **c) Store characteristics**

With the successive age older seniors prefer to shop close to home and to have nearby bus routes. Decreasing mobility with increasing age diminishes the preference of those retailers which are located in suburban parts and away from the homes of older consumers. Location near their home is an important preference motive for store choice especially for the oldest 80+ subsegment (87,7 percent).

Another factor of concern for older customers is easy access to store entrance. Access to the store is far more important for the oldest group than to the youngest senior group (73,0 percent vs 48,0 percent). Older respondents also indicated they would welcome a place to sit and rest during their shopping in the grocery stores.

Approximately five in ten seniors across all three age groups indicated that products display in store is very important for them. Several interviews suggested that seniors find it difficult when the stores change their layout frequently.

Cleanliness in store was considered important by 44,6 - 47,2 percent between all respondents.

### **d) Price policy**

Older consumers are very price sensitive. Price was the most influential factor, central to the vast majority of seniors for their store choice decision. It was the highest rated factor in all

age subsegments, with 82,4 percent in the youngest subsegment (60-69 years) and 94,9 percent in the oldest subsegment (80+ years).

Seniors are focused on price and actively seek out products with lowest possible price. They are prepared to travel a lot in order to get the minimal price. Price becomes increasingly important with age in late life.

#### e) Communication policy

Older people are heavier consumers of mass media, particularly radio and television, than other adult population segments. In spite of the fact that they use media as an important source of information, they are rather skeptical to media advertising, as our research discovered.

Five in ten youngest seniors (60-69), in comparison with only three in ten oldest seniors (80+), consider advertising as an important factor influencing their store selection. Word-of-mouth recommendation from the same-age people is far more important than advertising in all senior age subgroups, with the highest level of importance in the subsegment aged over 80 years (67,7 percent).

Most of the respondents in our research indicated they do not like to try new products or services. Older people have been shown to resist the purchase of new consumer items.

We found that elderly respondents interviewed would not buy foods advertised primarily for older people. It has to do with individually perceived age by seniors, which is lower than biological age. Product strategies appealing to all age segments have higher chances of success in developing positive responses from older consumers. In case that age is used as a main element in advertisements focused on older people, it should be applied with high sensitivity, featuring positive aspects of old age, such as experience, knowledge, etc.

## Conclusions

Developing better understanding of seniors is crucial for business success so that organizations can better appeal to this important segment.

As people age they become more diverse. More segments exist within the large seniors market, requiring different marketing strategies.

Although certain aspects of the store choice are common to all seniors, there are also differences in the degree of emphasis put on various factors by different subsegments of seniors. The shopping behaviour of older people does not only differ from the behaviour of the younger people, it also varies by various subsegments. The research presented in our paper reveals differences in the way how seniors respond to various marketing stimuli. Knowledge of factors which are patronized by seniors in their store selection, is essential for retail management.

Seniors may prefer stores for a number of reasons. Following factors show significant increase with age:

- a) The importance of store location in relation to senior's home and easy access to store grow with age and become important factors for selection of a certain store.
- b) Low prices and price discounts become increasingly important with subsequent age for oldest seniors.
- c) Finally, the influence of brands familiarity increases with age in late life.

On the other hand, three factors show decline in shopping behaviour and store choice with successive age: advertising influence, breath of sortiment and quality of products.

Our data provide evidence of the senior's preference to shop in a store where staff is knowledgeable, polite and helpful. Price was rated as most important factor across all subsegments. The „young“ old (60-69) put more emphasis on quality of products and broad products sortiment, while the „old“ old (80+) emphasize location aspects of shopping place and familiarity of brands in store. Because of the physical and other healthy problems of

older population, stores should pay attention to the store layout and location. Reading various package and product information remains a serious problem for many older consumers. More attention also needs to be given by manufacturers and retailers to the needs of seniors in the area of package size, that is often too large for senior's small consumption.

Developing a better understanding of the senior consumers is crucial for retailers in order to respond better to their needs and to develop the loyalty of this constantly growing segment.

## Literature

1. Lesáková, D. (2010). Zmeny v nákupnom a spotrebiteľskom správaní obyvateľstva SR . In Kolektív: *Trendy nákupného a spotrebiteľského správania zákazníkov v podmienkach ekonomickej nestability : zborník vedeckých statí*. Ekonóm Publishing, Bratislava.
2. Lesakova, D. et al.(2011). *Marketingové analýzy a prognózy*. Hronský Beňadik : Netri. 2002. ISBN 80-89033-23-7.
3. Lesáková, L. (2011). Implementing innovativeness in small and medium enterprises. In *Obchod a finance 2011 – Trade and Finance*. Praha : Česká zemědělská univerzita v Praze.
4. Lesáková, D. (2012a). *Vplyv veku na nákupné správanie seniorov „Studia commercialia Bratislavensia“*. Bratislava : Obchodná fakulta Ekonomickej univerzity v Bratislave, Vol. 5, č. 18.
5. Lesáková, D. (2012b), Determinants of purchasing behavior of seniors. In Kolektív: *Vedecké state Obchodnej fakulty 2012 : zborník*. Ekonóm Publishing: Bratislava.
6. Majaro, S. (1991). *The Creative Marketer*. Oxford: Butterworth – Heinemann Ltd.
7. Moschis, G.P., Mathur, A. (1993). How they're acting their age. *Marketing Management*, Vol. 2, No. 2, pp.40-50.
8. Moschis, G.P. (2004). Gerontographics. *Journal of Consumer Marketing*, Vol. 10, No. 3, pp. 43-53.
9. Schiffman, L., Kanuk, L. (2004). *Consumer Behaviour*. 8th Edition. Upper Saddle River New-York: Pearson Prentice-Hall.
10. Solomon, M. (2004). *Consumer Behaviour: Buying, Having, Being*. 6th Edition. New-York : Pearson Prentice-Hall, Englewood Cliffs.

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# **Some aspects of time-demand in the beekeeping production process in Slovakia**

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## **Abstract:**

The time which is required in production by the work force with the aim to produce value is represented in enterprises by labor costs which are a part of the enterprise total costs affecting the achieved result in farming. For beekeeping in majority of European countries, including Slovakia, the low level of professionalization of beekeepers is common. According to European Legislation the professional beekeeper is considered to be the farmer with 150 and more colonies of bees. This group of beekeepers comprises approximately 0.3 % of all farmers in Slovakia. Other beekeepers, who take beekeeping as avocation or subsidiary gainful activity, these beekeepers are commonly denoted as hobby beekeepers. But the low level of professionalization of Slovak beekeeping is changing the perspective regarding the labor costs. It is possible to state that the level of spent time dedicated to beekeeping is not the decisive factor for a beekeeper. The frequent argument is that only by detailed control of colonies of bees can a beekeeper obtain information about the condition of bees, but the situation is changing with increased intensity of beekeeping, when the beekeepers are forced to reduce the time spent on work with the colonies of bees to the minimum, the aim of the thesis is to analyze through the verification of postulated hypothesis the selected factors affecting the time consumption in beekeeping. The source of analyzed data is the questionnaire survey represented by 162 beekeepers. The structure of respondents participating at the survey from the perspective of the precept of law and the number of bee colonies reflects the structure of population. The respondents answered the questions in the questionnaire centered on economical aspects of beekeeping. The beekeeper's work consists of various operations. Due to the scope and general focus of questionnaire survey we therefore concentrated only at ascertaining on the time spent by beekeeper in order to perform his work directly with bee colonies (the direct activity with bees). The literature sources list namely at this operation the greatest variability in relationship to various technological aspects in the interval from 40 to 240 minutes. Based on the obtained data we focused on testing three hypotheses. The first hypothesis contends that there is not statistically significant difference in time consumption between beekeepers in relationship to the extensity of their beekeeping. Concerned is the verification of the basic theoretical assumption according to which, with the increased scope of production, the time consumption must decrease. The second hypothesis was centered on the technological aspect of beekeeping represented by the type of used beehive. The hypothesis claimed that there is not significant difference in the time consumption in relationship to used beehive frame measure. We assume that with regard to the technological characteristic of single bee hive types, there can be the differencing form the viewpoint of handling and therefore the time consumption. With the third hypothesis we would like to find out whether there is correlation between the time and level of natural honey production. The verification of hypothesis was carried out by relevant statistical tests. In order to test the normality of separation we used Shapiro – Wilk test and Kolmogorov – Smirnov test. Based on the obtained test results of normality and nonaccomplishment of further assumptions, we selected nonparametric methods for testing. We applied Kuskal – Wallis, Dunn post test,

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Spearman rho and Kendall tau. The calculations were performed by software SPSS and XLSTAT. Based on the results of statistical hypothesis testing, we rejected the first hypothesis and we contend that there is statistically significant difference in the spent amount of time with regard to the extensity of beekeeping. The result of hypothesis confirmed the validity of the basic theoretical scope. Likewise we reject also the second hypothesis and so we ascertained that there is a difference in spent time with respect to the used technology of beekeeping represented by the type of beehives. We cannot reject the third hypothesis because the statistically significant dependence between the amount of spent time and the amount of produced honey does not exist.

### **Key words:**

beekeeping, beehive, production process, time-demand

### **Introduction**

In 2009 the Bee Research Institute at Dol carried out the questionnaire survey targeted at finding of the selected indicators of the commercial beekeeping economy (Kamler, 2011). The results show that the salaries costs create about 45% of the total costs of the aparian operations. Out of them approximately a half are the costs connected with the activities where a beekeeper carries out the direct interventions into the colony of bees. When evaluating the questionnaire results Kamler states that the costs of materials represent about 50% of the total costs and they are not related to those which could be reduced considerably by modernization and solution of the economic questions of the beekeeping operations. On the contrary, the above mentioned labour costs are the items which can be reduced considerably e.g. by introducing of more suitable working processes and using the appropriate beehive systems. The highest labour costs occur when working with the colony of bees at the post. The time needed by a bee-keeper for seeing to the colonies of bees is stated differently in the available resources. Weiss (2005) assesses from 2 to 14 hours. The time consumption depends on both the used beehive and the way of bee-farming. When thinking about the way of bee-farming the author means predominantly its extent. There is also one important fact that the hobby beekeepers devote more time to their colonies of bees than it is needed according to the table values. From these data it is clear that just the labour costs create the item through which a beekeeper can influence positively the economic result of his bee farming by the rational measures.

### **Methods and objective**

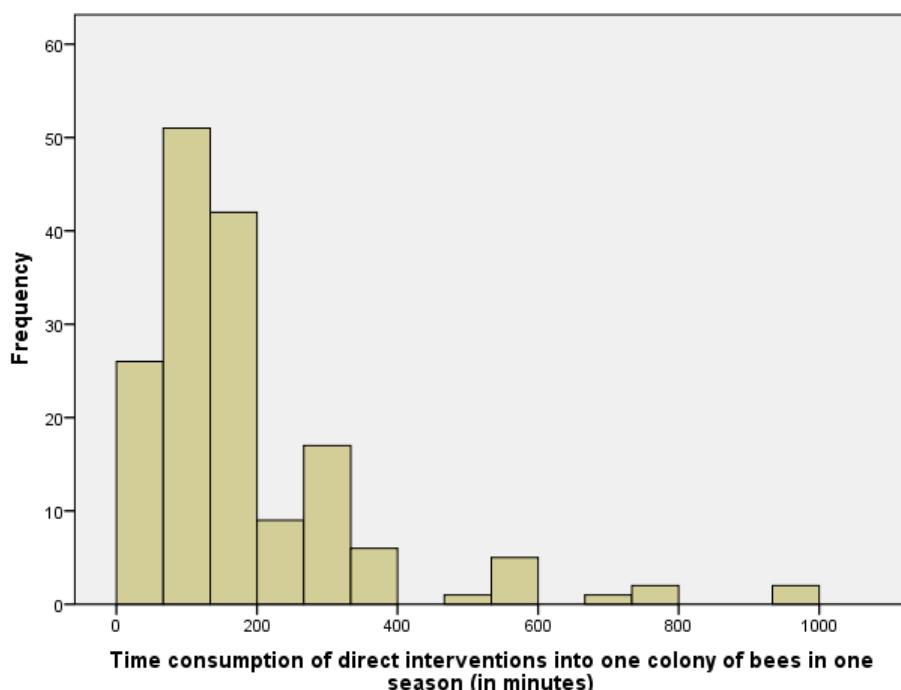
The objective of this scientific article is the diagnostics of the selected aspects of time consumption in beekeeping in Slovakia which would result in the recommendations for the professional practice.

The source of the analysed data is the questionnaire survey in which 162 beekeepers participated. The structure of respondents taking part in the survey reflexes the structure of the basic aggregate from the viewpoint of the legal form and the number of the colonies of bees. The respondents answered the questions related to the economic aspects of their breeding in the questionnaire. Taking into consideration the structure of the beekeepers' legal form in the selective and basic aggregate it was not possible to find out directly the sum of the personal costs. Therefore we concentrated on the measurement of the time consumption which is the main determinant of the salaries costs. The beekeeper's job consists of the different working processes. Taking into account the scale and general orientation of the questionnaire survey we focused our attention only on the measurement of the time consumption when the beekeeper is engaged directly into work with the colony of bees (direct intervention into the colony of bees). The verification of hypotheses was carried out by the relevant statistical tests. We used Shapiro-Wilk test and Kolmogorov-Smirnov test for the testing of normality division. Based on the results of the normality tests and non-compliance with the other prerequisites we used the nonparametric methods in the following

testing. We utilize Kruskal–Wallis analysis of the range in scatter for the comparison of several populations according to the quantitative variable (Obtulovič, 2010). Based on Kruskal–Wallis test if we refuse the null hypothesis about the coincidence of mean values, it is necessary to carry out nonparametric multiple comparison. There in the case of the imbalanced experiment we can apply Dunn procedure (Obtulovič, 2010). When considering that the parametric Pearson correlation coefficient is influenced strongly by the extreme values and it assumes the normal division, we use the nonparametric methods of Spearman and Kendall correlation coefficient for the study of qualitative signs dependence (Markechová – Stehlíková – Tirpáková, 2011). We tested the statistical hypotheses within the significance level 5%. The calculations are secured in the terms of the program by using software SPSS and XLSTAT.

## Results

The Figure 1 shows the histogram of the time length numerousness which was devoted by the respondents to the colonies of bees in the direct intervention during the season 2011/2012. The numerousness division does not have the character of the normal division. It refers to the right-hand asymmetric division which means that the numerousness is concentrated on the lower values. The minimum consumed time was 15 minutes and maximum 1,000 minutes. The average time consumption for the direct intervention into the colonies of bees was 187 minutes and a half number of beekeepers stated less than 150 minutes.



**Figure 1 Histogram of time consumption of direct interventions into one colony of bees in one season (in minutes)**

We verified the assumption that with the growing extensy of bee farming the time consumption of the direct interventions into colonies of bees declines by the use of Kruskal–Wallis test. The null hypothesis states that there is no difference in the time consumption related to the extent of farming represented by the number of colonies of bees. The results of the testing criterion and P-values are given in the Table 1. Based on the results of testing the null hypothesis can be refused with the chance lower than 0.001%. Therefore, we accepted

the alternative hypothesis which proves that there is the statistically significant difference in the mean value of the studied sign at least between one couple of the tested populations.

**Table 1 Result of Kruskal-Wallis test**

|              |   |
|--------------|---|
|              | Time consumption of direct interventions into one colony of bees in one season (in minutes) |
| Chi – Square | 20.154  |
| Df           | 3   |
| Asym. Sig.   | < 0.001   |

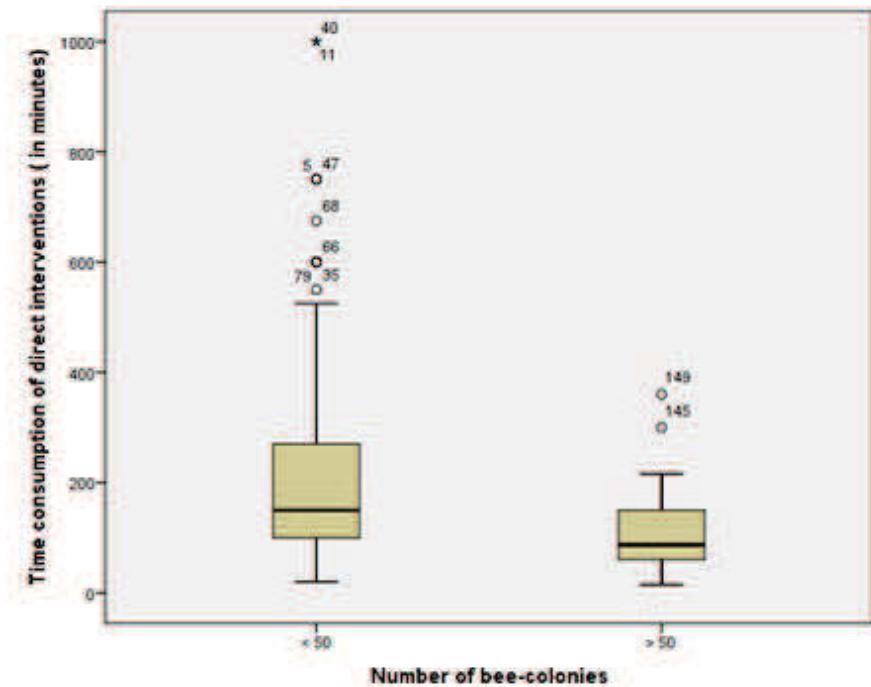
As the null hypothesis was refused, it is important to find out the statistically significant difference between the specific factor levels. The factor levels were represented by the number of the colonies of bees of the beekeepers participating in the survey within the stated intervals. The selections do not involve the same number of elements therefore Dunn post test will be used for the differences determination. This test is appropriate for the imbalanced experiment. The Table 2 shows the results of the geminate differences and P-values of multi-geminate comparison with the use of Dunn procedure. The results prove that the difference between the mean values of the consumed time related to the colonies of bees less than 20 and from 21 to 51 is not caused by the accidental influences and it is not significant statistically. The same situation exists also between the intervals from 51 to 100 colonies of bees and 101 and more colonies of bees. The differences between the other pairs are significant statistically. Based on the test results it is possible to unify the intervals of the number of colonies of bees less than 20 and from 21 to 50 into one homogenous group (A) and the intervals from 51 to 100 and more colonies of bees into the second homogenous group (B). The conclusion is that the difference in the time consumption between the homogenous group A and group B, or between the breeds to 50 colonies and more than 51 colonies, is significant statistically.

**Table 2 Results of geminate comparison via Dunn procedure**

| Intervals of colonies of bees numbers | to 20                       | 21 – 50                     | 51 – 100                   | 101 and more                  |
|---------------------------------------|-----------------------------|-----------------------------|----------------------------|-------------------------------|
| to 20                                 |                             | 4.917<br>p = 0.565          | 30.670<br><b>p = 0.003</b> | 56.463<br><b>p &lt; 0.001</b> |
| 21 – 50                               | -4.917<br>p = 0.565         |                             | 25.753<br><b>p = 0.017</b> | 51.546<br><b>p = 0.001</b>    |
| 51 – 100                              | -30.670<br><b>p = 0.003</b> | -25.753<br><b>p = 0.017</b> |                            | 25.793<br>p = 0.120           |
| 101 and more                          | -56.463<br><b>p = 0.001</b> | -51.546<br><b>p = 0.001</b> | -25.793<br>p = 0.120       |                               |

The Figure 2 shows the box-and-whisker graphs of time consumption in 2 homogenous groups of breeding to 50 colonies of bees (group A) and more than 51 colonies (group B). The average time consumption in the group A was 212.5 minutes and a half of beekeepers in this group intervened into the colonies maximum 150 minutes. The proportion of the average time consumption in this group was 113.6% out of the total population average. The average time consumption in the group B was 109.2 minutes and a half of beekeepers in this group

intervened into the colonies maximum 87 minutes. The beekeeper with the maximum time consumption in this group intervened 360 minutes into colonies. The proportion of the average time consumption in the group B achieved 58.4% out of the total population average. In the box-and-whisker graph there are the outlier values drawn by a circle and far outlier ones by an asterisk.



**Figure 2 Time consumption box-and-whisker graphs of direct interventions into a colony of bees related to the number of bee-colonies**

Apart from the biological requirements the ideal technology of beekeeping should also comply with the economic requirements, i.e. to help a beekeeper to achieve the highest yield of honey at the lowest costs. The test results of hypotheses based on the data from the questionnaire survey proved that there was not statistically significant difference of the honey yields taking into account the used hive type in the studied population of beekeepers. The difference in the effectiveness per a production unit can be also caused by the different level of costs that are associated with a particular technology. According to the available sources the variable costs range among the substantial costs in bee farming and they belong to the labour costs that are represented by time consumption for the direct interventions into colonies during one beekeeping season.

We studied if there is the difference in the time consumption between the beekeepers using the different frame dimensions. In testing we did not take into consideration the half-closed part of the question about the used frame measure (option "other, complete"), but only 5 most frequently used frame types which were the part of the simple choice. The null hypothesis assumes that there is not difference in the time consumption for the direct interventions into colony related to the used hive type. We will verify the validity of this hypothesis. The testing criterion will be Kruskal – Wallis test with the regard to not fulfilling conditions for using the parametric tests. The results are available in Table 3.

**Table 3 Result of Kruskal Wallis test**

|              |   |
|--------------|---|
|              | Time consumption of direct interventions into 1 colony of bees during season (in minutes) |
| Chi – Square | 9.522   |
| Df           | 4   |
| Asym. Sig.   | 0.049   |

The null hypothesis can be rejected on the base of the test with 5% significance level. We state that there is the statistically significant difference between at least one pair of frame measures in the time consumption for the direct interventions into the colony of bees.

Due to the rejection of the null hypothesis we approach to the non-parametric multiple comparison of the imbalanced experiment via Dunn post test. In the table 4 there is given the statistic value and achieved p-value for each pair of the frame measures. The latter is highlighted in bold in the case of the validated difference. The statistically significant difference in the time consumption occurs between the pair of hive types Slovak B type and Optimal, and pair Optimal and Czechoslovak. The differences between the other pairs of the frame measures are not significant statistically.

**Table 4 Results of geminate comparison via Dunn test**

| frame measure | B type                      | Optimal                    | Czechoslovak                | Langstroth           | Dadant               |
|---------------|-----------------------------|----------------------------|-----------------------------|----------------------|----------------------|
| B type        |                             | 38.002<br><b>p = 0.007</b> | 3.272<br>p = 0.733          | 18.575<br>p = 0.109  | 20.832<br>p = 0.353  |
| Optimal       | -38.002<br><b>p = 0.007</b> |                            | -34.731<br><b>p = 0.027</b> | -19.428<br>p = 0.253 | -17.170<br>p = 0.503 |
| Czechoslovak  | -3.272<br>p = 0.733         | 34.731<br><b>p = 0.027</b> |                             | 15.303<br>p = 0.261  | 17.560<br>p = 0.456  |
| Langstroth    | -18.575<br>p = 0.109        | 19.428<br>p = 0.253        | -15.303<br>p = 0.261        |                      | 2.257<br>p = 0.926   |
| Dadant        | -20.832<br>p = 0.353        | 17.170<br>p = 0.503        | -17.560<br>p = 0.456        | -2.257<br>p = 0.926  |                      |

The table 5 is the output of Dunn procedure. In the last column there are the particular frame measures organized into the homogenous groups. There is not statistically significant difference in the time consumption between the frame measures which occur in the same group. In the homogenous group A there are the frames Optimal, Dadant and Langstroth, and in the group B Dadant, Langstroth, Czechoslovak and Slovak B type are present. The hives Dadant and Langstroth are the intersection of both groups, i.e. there is not the statistically significant difference in time consumption between one of these hives and any other hive. Based on the the post test results it is possible to state that time consumption is the same with Dadant, Langstroth, Czechoslovak and Slovak B type and different with the hive type Optimal.

**Table 5 Arrangement of frame types measures into homogenous groups according to time consumption of direct interventions into colonies of bees**

| Sample       | Numerousness | Sum of sequences | Average of sequences | Groups |   |
|--------------|--------------|------------------|----------------------|--------|---|
| Optimal      | 11           | 489.0            | 44.455               | A      |   |
| Dadant       | 4            | 246.5            | 61.625               | A      | B |
| Langstroth   | 17           | 1086.0           | 63.882               | A      | B |
| Czechoslovak | 27           | 2138.0           | 79.185               |        | B |
| B type       | 93           | 7668.5           | 82.457               |        | B |

We found out more significant differences by comparing means of time consumption related to the frame measure Optimal and the frame measures which create together the homogenous group B. The average time consumption for the direct interventions into colonies was 95 minutes referred to the beekeepers using the hives Optimal. The time consumption with the use of other hives which belong to the group B was more than twofold, i.e. 193 minutes. The median of time consumption was 90 minutes for the use of Optimal hive and 150 minutes for the hives from the homogenous group B.

**Table 6 Results of dependence testing between time consumption of direct interventions into one colony of bees and honey yield**

|                   | Average honey yield per one colony during beekeeping season 2011 | Average honey yield per one colony during beekeeping season 2012 |
|-------------------|--|--|
| Kendall's tau - b | -0.048   | 0.053  |
| Sig.              | 0.383  | 0.335  |
| N                 | 162  | 162  |
| Spearman's rho    | -0.064   | 0.078  |
| Sig.              | 0.417  | 0.324  |
| N                 | 162  | 162  |

Table 6 shows the results of dependence testing between the quantitative variables of time consumption for the direct interventions into one colony of bees and the honey yield per one colony in 2011 and 2012. We used the nonparametric coefficients Kendall's tau - b a Spearman's rho for the dependence testing. According to the test results it is possible to state that in all cases the coefficients are non-significant, i. e. there is not the dependence between time consumption and honey yield in any of those years.

## Conclusions

The labour costs, which are represented by time consumption of direct interventions into the colonies of bees in our research, create the essential part of the total costs of beekeeping farms. According to Kamler (2011) the direct interventions into the colonies of bees present the majority of operations related to the commercial and uncommercial beekeeping. We proved the principal theoretical basis by testing the statistical hypotheses based on the data from the questionnaire survey. This basis affirms that there is the inverse proportion between the beekeeping extent expressed by the number of colonies of bees and the time consumption for the direct intervention into colonies. In particular, there are the significant

differences in time consumption between the groups of beekeepers with the numbers of colonies less than 50 and more than 50. Taking into account the labour costs the beekeepers with more than 50 colonies achieve less unit costs per a production unit than the beekeepers with less number of colonies. The literature reveals that the labour costs could be decreased by the use of the appropriate hive systems (e.g.. Kamler, 2011; Weiss, 2005). Based on the available facts we tried to find out if there is the difference in the selected aggregate of beekeepers related to the time consumption for the direct interventions into colonies taking into consideration the used hive type represented by the frame measure. The results of testing proved the significant difference between time consumption of Optimal hive type and the other hives which were the part of one homogenous group considering time consumption. According to its authors Optimal hive type is the extended hive which allows the fast operations with the colonies of bees (Čermák, 1994). This type was developed in Czechoslovakia in the 80s of 20th century and its construction was introduced in the journal Včelařství in 1981 for the first time. Its design was motivated by the construction of modern and most widespread hive type Langstroth in order to increase the honey yield and to decrease the working effortlessness of beekeepers. Based on our results the authors of hive met the second objective. We studied also if there exist the significant dependence between the time consumption for the direct interventions into colonies and the amount of honey yield from one colony of bees. We did not prove the dependence of these two variables.

The evaluation of the labour costs related to the breeding of colonies of bees differs depending on the approach of keeping. The hobby beekeepers do not perceive the time devoted to working with the colonies of bees as a cost. On the contrary, in comparison with the professional beekeepers they do not try to minimize this length of time. From the viewpoint of the achieved results we would recommend mainly to the beekeepers for whom bee-farming is the essential source of income - according to possibilities, experience and belief – to reduce the length of time spent for the direct interventions into colonies, as the dependence between the duration of spent time and the honey yield was not proved. From the viewpoint of the utilized technology we would also recommend the consideration the use of Optimal hive type in the professional bee-farming because this type proved the lowest time consumption for beekeepers according to our findings.

## Literature

- ČERMÁK, K. 1994. Včelaření v nízkonástavkových úlech. 1. edition. Petrušov : Čermák Květoslav, 1994. 47 p.
- KAMLER, F. 2011. Komerční včeláření v České republice 2. edition. Dol : Výzkumný ústav včelařský, 2011. 68 p. ISBN 978-80-87196-06-9.
- LAMPEITL, F. 1995. Bienen halten. 4. revis. edition. Stuttgart : Eugen Ulmer, 1995. 190 p. ISBN 3-8001-7305-0.
- MARKECHOVÁ D. – STEHLÍKOVÁ B. – TIRPÁKOVÁ A. 2011. Štatistické metódy a ich aplikácie. 1. edition. Nitra : Univerzita Konštantína Filozofa, 2011. 534 s. ISBN 978-80-8094-807-8.
- OBTULOVIČ, P. 2010. Bioštatistika. 4. revis. edition. Nitra : Slovenská poľnohospodárska univerzita, 2010. 171 p. ISBN 978-80-552-0397-3.
- VESELÝ, V. et al. 2007. Včelařství 3. edition. Praha : Brázda, 2007. 270 p. ISBN 80-2090-320-8.
- WEISS, K. 2005. Víkendový včelař. 1. edition. Líbeznice : Vydavatelství Víkend, 2005. 247 p. ISBN 80-7222-368-2.

# **An analysis of the pension coverage for the Zimbabwean informal sector workers**

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**Alois I. Mahachi<sup>2</sup>**

## **Abstract:**

The economic turmoil that ravaged the Zimbabwean economy had a significant impact in the form of unstable macroeconomic fundamental problems such as hyperinflation, unemployment and currency crisis. The majority of the citizens had to come up with a way to survive the unfavourable conditions experienced over the last decade in the form of what has now become known as the informal sector. The researchers critically examine and explore the possible options for extending pension coverage to the Zimbabwean informal sector workforce. The key focus of the study is on the urban informal sector, with particular attention to the two cities of Harare and Bulawayo where the sector is most dominant. According to the vast literature available, efforts in a number of countries worldwide to improve pension coverage rates have proven fruitful by reducing poverty levels significantly. The main thrust of the study is to identify variables that make the informal sector left out of the current structured pension system, their reasons for non-participation and hence the way forward to provide the all-important sector sources of old age income. Focused interviews were conducted with key stakeholders and questionnaires were administered to the sector' participants. Further, government documents from ILO, CSO and NSSA were used to achieve certain objectives of the study. Findings particularly reveal that it is difficult to reach the informal sector through traditional formal-sector pension approaches. The difficulty is mainly attributed to their low income, poor education background, preferences in the context of pensions and inability to meet the minimum eligibility criteria of the traditional system of pension provision. From the analysis of field data, the alternative to the traditional structured pension system is introduction of a new micro pension system based on the researchers' Four Plans Model constructed from preferences of the respondents in the field survey. Furthermore, in considering treatment of the informal sector, pension policy makers should not neglect traditional formal sector schemes. Even though the size of the informal sector has grown in Zimbabwe in recent years, long-term structural trends especially reductions in the share of the labour force in agriculture and urbanisation favour expansion of the formal sector. This paper contributes to the existing body of literature on pension funds and it provides mechanism by which policy makers can implement to improve the provision of pension funds in the informal sector. To our knowledge, we are the first to look at pension coverage in the Zimbabwean informal sector.

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## **Key words:**

Zimbabwe, pension coverage, informal sector

## **Introduction**

It is inevitable that most working Zimbabweans will be incapable of working to produce income for at least some period in future as old age takes effect. Pension systems provide income for consumption smoothing and protection against the risk of old age poverty. Of the characteristics that define a good pension system one that cuts across all is coverage, i.e. the proportion of people that enjoy the protection of the system. Statistics from the ILO (2010) indicate that at least 4 out of 5 jobs in Zimbabwe are presently informal. This therefore implies that approximately 80 percent of the labour force does not have access to formal social security coverage. Coverage of the pension system in Zimbabwe has focused mainly on the formal sector. Consequently, many of those working in the informal sector have been left out of structured pension arrangements. Soon after independence of the country in 1980, the Zimbabwean economy was unable to generate enough jobs for the urban population, resulting in massive unemployment and the consequent development of the informal sector. The twin processes of urbanisation and industrialisation has continued to characterise the development process in Zimbabwe and due to the high unemployment rate and their poor education status, the migrants eventually get absorbed into the informal sector. The introduction of the multi-currency system after the collapse of the Zimbabwean dollar (ZWD) in the hyperinflationary environment prior to 2009 also led to massive retrenchments and job losses. Most of those who lost their jobs also joined the informal sector to sustain their lives; hence the informal sector has been always expanding while the formal sector remains more or less stagnant. The continued informalisation of the economy and the fall in formal sector employment means that fewer and fewer people are contributing to social security in Zimbabwe. As more people lose their formal jobs to get absorbed into the informal sector, there remains the singular question as to why traditional formal sector pensions are still beyond reach of the informal sector and unresolved up to date.

## **Research objectives**

Following from the problem statement as discussed earlier on, this study sought to address the following specific objectives:

- Investigate the needs of the informal sector participants in the context of pensions and how they can blend with the current structured system of pension provision,
- Analyse the variables that inhibit informal sector participants access to structured pension arrangements offered by the pension authorities,
- Suggest recommendations on the way forward on the extension of pension coverage to the informal sector.

## **Significance of study**

The relevance of this study is self-evident as it is aimed at addressing the critical issue of pension coverage for the informal sector in the Zimbabwean economy. Specifically, this study's significance would be experienced in the following critical areas;

- Firstly, the article adds to the existing body of knowledge and literature on the subject of pension coverage for the informal sector. Although, elsewhere in the world there is great multitude of research materials and studies on the informal sector, there seems to be inadequate research on the area of informal sector pensions in Zimbabwe.
- Secondly, the study could serve as a basis for future and further research and study in the area by other students and researchers. This study cannot be conclusive on

the subject of pensions for the informal sector. As the social order changes and dynamics vary, further work could be carried out in the near future.

- Finally, the investigation provide a useful source of reference to Zimbabwean pension authorities such as National Social Security Authority and Insurance and Pension Commission, and the Ministry of Finance especially in policymaking decision concerning budget allocations on state pensions and benefits.

## Literature review

The literature has it that the concept of the informal sector originated in Africa in the early 1970s. The concept, since 1970s, has attracted the attention of a number of researchers around the globe. Smith (1994) defines the term as market based production of goods and services, whether legal or illegal, that escapes detection in the official estimates of the gross domestic product. In Zimbabwe the most common informal sector participants include commuter omnibuses, restaurants, bottle stores, driving schools, hair salons, taxi cabs, food vendors, household workers, farmers and cross border traders among many others. Extensive work has been done on the subject of informal sector pension coverage elsewhere but not much has been done in Zimbabwe. According to Sterk (2009), the world's population is growing older rapidly. By 2050, older people will outnumber the younger for the first time in the world's history. So for developing economies in the 21st century like Zimbabwe, global ageing will be one of the most demanding problems the nation will likely to face. Contextualising Sterk arguments to Zimbabwe, this will imply that without advanced planning and the necessary budgets to cope with the social and economic challenges of population ageing, Zimbabwe faces a daunting outlook of persistent old age poverty. Addressing the skewed coverage of the current structured pension system offers a simple and effective means to alleviate this problem. Regardless of the youth bulge, the growth rate of the older population in Zimbabwe will bring economic and social challenges. Currently, close to 90 percent of those living in Sub-Saharan Africa are without any form of social security, while many who are covered receive benefits that fall short of their basic needs. With the additional crises that Zimbabwe as a Sub Saharan nation will have to face on two fronts, disintegrating social safety nets due to urban migration and the effects of HIV/Aids, much work needs to be done to alleviate poverty. There is therefore clear need to improve the position of both current and future older people, through extensive social security provision. ILO (2010), offers a comprehensive comparison of social security coverage rates all over the world. In Sub Saharan Africa and South Asia, formal social security coverage is estimated at 5 to 10 per cent of the working population and decreasing. In Latin America, coverage is roughly between 10 and 80 per cent, and mainly stagnant. Coverage is generally low in Central America. In Southeast and East Asia, coverage can vary between 10 and 100 per cent, and is generally increasing. In most transition countries of Europe, coverage varies between 50 and 80 per cent, while most developed countries have reached coverage rates of practically 100 per cent. So the Zimbabwean situation of low social security coverage is not only an informal sector problem but a formal sector problem too.

## Reasons for low pension coverage for the informal sector

Butel and Gautam (2010), listed problems faced by the informal sector participants with reference to pensions as:

- Live in remote rural areas, requiring a different distribution channel to urban pension products;
- Are often illiterate and unfamiliar with the concept of pensions, requiring new approaches to both marketing and contracting, thus leading to high transaction costs;
- Have little experience of dealing with formal financial institutions.

Roberts et al (2002), based on a survey of 15 countries ranging from very poor to very rich, gave a comprehensive list of reasons for low coverage of agricultural and urban informal sector workers including:

- Low level of fiscal resources,
- Incapacity of low income groups to contribute,
- Unwillingness of some individuals and employers to contribute,
- Difficulty in finding credible service providers,
- Lack of government support,
- Lack of institutional infrastructure.

### **Perspectives against and in favour of extension of pension provision**

Holzmann, Packard and Cuesta (2000), agree that many existing social security systems are simply “bad brands,” characterised by excessive bureaucracy, tedious procedures, and unfriendly service to members. They eventually conclude that extending them to cover broader segments of the population would be a bad policy decision. Some researchers also state that low income earners from the informal sector prefer to invest in their business, in land or in their house even if they have the resources. Some authors also believe that the informal sector cannot afford pensions. Ginneken (2008), stated complications involved with extending social security to the informal sector. Matul et al (2006) have noted, capacity to pay is not only a function of income levels but also very subjective. Interestingly, the researcher strongly believes that when insurance first became widespread in the late 19th century, it was seen as a poor man’s financial service and so were pensions. The wealthy did not need insurance because they could essentially self-insure. Somewhere along the way, as insurance became more sophisticated and the wealthy recognized their vulnerabilities, the perceptions reversed. Thus, we can never exclude the low income informal sector workers from pension provision based on their contributory capacity alone because the concept of insurance was originally for them also. Dercon (2003), lists benefits of pensions as a form of insurance against poverty as;

- It will sensitize the poor to save towards a pension corpus, which will stand them in good stead during their old age,
- It will establish a close relationship between the NGO/MFI and the members and this is sure to foster their progress,
- It will improve the financial literacy of the poor and thus help them to take care of their financial needs in a better fashion,
- It will help in generating a huge amount of funds into the market, which can be channelled into priority sectors like infrastructure,
- It is sure to reduce the burden on the government and the funds can be put to better uses.

The researchers strongly believe that extensive pension coverage is a key tool for the attainment of the Millennium Development Goals (MDGs). The MDGs, established by the United Nations in 2000, provide more than 40 quantifiable indicators to assess the progress made toward global economic and social development by 2015. For Zimbabwe, a number of MDGs would be more achievable if pensions were also available to the informal sector participants, including the following specific targets:

- Halve the proportion of people, whose income is less than one dollar per day,
- Halve the proportion of people, who suffer from hunger,
- Ensure that children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

In this context of MDGs, wider pension coverage can help reduce the proportion of Zimbabweans who suffer from hunger and whose income is less than one dollar per day.

While our local development experts and the Ministry of Finance are focusing on efforts to promote economic development as a strategy to achieve these targets, they have to recognize that gains can quickly be lost when the informal sector breadwinners stop generating income due to old age. It is therefore the view of the researchers that it is necessary to complement efforts to boost productivity with corresponding efforts to provide protection. Interestingly, micro pensions can also assist in promoting gender equality and empowering women. If old age income through pensions can help protect vulnerable informal sector households from falling back or further into poverty, they will be less likely to have to choose which child to send to school. Furthermore, long term savings and pension policies enable the poor to accumulate assets that can be used to pay for education, for daughters as well as for sons.

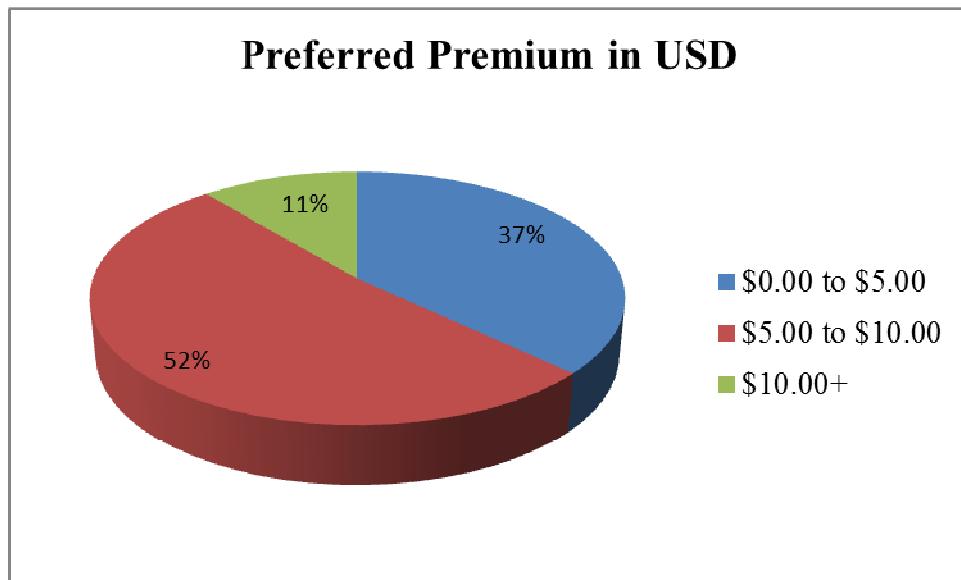
## **Research methodology**

The target area of this research was restricted to Harare and Bulawayo informal sector operators. The preliminary survey conducted by the researcher showed that every form of informal sector enterprises and activities in Zimbabwe can be found in the areas selected for the research. Again, the selected areas were the most convenient as the researchers and those who were engaged to assist in data collection were located in the named areas and ensured effective and efficient administration of the questionnaires and interviews. The target population of this study was the workforce in the Zimbabwean informal sector retail outlets, commuter omnibus operators, taxi cab operators, restaurants and hair salons. The sample frame used for the informal sector was largely restricted to Harare and Bulawayo due to the limited time for the research and resources constraints. Both primary and secondary data were used for data collection. The questionnaire was used as the research instrument and a pilot study was conducted to improve the quality of the research instrument. In addition, the closed questions were crafted to facilitate easiness of completing the questionnaire. Forty five questionnaires were distributed to the sector participants. Thirty four usable questionnaires were returned, which translates into a response rate of 75.6 percent. A total of 34 informal sector operators completed questionnaires and only 18 of the 34 were interviewed, of these 56 percent were men and 44 percent were women. The sample ranged in age from 18 to 56; with the majority falling in middle age group (25 - 44 years). Women were found to be under-represented in the less than 25 age group. Of the 34 respondents, 53 percent indicated that they were married, 29 percent (mostly the under 30 age group) were single and 18 percent widowed or divorced. However, widows represented 30 percent of the female respondents and only one third of the women interviewed were currently married. The marked differences in gender in terms of marital status have a number of implications for assessing the importance of joint life pensions.

## **Results and analysis**

### **Preference Analysis**

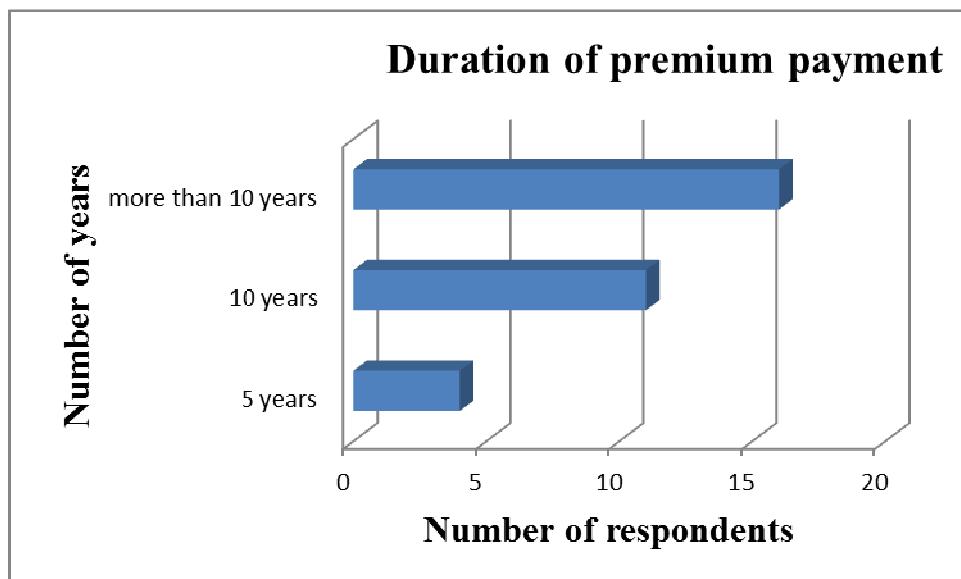
Almost 52 percent of the respondents are willing to join a pension scheme. With more pension awareness programs, it is the researcher's belief that the percentage can be as high as 80 percent. Currently 97 percent of the respondents in the survey do not invest in any other pension schemes and NSSA could thus make use of this potential, since they haven't tried securing pensions at all. On average respondents prefer a pension premium of USD5.00. Given a choice between a weekly and a monthly premium, 96 percent preferred a monthly premium. Of all the respondents, 76 percent did not prefer a pension exceeding USD10.00. The distribution of preferred monthly premiums ranging from USD3.00 to USD15.00 is presented in the pie chart in Picture 1.



*Pic. 1 Preferred premium (contribution) amount*

#### Preferred duration of premium payment

- 13 percent of the respondents are willing to pay premiums only for 5 years.
- 35 percent of the respondents are willing to pay premiums for a maximum of 10 years.
- Only 52 percent of the respondents are interested in a duration exceeding 10 years.

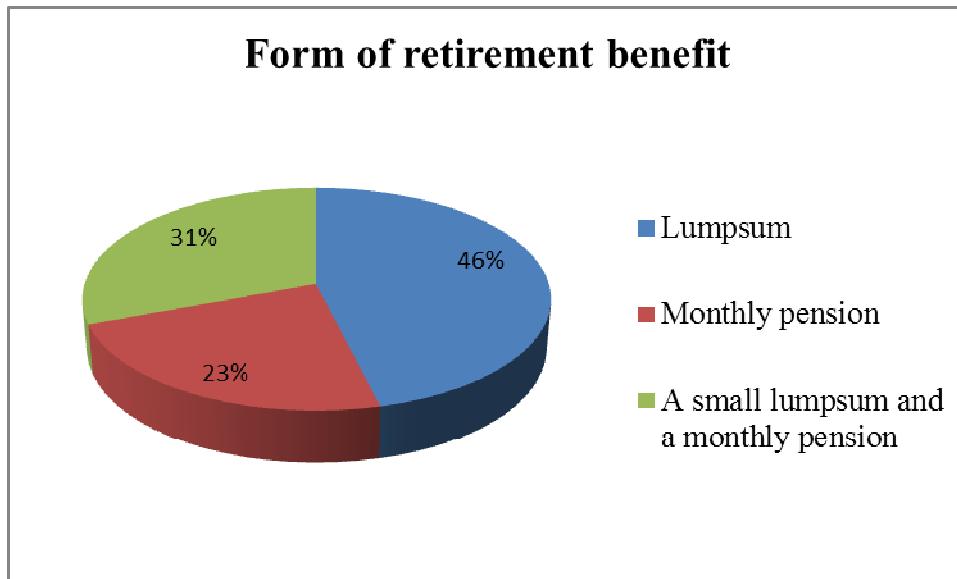


*Pic. 2 Duration of payment*

On further consultations with pension fund actuarial consultants, given that 48 percent of the respondents are not willing to contribute beyond 10 years, USD5.00 as a monthly premium will not suffice to fund a reasonable retirement benefit. There is therefore need to

massively educate the informal sector participants on the need for a higher premium to secure basic and adequate retirement income.

#### **Form of retirement benefit**

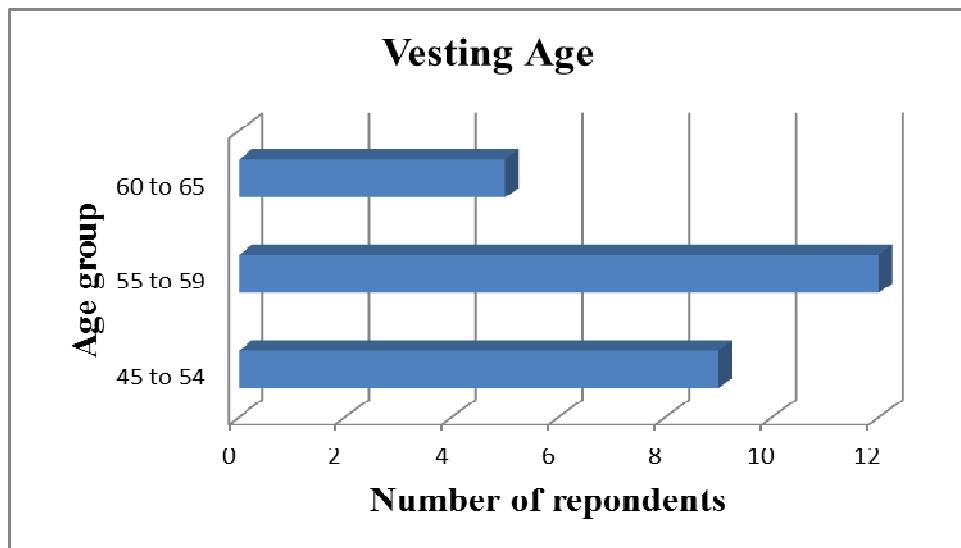


**Pic. 3 Preferred form of retirement benefit**

In further interviews with respondents on significance of higher preference for lump sum benefit, many stated three important thrust areas which are business expansion, child education and purchase of a fixed asset for example a house. Some based their decision of preferring a lump sum benefit to past experiences with the local currency. The ZWD value was ravaged by hyperinflation, hence most respondents were afraid that if it were to resurface in their retirement days, monthly pensions would then be useless thus preferred lump sum cash commutations which can be quickly spent before the ravaging effect of hyperinflation worsen. A few however stated that the type of benefit would depend on situation at date of retirement.

#### **Vesting age**

Around 46 percent of respondents prefer 55 to 59 as vesting age then 35 percent prefer 45 to 54 years and 19 percent prefer age above 60 as the vesting age.



*Pic. 4 Vesting age*

#### **Four Plans Model**

By analysis of preferences alone, the current system of pension provision cannot accommodate these informal sector workers as members. Based on the preference analysis the researchers have developed four plans for a new micro pension scheme specifically designed for the sector. There are 4 plans that can be availed in the scheme which should be based on the duration of premium payment. The four plans are;

- 1. 5 year plan
- 2. 10 year plan
- 3. 15 year plan
- 4. 20 year plan

Entry into a plan should be allowed based on the age group of the member.

*Tab. 1 Plans according to age group*

| Age group    | Plan     |
|--------------|----------|
| 45-50        | 5 years  |
| 40-45        | 10 years |
| 35-40        | 15 years |
| 30-35        | 20 years |
| Less than 30 | 20 years |

A member cannot join any plan as they wish; they can join only one plan based on their age. For example a member aged 32 can join the 20 years plan only and not any other plan.

Assuming now that a premium loading by the pension fund of 20 percent is allowed on the preferred average premium of \$5.00 in section on preferred monthly premium, then the four year plan can be set out as follows;

**Tab. 2 Features of the scheme**

| Member's payment            | 5 Year Plan | 10 Year Plan | 15 Year Plan | 20 Year Plan |
|-----------------------------|-------------|--------------|--------------|--------------|
| Premium per month           | USD6.00     | USD6.00      | USD6.00      | USD6.00      |
| Duration of premium payment | 5           | 10           | 15           | 20           |
| Duration                    | 5 years     | Life         | Life         | Life         |
| Subsidies e.g. bonuses      | -           | Y            | 2Y           | 3Y           |

Assuming Y is a bonus amount in USD offered by the pension fund, a higher amount of bonus is paid in longer duration contracts to make the scheme attractive to members and also motivates them to pay for longer duration.

Except the 5-year plan, all the other plans provide pension for life, and also provide bonuses as mentioned. Bonus for 10 year plan is paid once; 15 year plan twice and 20 year plan thrice to encourage participation. An option for a cash commutation should be part of the benefit structure since 70 percent of the respondents prefer a benefit inclusive of a lump sum.

**Tab. 3 The bonus schedule**

| Plan | Bonus | At the year-end of years | Number of times |
|------|-------|--------------------------|-----------------|
| 10   | Y     | 10                       | 1               |
| 15   | Y     | 10 and 15                | 2               |
| 20   | 1.5Y  | 10,15 and 20             | 3               |

Since no micro pension scheme is operational in Zimbabwe at the moment, feasibility of the new micro pension scheme could have used further inputs, for example current scheme costs to determine profitability. However, the total fixed cost will have to be approximated when plans to introduce the scheme are advanced. The total fixed cost has to be apportioned to each plan based on the assumed number of members who would be joining the respective plan. Multiple decrements may be present for this new micro pension scheme, hence an allowance for decrements due to deaths, default and drop outs has to be made in the process of determining financial feasibility of the scheme by sensitivity analysis. Simulation techniques can then be used to find the Net Present Value (NPV) of the plans for various combinations of the factors and decrements which gives the statistics regarding the NPV. Software can be employed for the simulation run e.g. Crystal Ball developed by Decisioneering Inc. in India. In any case the impact of default rate on NPV is minimal and so the management of the scheme should ensure that the value does not exceed the targeted maximum default ratio. When the minimum Net Required Return (NRR) required for a positive NPV has been calculated, the management should ensure that they earn at least the minimum NRR as interest, to make this scheme financially viable. Thus, if strategically and judiciously used, this new tailor made micro-pension system will go a long way in lending a helping hand in poverty alleviation.

#### **Factors for non-participation by the informal sector participants**

To compliment findings from the questionnaire, the researcher conducted interviews with 18 of the 34 of the respondents for the questionnaires and compiled the following reasons for non-participation in the current structured pension system:

**Tab. 4 Reasons for non-participation**

| Reason     | Number of respondents | Percentage of sample |
|------------|-----------------------|----------------------|
| Asocial    | 7                     | 39                   |
| Protest    | 4                     | 22                   |
| Habitual   | 5                     | 28                   |
| Procedural | 2                     | 11                   |
| Total      | 18                    | 100                  |

### **Asocial non-participation**

This reason was also cited by a good number of the informal sector entrepreneurs for not securing means of old age economic support. The reason arises from the fact that some of the informal entrepreneurs know that their colleagues in the informal sector do not have any pension arrangements and so they would also not participate. This study revealed the stark reality that the general level of non-participation in the informal sector may further discourage the few informal sector businesses that are considering making pension arrangements currently from doing so in future. This is a disturbing signal that must be dealt with by pension authorities to increase awareness so as not to worsen the problem of high non participation.

### **Protest (symbolic) non-participation**

Some respondents mentioned protest non participation as a reason for not attempting to secure pension coverage. This is a result of perception that the pension system is unfair, the contribution rates are too high and do not see any direct benefits of pensions themselves. These respondents felt generally that government has not put to efficient use the pensioners' monies and so think that it is not worth securing pensions. Some of the respondents cited corrupt practices among pension fund administrators who they perceived as dissipating member contributions for their self-aggrandizement. The informal entrepreneurs, therefore, use non participation in pension system as a form of protest against the perception of the misuse of contributions. This was worsened by the fact that soon after the introduction of the multi-currency regime in 2009, a significant amount of pensioners were receiving very mediocre pensions as low as USD10.00 per month. If these findings are anything to go by, it would mean that development policies of government can induce pension non participation.

### **Habitual non-participation**

Some of the respondents simply did not have any reason for pension non participation. They do not seek pension coverage for no apparent reason. Pension non participation has become part and parcel of them resulting from a long period of non-participation. Non participation effectively can be said to have become their habit.

### **Procedural non-participation**

Procedural non participation was not one of the major reasons offered by the respondents for non-participation. This is because a good number of the respondents have never tried to secure pension coverage before. Two of the respondents who in the past tried to secure pensions faced difficulty with the cumbersome and complex application procedures. Table 4 indicates clearly that a large number of the informal sector operators at least have one reason for pension non participation. Close to 24 percent of the respondents attributed their failure to have pension coverage to the fact that they do not know about pensions, hence inability to answer and return 11 of the questionnaires.

## **Conclusions**

From the analysis of findings the researchers conclude that expanding coverage to informal sector workers through the formal sector mandatory system of provision is highly

unlikely. This is mainly because of the findings of the field survey relating to preferences, reasons for non-participation and statistics favouring the formal sector at the expense of the informal sector. Under preference analysis, respondents were willing to join a pension scheme, but their diverse preferences on amount of premium, form of retirement benefit, vesting age and duration of premium payment rendered them beyond the current structured pensions minimum requirements. Most respondents attributed non participation in the current structured pension system to asocial, protest, habitual and procedural reasons. To further investigate variables that make the sector inferior to the formal sector in terms of pension structures, national statistics reflected lack of fiscal space in the country, registration, licensing and location of its participants, levels of education and income disparity as the most significant variables. A comprehensive list of reasons related with the above mentioned field survey findings that render the current structured and mandatory pension system beyond reach for the sector include:

- Incapacity of low-income groups to contribute high rates required by current structured mandatory pension systems,
- Unwillingness of some individuals and employers to contribute citing asocial, protest, habitual, poor employer-employee relations, procedural and lack of knowledge as reasons for non-participation,
- Incapacity to detect, affiliate, and collect contributions among micro-enterprises and informal workers,
- Lack official registration papers or other documents which could help the relevant authorities target them for other schemes,
- Change jobs frequently and often live and work in rural areas which financial infrastructure is poor or non-existent.

The above however do not automatically disqualify pension provision for the Zimbabwean informal sector. The researchers believe that through support from the government and several financial institutions a new pension system can be tailor made for the sector with the emphasis on pensions for low income earners.

We recommend a micro pension system based on the Four Plan model. The structure of the new pension system should be flexible to this group of individuals and cannot be a mandatory since the current mandatory system has scared off 48 percent of the respondents who were not willing to join a pension scheme. Thus almost all schemes to extend pension coverage beyond the formal sector will need to involve implicit or explicit subsidies. In some cases, the subsidy will come at the stage of contribution, in others, it will come in the calculation of benefit, in yet others, it will come from support for the scheme's operating costs. But, subsidies are unavoidably linked to liabilities. Also on the event of the death of the member, the amount lying in his micro pension account is paid to the nominee. If he/she so desires and is eligible to do so, may join the fund in his/her own capacity.

### **Literature:**

- Butel, C., Gautam B. (2010). 'India Pension Reforms for the Unorganised Sector'. Asian Development Bank Project Report.
- Dercon, S. (2003). 'Insurance against Poverty.' UNU World Institute for Development Economics Research paper.
- Holzmann, R., Truman P., Jose C. (2000): 'Extending Coverage in Multi-Pillar Pension Systems: Constraints and Hypotheses, Preliminary Evidence and Future Research Agenda'. The WB, Social Protection Discussion Paper Series.
- ILO (2010), 'Providing coverage in times of crisis and beyond', ILO Publication.
- Matul M.E, Durmanovu E., Tounitsky V. (2006). 'Market for microinsurance in Ukraine: Low-income households needs and market development projections', Microinsurance Centre.

- Roberts, S., Bruce S., and Karl A., (2002). 'Assessing the coverage gap: a summary of early findings from an ISSA Initiative study'. ISSA Initiative Findings and Options No. 4. Loughbrough University: Centre for Research in Social Policy.
- Smith, P. (1994) 'Assessing the Size of the Underground Economy: The Canadian Statistical Perspective'. Canadian Economic Observer, 7(5), pp.16-33.
- Sterk B, (2009), 'Micro pensions: Helping The Poor To Save For The Future' United Nations' report.
- Ginneken W (2008), "Social security for the informal sector: A new challenge for the developing countries".

# **The Management, Preservation and Dissemination of Indigenous Knowledge in Academic Libraries in The Eastern Cape**

**Nancy Nokwazi Mtwa<sup>1</sup>**

## **Abstract:**

Libraries in the Eastern Cape region are allegedly dominated by western publications. It has also been noted that Indigenous Knowledge (IK) centered publications occupy limited space and are in some cases looked down upon and poorly managed. This problem is worsened by limited funding for the IK sector despite acknowledgment and efforts by government and other stakeholders to promote it. In the paper I explore and assess how indigenous knowledge is managed, preserved and disseminated by academic libraries in the Eastern Cape region. I also pose challenges and opportunities surrounding to these Library and Information services practices and establish best strategies for managing IK for sustainable use by the community, such as, use of information and communication technology (ICT) are assessed. There is a need for academic libraries to transform and decolonize their collection by managing, collecting, documenting, organizing, storing and disseminating the indigenous knowledge and promoting it. Information professionals should work with indigenous communities to develop solutions that meet local needs. The academic library should be seen as an information and educational resource for the community outside the institution and also open its doors to the youth so that they can learn about their indigenous knowledge and develop pride in their heritage.

## **Keywords:**

Eastern Cape, academic libraries, information professionals, special collection, management, indigenous knowledge, community

## **Introduction**

Limited information on Indigenous Knowledge (IK) has been recorded and documented. Most information on this issue however, remains unrecorded and undocumented as indicated by Dlamini (2005). It is noticeable that much information is preserved in the minds of the elderly and sages within rural communities. According to Ngulube (2002) indigenous knowledge which has generally been passed on orally from generation to generation, is an "endangered species", unless local professionals attend to its management, that is, its collection, documentation, organization, preservation and dissemination. Development projects cannot offer sustainable solutions to local problems without integrating IK (Dlamini, 2005). It is therefore, the Librarians' role to transfer information from where it is held to where it is needed. Libraries as information centers are the correct places to store and manage IK. Among other things, have to involve communities by giving the indigenous knowledge systems (IKS) a voice through its management. The purpose of this study is to examine management and preservation of indigenous knowledge (IK) within three academic libraries in the Eastern Cape Province. Indigenous knowledge needs to be adapted and utilized for communities to develop. Libraries as information centers should play an important role since they exist to provide communities with the necessary and relevant information. As libraries are depositories, collectors, organizers, distributors, and mediators of information, they

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should cater for those who interested in indigenous knowledge and other sources of information. Their aim should be to make sure that all users get required information.

## Rationale for the study

Dlamini (2005) argues that indigenous knowledge has often been suppressed, or ignored and neglected by mainstream western science. As a result it is only currently being resuscitated or revived. Although attempts are being made to collect and collate IK, very little has been written on its management. Research on the management of IK within the library and information science field is sketchy. It is noticeable that curricula in many universities in Southern Africa do not have sufficient integration of IK components. Academic libraries may be rich in their collections on other subject areas, but they do not have separate collection on indigenous knowledge. Seemingly, books and pamphlets that contain indigenous knowledge are scantily located in the general collection of books. It is also observable that no academic library has oral indigenous knowledge collection either in audio-visual form or document. Storage in retrievable repositories is necessary. This involves categorization, indexing and relating it to other sources of information. This would make it accessible and consequently conserving, preserving and maintaining it for retrieval. In this sense, there is a need for the management of IK. This study will hopefully contribute immensely to the body of the existing knowledge of IK management in the library and information sector. An important question arises: how do academic libraries collect, preserve, manage and disseminate IK?

## Theoretical Framework

The struggle for the re-discovery and re-affirmation of indigenous knowledge and theoretical frameworks has grown significantly in the past 20 years. In New Zealand, the Kaupapa Maori theory has been developed as an indigenous theoretical framework that is grounded in Maori worldview, language and culture. The concept "Decolonizing Research Methodologies" is grounded in the Kaupapa Maori theory. It was coined by Smith (1999) to de-colonize and de-construct research approaches that emerged from western scientific research. The western-based research was codified within ideologies of imperialism, colonialism and western science as 'regimes of truth' which marginalized indigenous-based knowledge science and ways of conducting research. Eziko Sipheka Sisophula (Eziko, for short) is a relational theoretical framework coined by Goduka (2005) as another antidote to western-based knowledge systems. It is rooted in the Nguni worldviews, philosophical foundations, cultural values and languages, and is appropriate for teaching and researching for sustainable development within rural communities. In this research, Eziko theoretical framework has been used to undergird the discussion on management, preservation and dissemination of IK within three academic Libraries in the Eastern Cape Province. Eziko is one of indigenous theoretical frameworks that come under the umbrella of post-colonial theories for decolonizing and de-constructing western-based frames of reference. It involves the collective struggle and efforts of indigenous scholars/researchers and students to interrogate and deconstruct the impact and the continuing legacy of the European conquest, the domination of indigenous lands, peoples, cultures, languages, religions and worldviews, but above all the colonization of their minds through the western-based science and knowledge systems that have historically taken center stage in education, especially in libraries that are the backbone of universities. It also probes the inherent ideology of the supremacy and legitimacy of western-based knowledge over indigenous-based knowledge. Specifically, in this research, Eziko theoretical framework is used to create spaces and processes in order for indigenous identities, realities and knowledge systems that were part of the colonizing mission to be deconstructed in higher education and libraries. This process will lead to the creation of systems for managing, preserving and disseminating IK within academic libraries. In order to decolonize western-based knowledge, libraries need to: Provide material that includes IK and artifacts in their collection; Training of Librarians to

raise awareness about the importance of IK; Librarians need to work in collaboration with IK holders; and Inclusion of IK in the library collection development policy.

## **Indigenous knowledge and Libraries**

The recognition of the high value of experiential knowledge (tacit knowledge) has led to a new awareness about the need to reassess how human resources are managed in organizations, and the need to revisit the cultural content of knowledge (Mchombu, 2005). Management of information resources is the responsibility of information professionals, and therefore professionals on the continent have a critical role to play in ensuring that IK is properly harnessed, processed and released (Chisenga, 2002). This is only possible if they take a keen interest in the management of this elusive and most difficult resource. Access to information cannot be achieved without involving libraries as they are one of the building blocks of the local information and knowledge infrastructure (Dlamini, 2005). The role of any library or information centre is to extensively document, before it is too late, a variety of accumulated experiences from communities, near and far. Now it is said, no longer is the library primarily a depository of books nor the librarian mainly a caretaker and custodian. Libraries are regarded as storage of knowledge where printed and recorded knowledge is collected, organized for retrieval, preserved and made available for use (Lor, 2004). He further claimed that libraries are highly developing theories, systems and techniques for the collection, organization, preservation and making documented and recorded knowledge to be accessible, and these include books, videos, CD-ROMS, files and folders. Nowadays the documents may be digital or virtual and be held on more servers on the World Wide Web (www) or electronically. It is noticeable that libraries focus on the existing documents such as printed books, journals, newspapers, pamphlets as well as audio visuals and videos. It is clear that libraries are basically concerned with published documents with the exclusion of the greater proportion of Indigenous Knowledge (IK) which is not recorded or published, but resides in the minds of the knowledge holders and is transferred by word of mouth (Lor, 2004). Even in libraries where indigenous knowledge is documented it is unfortunately not published or accessible and this put a question over the role of libraries in respect of indigenous knowledge (IK). The archiving of traditional knowledge in the digital form or in other forms, such as display in museums, maintenance of documents, preserving through sound-recordings, video-recordings are specialized jobs, for which the facilities are not generally available in libraries. Lor, (2004) argued that South African libraries are linked in one or more systems or networks including provincial and metropolitan public library systems, regional higher educational consortia, the Southern African Interlending Scheme and Sabinet Online, the national bibliographic and resource sharing utility which together they form an extensive network of agencies dedicated to organizing and disseminating knowledge of which the question is, can this network be of use in the preservation and promotion of IK? Greyling (2007) said that Web 2.0 technologies are used to create a collaboration online local IK database. She continued that the community assumes ownership of the database, while the library focuses on custodianship of the information resource. The library will provide database management, training and support. LIS professionals must first seek to understand the context in which IK and traditional cultural expressions (TCE) came to be in their collections (Burtis, 2009). According to Burtis (2009), Indigenous cultures have been oppressed and exploited under colonial rule and libraries may have materials that would be important to a group attempting to revitalize their language. When the libraries shift from seeing themselves as the owners of these materials or as caretakers, a dialogue can begin between LIS professionals and indigenous communities (Burtis, 2009). Many libraries recognize IK as an important source of developmental information and that the library and information profession has a lot to learn if they are to meet the information needs of indigenous people and appropriately manage IK (Anyira, Onoriode, Nwabueze, 2010). They observed that libraries should move outside their comfort zone because the development of services is demanding, requiring new disciplines, technologies and collaborations and indigenous people are always generous in sharing their

knowledge with libraries, and so libraries must maintain the momentum. They must play an important role in IKS by providing and proactively promoting appropriate displays, exhibitions and tours, by having a welcoming presence for indigenous cultures and by actively acquiring material produced by and about indigenous people.

### **The management of IK in Libraries**

Managing indigenous knowledge could help reduce poverty, reduce environmental degradation, enhance equity and lead to sustainable development as well as increased local participation in the development process (Dlamini, 2005). Knowledge management tools provide strategies that may be used to manage and integrate both tacit and explicit knowledge (Ngulube and Lwoga, 2007). This need to ensure that knowledge is being preserved for the use of the community itself and the community is being included in the process of formation and diffusion of their knowledge (Stevens, 2008). He further said that projects to preserve IK must be driven by indigenous communities. Libraries and information professionals can play an important role in assisting with the management of indigenous knowledge. Libraries, museums and universities can provide valuable resources and expertise for collection, organization, storage and retrieval of information in partnership with the communities. As indigenous knowledge has fundamental differences from Western knowledge, management of indigenous knowledge requires the non-indigenous information professionals to reconsider not only his/her tools and processes, but also his/her entire way of thinking about knowledge and information (Stevens, 2008). The information professional should work with the community to analyze the project and determine specific needs before making decisions about collection, organization, storage and access. Digital technologies facilitate this in ways were not previously possible. Audiovisual digital recording devices can be used to capture oral stories in original indigenous languages, as well as techniques, practices, songs and dances, often performed in context (Stevens, 2008). Photographs, manuscripts and physical artifacts can be closely represented using scanners and 3D scanners. There is also a need to record indigenous knowledge related to plants so that pharmaceutical companies that use these plants for product development will recognize prior use by indigenous communities and benefit them accordingly. Libraries can provide needed resources for indigenous communities as they are often remote and therefore may have limited Internet connectivity. Stevens (2008) argues that when managing indigenous knowledge, one may need to seek out alternative thesauri and classification systems or develop new ones to suit the local knowledge system one is managing. According to Ngulube and Lwoga (2007) a policy framework for codifying IK should be formulated on the basis of the knowledge principles to enhance the processes of discovering, capturing, sharing, preserving and utilizing IK. The policy would guide the strategy that will bring about the infrastructure that will manage and preserve IK. A policy framework is a key to determine the processes in creating the space for knowledge integration, sharing, use, dissemination and preservation (Ngulube and Lwoga, 2007).

### **Methodology**

The research design are population, sampling, data collection tools, namely, questionnaire, semi-structured interviews observation, ethnography, analysis of data and ethical considerations. A quantitative and qualitative method has been used in this study including the sample, analysis of data and ethical considerations.

### **Research Area**

This study was set out to establish and assess how libraries in different academic institutions manage, preserve and disseminate IK. This study provided some useful insight on the management of indigenous knowledge in the institution of higher learning libraries in the Eastern Cape Region. Accordingly, the sample consists of Walter Sisulu University (WSU); University of Fort Hare (UFH); Rhodes University (RU).

### **Sampling techniques and the sample**

Purposive or theoretical sampling means selecting groups or categories to study on the basis of their relevance to your research questions, your theoretical position and analytical framework, your analytical practice and most importantly the argument or explanation that you are developing. It is concerned with constructing a study group, which is meaningful theoretically and empirically, because it builds in certain characteristics or criteria, which help develop or test your theory or your argument (Dlamini, 2005). Neuman (2006) defines sample as a subset from the accessible population being studied. In qualitative research, the sample units are usually referred to as participants or informants as opposed to participants or subjects (Dlamini, 2005). In this study, the investigation will focus on the management of a specific information source, that is, Indigenous knowledge. Therefore, the researcher will adopt a purposive or theoretical sampling method.

### **Quantitative and qualitative research approaches**

De Vos et al (2002) points out that at present there are two well-known and recognized approaches to research, namely, the quantitative paradigm and the qualitative paradigm. These two methodological paradigms differ vastly from each other. The quantitative paradigm is based on positivism. It takes scientific explanation to be nomothetic. Its main aim is to measure the social world objectively to predict and control human behavior. In contrast, the qualitative paradigm stems from an anti-positivistic, interpretative approach, is idiographic and thus holistic in nature. Its aim is mainly to understand social life and the meaning that people attach to everyday life. This study also adopted use of qualitative approach.

### **Population**

The population is an entire set of objects and events or group of people which is the object of research and about which the researcher wants to determine some characteristics (Neuman, 2006). For this study, target population consisted of library personnel (senior, middle and top management) of the selected academic libraries. Therefore the participants were: The Directors of three selected academic libraries; The Deputy or Assistant Directors of three academic libraries; The managers and senior librarians of three academic libraries; Librarians of three academic libraries; Librarian responsible for ILAM; Librarian responsible for Albany Museum; Archivists.

### **Sampling techniques and the sample**

Purposive or theoretical sampling means selecting groups or categories to study on the basis of their relevance to your research questions, your theoretical position and analytical framework, your analytical practice and most importantly the argument or explanation that you are developing. It is concerned with constructing a study group, which is meaningful theoretically and empirically, because it builds in certain characteristics or criteria, which help develop or test your theory or your argument (Dlamini, 2005). Neuman (2006) defines sample as a subset from the accessible population being studied. In qualitative research, the sample units are usually referred to as participants or informants as opposed to participants or subjects (Dlamini, 2005). In this study, the investigation focuses on the management of a specific information source, that is, Indigenous knowledge. Therefore, the researcher adopted a purposive or theoretical sampling method.

### **Data Collection**

As mentioned above, a qualitative ethnographic investigation was undertaken. This study does not focus on gathering data from the custodians of IK, but focuses only on the management of IK in libraries as an information source within the library and information centre. This study adopted the ethnographic method of investigation, through using an interview and allowing for observation. For the purpose and nature of this study, the following methods and tools were used in data gathering: Questionnaires; Semi-Structured interviews; Ethnographic; Observation (in the form of library and information centre visits). A

questionnaire has been designed to obtain information on the existence, management and preservation of Indigenous Knowledge within institutions of higher learning in the Eastern Cape region. This study is a matter of purpose with which research is conducted, and to conduct an in-depth study of a culture, then qualitative research is used for this study. This ethnographic study took place in three academic libraries in the Eastern Cape. It aimed to assess different forms of IK in existence, how is IK being managed, preserved and disseminated and what challenges being encountered in managing IK. Capturing of data was done through the use of the Statistical Package for Social Sciences (IBM SPSS Statistics 19). Charts were used for the presentation of the data.

### **Research findings**

The data obtained from the study about familiarity on the concept of IK shows that 70.21% of the participants know the concept IK and 29.79% do not know the concept IK. The findings show that 27.66% heard about IK in education; 8.51% on agriculture; 12.77% on health; 46.81% heard about IK from older generation and 4.26% from other.

Forms of IK in the libraries.



**Pic.1 Umbhaco (traditional skirt)**

Picture 1, shows the original traditional skirt (Umbhaco). It is made of original heavy and hard material (intente) surrounded by thin layers of black lace and zigzag binding (inazini or ichele). To wash it, red muddy water (imbola) is used. This muddy water has different names as it is differ in color, for example, Umdiki, (ox-blood) ubhelu-bhelu (peach), umcobothi (orange).



**Pic. 2 Indigenous belt and necklace**

Picture 2 shows beaded belts (iintsimbi), usually used by chiefs and traditional healers. They are also using it as traditional necklace. it is sometimes made as a small size to fit the head of men (elders).



**Pic. 3 Indigenous music instruments and drums**

Picture 3 shows hand-made indigenous music drums and instruments which are preserved in ILAM, these music instruments are the library collection that is used when performing in music festivals.

IK collection for different categories.



**Pic. 4 Ibhuma (hut for initiate)**

Picture 4 is an indigenous object hut-like is called iBhuma or iThontothat is used or made as a shelter for young men in initiation to manhood. It is made of grass and women are the ones and responsible for making it.



**Pic. 5 Indigenous embroidered big sticks**

Picture 5 shows a collection of embroidered big sticks (ama-bhunguza) carried by middle age men and chiefs.



**Pic. 6 Intsimbi (beads for covering the face)**

Picture 6 shows a collection of beads (intsimbi yobuso) that is used by diviners to cover the face.

### **Conclusions:**

The main aim of this study was to assess the management, preservation and dissemination of indigenous knowledge within academic libraries in the Eastern Cape Region. The significance of undertaking this study was to provide a better understanding of indigenous knowledge management within a library and information service set up. The following aspects have been picked up to sum up this study results with regard to collection, preservation and dissemination of IK.

### **On collection and organization of IK**

To collect IK, this study found that IK is collected through donations by individuals, oral history, through recordings from conferences and ritual ceremonies, music festivals, ordering and through interlibrary loans and sharing. There are no library collection development policies that include IK in the libraries studies. This study found that when the IK is collected, information is then organized according to form and classified according to subjects. IK is organized through processing of printed material that has been ordered through acquisitions, donated materials by individuals and audio-visuals according to their form and allocated class numbers. Audiotapes, videotapes, photographs, recordings, microfilms are used as storage devices and are also used as collection devices. To classify IK material, for example, art and bead-work, these libraries get assistance from IK people and they pay them.

### **Storage and preservation**

According to findings of this study, IK in some libraries is preserved in a temperature controlled store to avoid damage and by using channels to make it last longer. One of the selected libraries uses Acid Free Paper to preserve documents. Two of the selected libraries have a Pumping air machine that drains water for humidity. Audiovisuals and digitized materials are kept in audiovisual store and the Pumping Air Machine is used to control the temperature. Some information is kept in cabinets as archival copies. History, Political, Religious, Anthropology, African languages books are kept in open shelves. Also, this study found that audiotapes, videotapes, CD-ROMs, microfilms are used as the storage and preservation devices. Indigenous knowledge materials are used as reference material and for library use only, unless the arrangements have been made between the librarian and the user to be taken out.

### **Dissemination or Sharing of IK**

The dissemination of IK to users is through the same channels as other sources of information, but for library use only. IK is also disseminated by use of information technology, internet, websites, and marketing IK through arts festivals, library displays and visiting of schools.

## **Summary on findings**

All the selected libraries have a challenge of shortages of funds. Another challenge they encounter is the IT specialist to digitize IK material. These libraries do not get full support from their institutions regarding IK. WSU Africana and Special collections received funds from SAHRA and other stakeholders to initiate the project of Joan Broster Beadwork & Clothing Collection. Another challenge for WSU is a lack of space and equipment to manage IK. NAHECS has got no actual fund to support them. As a result, there is a backlog due to lack of funds. There is no money to employ more staff. Another challenge they encounter is the IT specialist to digitize IK material. For digitizing IK collection, an expert is hired for that and is costly for most libraries especially since there is poor funding. Two of the selected libraries manage indigenous knowledge, but lack of funds is one major issue that has been voiced as the biggest hindrance in IK management. It was also noted that library and information professionals know the importance of IK but are not adequately trained hence do not have enough skills on how to manage it. It was further noted that in the libraries studied, library collection development policy does not include IK except for NAHECS. The findings of this study show that the little IK WSU library possesses is not readily available to the general public, only the educated and the information literate know of its existence; the project on Joan Broster collection is still an ongoing process. It was also noted that IK collections in some of the selected libraries are still very much westernized and very much book-based, except NAHECS and ILAM. There is also poor marketing of IK by the selected libraries except NAHECS and ILAM. It was further noted that intellectual property rights are not dealt with, with respect to IK and the bearers of IK do not directly benefit from their knowledge. Knowledge about IK management is crucial for effectively meeting the information needs of different people in a community. The aim of the study was to gain some insight in the state of IK management, preservation and dissemination in academic libraries in the Eastern Cape, and it was confirmed that the selected libraries although they are aware of the value and importance of IK, they do not put enough effort to IK management. This study gathered information on the research related activities and views, attitudes and perceptions of the participants on IK management.

## **Recommendations**

Indigenous knowledge has been ignored and rejected, but they do not know why it has been ignored and rejected; they do not know why IK has been ignored and rejected because it has been ignored and rejected. From the findings of this study, time has come for the librarians and information professionals to stand up and do something for this valuable information before it is too late. There must be an implementation of community libraries where this valuable information will be stored for the community. To this extent, the attention to indigenous and the attempts to direct resources toward the indigenous can and must be welcomed. For accessibility, a modern separate space within the library or a knowledge centre should have access to local sources of knowledge including traditional knowledge, to amplify the use of local traditional knowledge, to bring to notice of local people improvements and advances shaping the world. The strategy which involves researching, documenting, classifying, correlating, archiving and systematizing indigenous knowledge focuses on symptoms. Indigenous knowledge has now become the central issue in global discourses as a strategy to solutions on social, economic and political problems. The information management profession through its long experience in preserving and organizing human knowledge and serving as an effective mediator between the information and its user, is in a unique position to become an active partner in the whole process of IK management from identification to its use. However, it must be emphasized that IK resources require differential treatment in contrast with the normal information resources. Therefore, the profession will have to develop new tools and techniques in order to meet the requirements of IK management with academic libraries. This study recommends that Library and information professionals include indigenous knowledge in the existing collection development policies or must design collection development policies that include IK. Libraries must provide essential

services that promote an understanding of indigenous issues. There must be an effort to create a virtual library resource of local indigenous knowledge, freely accessible to all members of the community. This study show that there is an extinction of IK due to lack of collecting, recording and problems associated with preservation and protection of the indigenous knowledge, and challenges in indigenous knowledge prevention. This study suggests that decolonization of academic library collection must take place. Librarians must change their mindset by deconstructing what was constructed. These include among others, developing appropriate Indigenous Knowledge policies and practices, establishing IK resource centers, training, researching and developing IK networks, and how university libraries can collect, preserve and organize indigenous knowledge materials. The academic libraries together with the department of Library and Information Science must work hand in hand for IK to be effective. This does not mean that academic libraries are converting the library to archives, but these institutions must work in collaboration. The department of Library and Information Science must include or introduce IK in curriculum as a subject in the institution of higher learning. This study will provide useful insight on how academic libraries can decolonize knowledge through the inclusion of IK in library collection. Recommendations will be offered to Walter Sisulu University and the DoE to address gaps in knowledge as well as implementation needs.

### **Literature:**

- Anyira, I.; Onoriode, O.; &Nwabueze, A. 2010.The role of Libraries in the preservation and accessibility of Indigenous Knowledge in the Niger Delta Region of Nigeria. *Library Philosophy and Practice* (e-journal), Available: <http://digitalcommons.unl.edu/libphilprac/387>
- Burtis, A. 2009. Managing indigenous knowledge & Traditional cultural expressions: Is technology the solution? : *Information for social change*, 29,14.21.
- Chisenga, J. Indigenous knowledge: Africa's opportunity to contribute to global information content. *SA journal of Library and Information Science*, 68(1).
- De Vos, C.B. ...et al. 2005. Research at Grass roots: For the social sciences and human service professions. Hatfield : Van Schaik Publishers.
- Dlamini, D.N.B. 2005. The management of indigenous knowledge in Swaziland, with specific reference to the Swaziland National Library Service (SNLS): Bellville, University of the Western Cape.
- Goduka, N. 2005. EZIKO :Sipheka Sisophula. *South African Journal of Higher Education*, (19).
- Greyling, B. 2007.Preserving IK: a model of community participation in African Libraries. Nairobi, Online: <http://www.ulwazi.org/index.php?view>
- Lor, P. 2004. Storehouses of knowledge?: the role of Libraries in preserving & promoting indigenous knowledge: *INDILINGA-African journal of Indigenous knowledge Systems*, Vol.3 (1).
- Mchombu, K. 2005. What makes information a strategic economic resource: The role of Librarians and other information professionals in Africa. Addis Ababa, Ethiopia : UN Economic and Social Council
- Neuman, W.L. 2006. Social research methods: Qualitative and quantitative approaches. Boston: Allyn and Bacon.
- Ngulube, P. 2002. Managing and preserving indigenous knowledge in the knowledge management era: challenges and opportunities for information professionals. *Information Development*,18 (2).
- Ngulube, P. and Lwoga, E. 2007.Knowledge management models and their utility to the effective management and integration of indigenous knowledge with other knowledge systems. *Indilinga – African Journal of Indigenous knowledge systems*, Vol.6 (2).
- Powell, R.R. and Connaway, L.S. 2004. Basic research methods for Librarians.London : Library and Information Science Text Series.

- Smith, L.T. 1999. Decolonizing methodologies: Research and indigenous people. New York: Zed Books Ltd.
- Stevens, A. 2008. A different way of knowing: Tools and strategies for managing indigenous knowledge. Canada :Libri, vol. 58

# **On Linkages between Unemployment and International Migration in Immigration Countries of the EU**

**Milan Palát<sup>1</sup>**

## **Abstract:**

The objective of the paper is to evaluate relationships of the rate of migration and the unemployment rate in selected established member countries of the European Union covering also the period of the last financial and economic crisis and using statistical methods. To determine parameters of a regression function were used methods of regression and correlation analysis including testing the statistical significance. All countries show a negative linear relationship between tested indicators however not always statistically significant. Based on these results, the existence of correlation is evident between the crude rate of net migration and the unemployment rate in more than a half of the monitored countries. Calculated correlation indices show highly statistically significant results for typically immigrant's destination countries, e.g. Germany, United Kingdom and Belgium but we can find statistically significant results also in countries which are facing enormous economic problems during the last financial and economic crisis, esp. in Ireland and Spain. With an exemption of Belgium, the selected type of regression function doesn't play a role as it regards the statistical significance of correlation indices and the use of polynomials of higher degrees doesn't improve those results significantly. The analysis of the crude rate of net migration and the unemployment rate presented in this paper can be further used and developed when other variables would be added to the model.

## **Key words:**

Migration, unemployment, correlation, European Union

## **Introduction**

The consequences of international migration on both social and economic life in receiving and sending countries should not be underestimated. In view of the significance of international migration in European population dynamics, it is highly relevant to study the factors that determine international migration in the periods of economic boom and also in the times of economic crises. Economic determinants of international migration are mostly associated with labour migration. However, other migration types are also partly determined by economic factors. The dominant international migration type in Europe in the 1960s and the early 1970s (until the economic recession of 1973-1974) was labour migration. Many South European workers migrated to Western Europe (King, 1993; King and Rybczuk, 1993). Since the 1980s, economic factors seem to play a bit less important role in explaining migration flows within Europe. For instance, the consequences of opening international borders within the European Union for intra-European labour migration appeared to be small. At the same time, economic indicators remain important factors behind intercontinental migration flows to Europe and behind migration from the former communist countries in Eastern Europe to the European Union and EFTA countries (European Free Trade Association). New mobility trends were dealt by Abramuszková Pavlíková, (2011) but although the geographical pattern of migration in Europe has changed, much of the theoretical rationale for migration remains nevertheless unchanged.

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The theoretical rationales for the different international migration types are quite complex as the factors which influence migration often also largely influence each other. For instance, the socio-economic situation in a receiving country is often a very important determinant of the migration policy of this particular country. The collapse of the communist bloc in Central and Eastern Europe had also significant impacts on migration flows. From 1989 onwards, a period of transition started. As a consequence of the downfall of the communist system, several countries, which did not exist in the previous period, were formed (Russia, the Ukraine, Belarus, Moldova, Estonia, Latvia, Lithuania, Croatia, Bosnia-Herzegovina, Serbia-Montenegro, Macedonia, Slovenia, Czech Republic, Slovakia and (a united) Germany, and others (the Soviet Union, Yugoslavia, Czechoslovakia and East and West Germany) had ceased to exist and international migration to Western Europe was highly influenced by these historical developments. This paper is focussed on the development and relationships of migration and unemployment. The objective of the paper is to evaluate relationships of the crude rate of migration and the unemployment rate in selected established member countries of the European Union covering also the period of the last financial and economic crisis and using statistical methods including testing the statistical significance.

## Methods and Data

A starting point of the paper is the study of domestic and foreign specialized literature. Bauer, Zimmermann (1999) assessed possible migration pressure and its labour market impacts already in the 1990's. Economic consequences of international migration of labour were dealt for example by Fevre (1998), Boeri and Brücker (2000, 2005, 2008), Fertig (2001), Straubhaar (2002) or Breitenfellner et al. (2008). The data for following analysis come from the source of Statistical Office of the European Union (EUROSTAT). I focussed on established member countries of the European Union which are typical immigrant countries. In this analysis, following countries are included: Belgium, France, Germany, Ireland, Spain and United Kingdom. The reference period has been set for the period 1990–2010. If there weren't data available at the beginning of the reference period for some countries, the time series of these countries were shortened accordingly. Thus, for Germany, the reference period is 1992–2010. And for France the reference period is 1998–2010. After obtaining information on the character of data a decision followed concerning the use of methods suitable for the evaluation of relationships between the crude rate of net migration and the unemployment rate. Statistical methods have been used for the evaluation of data represented by the EUROSTAT.

The hypotheses describe the effects of unemployment for net migration in the selected reference sample: There is a statistically significant relationship between the development of unemployment and the crude rate of net migration. Higher unemployment rates result in lower migration rates. Thus, in the relationship between unemployment and net migration a negative sign can be expected. The evaluation of relationships between the crude rate of net migration and the unemployment rate in the selected group of countries, which is the objective of this paper, can be carried out using methods of regression and correlation analysis including testing the statistical significance. A model presented by Palát (2010) can be used for needs of this paper. Moreover, it can be completed by means of other variables on the basis of knowledge obtained from the study of literature.

The data for an indicator of the crude rate of net migration plus adjustment comes from the source of EUROSTAT (2011) and is defined as the ratio of net migration plus adjustment during the year to the average population in that year, expressed per 1 000 inhabitants. The net migration is the difference between the total change and the natural change of the population. The values of the indicator of unemployment rate result also from the data of EUROSTAT. The use of statistical methods was described by Aczel (1989) or Mason, Lind (1990). The factual data processing comes from the methodology published by Hindls et al. (2003), Dirschedl, Osteermann (2001) and Palát (2010). The statistical dependence of two characteristics (numeric figures) can be expressed as their functional relation by a formula, table or graph. We recognize these types of statistical dependence: fix, functional alias

deterministic dependence and free, statistic alias stochastic dependence. The stochastic dependence makes itself felt like more or less significant repeatable tendency, which realizes in different form on different place and in different time. It is characteristic for its variability of individual causes and makes itself felt under a row of noteless, variously reacting factors. The stochastic dependence is referred to as a correlation dependency. For this dependency, we distinguish from dependent and independent variable. The correlation analysis of two variables is called pair or simple analysis.

The main graphical data presentation tool for examining the dependence between two variables is a point diagram, where we mark particular cases as points in a reference frame with coordinates, which are the values of particular dependent and independent variables.

- The equation for a linear model is:  $y' = b_0 + b_1x$
- The equation for a quadratic model is:  $y' = b_0 + b_1x + b_2x^2$
- The equation for a cubic model is:  $y' = b_0 + b_1x + b_2x^2 + b_3x^3$

The equations for a bisector or second-degree parabola are the same as trend determination in temporal series. In this paper, particular characteristics of tightness of the dependency of variables are calculated. Conjugate regression lines show the same values of the tightness dependency characteristics, the correlation coefficient  $r_{yx} = r_{xy}$ , determination coefficient  $r_{yx}^2 = r_{xy}^2$  (at the first place in this index is stated variable thought to be dependent). The correlation index  $I_{yx}$  is a dependency tightness characteristics for any type of regression function (for simple as well as multiple dependencies of variables). Its second power is determination index  $I_{yx}^2$ . Determination index multiplied by 100 presents the explanation percentage of the calculated regression function - how the changes of dependent variable Y are explained by the changes of independent variable(s). Statistical software Unistat 5.11 for Windows has been used for the calculation of following results.

## **Results and Discussion**

International labour migration is mainly promoted by economic interests (higher obtained real wage, higher standard of living). Migration inflows may satisfy needs for both low and high level workers on labour markets of receiving countries. A part of the migration inflows helps to satisfy the need for low level workers in agricultural, gastronomic or building sectors as domestic workers are not interested in some of those professions. Native workers attain than higher positions, since lower positions are taken over by immigrants. It may partly improve the unemployment situation in emigration countries but on the other hand they may start to suffer from a shortage of manpower and the immigration of third state nationals may be needed to satisfy their domestic needs. Many countries started to seek workers for particular sectors of the national economy that were no longer attractive for native workers due to the poor wage. And then there is another part of migration flows that satisfies the need for highly trained workers in the destination country. While the receiving country can profit from the qualified labour force from abroad without bearing any of the costs of educational system and vocational training, the countries where the workers come from suffer from lack of highly qualified labour force which is often described as a "brain drain" even if some authors don't agree with the this nature of expression and ceased to use it. Many highly developed countries that support a smooth immigration of high qualified workers, have at the same time a legislation that creates barriers for immigration of low qualified workers and as a result of this uneven situation the difference gap in the human capital level between advanced and developing countries is widening ever more. The last two decades brought significant changes, which affected further economic development of analyzed countries. Jurčík (2007) argues that EU public procurement has a significant influence on the business environment. Dvořáková (2012) points out new challenges for European labour markets that were brought by demographic changes and ageing of the society. Another important issue are the processes of internationalization and globalization.

First, it is possible to meet the development of an indicator of the crude rate of net migration plus adjustment in the reference period 1990–2010 which is defined as the ratio of net migration plus adjustment during the year to the average population in that year, expressed per 1 000 inhabitants. The net migration is the difference between the total change and the natural change of the population.

For the purpose of a profound analysis, data available from EUROSTAT in monitored countries are used. The reference period has been set for the period 1990–2010. If there weren't data available at the beginning of the reference period for some countries, the time series of these countries were shortened accordingly. Thus, for Germany, the reference period is 1992–2010. For France the reference period is 1998–2010. I shall try to prove statistically the existence of correlation between the crude rate of net migration and the unemployment rate in all analyzed countries. Perhaps even other variables can be added to the model and some authors include into the analysis also a variable gross domestic product per capita. To determine parameters of a regression function were used methods of regression and correlation analysis (including testing the statistical significance) described in the part Methods. Parameters of linear, quadratic and cubic regression functions in the given reference period are presented in Tab. 1.

**Tab. 1 Parameters of a regression function for the crude rate of net migration with respect to the unemployment rate in the EU15 countries in the reference period.**

| Country | Model | Model parameters |          |          |         | $I_{yt}$             |
|---------|-------|------------------|----------|----------|---------|----------------------|
|         |       | $b_0$            | $b_1$    | $b_2$    | $b_3$   |                      |
| Belgium | 1     | 7.4214           | -0.5527  | -        | -       | 0.3274               |
|         | 2     | -59.8479         | 16.3689  | -1.0466  | -       | 0.6853 <sup>++</sup> |
|         | 3     | -385.635         | 139.0707 | -16.2870 | 0.6245  | 0.7423 <sup>++</sup> |
| France  | 1     | 5.7698           | -0.3989  | -        | -       | 0.3247               |
|         | 2     | -48.3365         | 11.2101  | -0.6175  | -       | 0.6235               |
|         | 3     | -166.890         | 49.6488  | -4.7433  | 0.1466  | 0.6316               |
| Germany | 1     | 11.4846          | -1.0778  | -        | -       | 0.5251 <sup>+</sup>  |
|         | 2     | 45.0391          | -8.8898  | 0.4462   | -       | 0.6192 <sup>+</sup>  |
|         | 3     | 188.2887         | -59.7113 | 6.3605   | -0.2257 | 0.6669 <sup>+</sup>  |
| Ireland | 1     | 14.8894          | -1.1615  | -        | -       | 0.8179 <sup>++</sup> |
|         | 2     | 24.4850          | -3.7750  | 0.1388   | -       | 0.8501 <sup>++</sup> |
|         | 3     | 25.9103          | -4.3201  | 0.1992   | 0.1992  | 0.8501 <sup>++</sup> |
| Spain   | 1     | 24.7942          | -1.3066  | -        | -       | 0.8357 <sup>++</sup> |
|         | 2     | 54.6132          | -5.8153  | 0.1585   | -       | 0.8871 <sup>++</sup> |
|         | 3     | 15.7806          | 3.2535   | -0.5188  | 0.0162  | 0.8930 <sup>++</sup> |

|                |   |         |         |        |         |                      |
|----------------|---|---------|---------|--------|---------|----------------------|
| United Kingdom | 1 | 5.8245  | -0.5647 | -      | -       | 0.7987 <sup>++</sup> |
|                | 2 | 8.0173  | -1.2112 | 0.0447 | -       | 0.8037 <sup>++</sup> |
|                | 3 | 22.5032 | -7.4866 | 0.9191 | -0.0393 | 0.8113 <sup>++</sup> |

*Source: own calculations*

Note:

Correlation index:  $I_{yt}$

Significance level: +  $\alpha = 0.05$ ; ++  $\alpha = 0.01$

All countries show a negative linear relationship between tested indicators however not always statistically significant. Based on these results, the existence of correlation is evident between the crude rate of net migration and the unemployment rate in more than a half of the monitored countries. Indices of correlation were calculated for particular countries and types of a regression function. Calculated correlation indices show highly statistically significant results for typically immigrant destination countries, e.g. Germany, United Kingdom and Belgium but we can find statistically significant results also in countries which were facing enormous economic problems during the last financial and economic crisis, esp. in Ireland and Spain. With an exemption of Belgium, the selected type of regression function doesn't play a role as it regards the statistical significance of correlation indices and the use of polynomials of higher degrees doesn't improve those results significantly.

## Conclusions:

The last two decades brought significant changes, which affected further economic development of Western European countries. International labour migration is mainly promoted by economic interests. Therefore this paper is focussed on one particular relationship, the development and relationships of migration and unemployment. The objective of the paper was to evaluate relationships of the crude rate of migration and the unemployment rate in established member countries of the European Union covering also the period of the last financial and economic crisis and using statistical methods including testing the statistical significance. I tried to prove statistically the existence of correlation between the crude rate of net migration and the unemployment rate in all analyzed countries. To determine parameters of a regression function were used methods of regression and correlation analysis including testing the statistical significance. All countries show an expected negative linear relationship between tested indicators however not always statistically significant. Based on these results, the existence of correlation is evident between the crude rate of net migration and the unemployment rate in more than a half of the monitored countries. Indices of correlation were calculated for particular countries and types of a regression function. Calculated correlation indices show highly statistically significant results for typically immigrant's destination countries, e.g. Germany, United Kingdom and Belgium but we can find statistically significant results also in countries which were facing enormous economic problems during the last financial and economic crisis, esp. in Ireland and Spain. With an exemption of Belgium, the selected type of regression function doesn't play a role as it regards the statistical significance of correlation indices and the use of polynomials of higher degrees doesn't improve those results significantly. The analysis of the crude rate of net migration and the unemployment rate presented in this paper can be further used and developed when other economic and social variables would be added to the model.

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## Literature:

- Abramuszkinová Pavlíková, E. International Migration and New Mobility Trends. *Acta Universitatis agriculturae et silviculturae Mendelianae Brunensis : Acta of Mendel University of agriculture and forestry Brno = Acta Mendelovy zemědělské a lesnické univerzity v Brně.* 2011. sv. LIX, č. 2, s. 15-20. ISSN 1211-8516.
- Aczel, A. 1989. Complete Business Statistics. Boston: Irwin, 1056 pp. ISBN 0-256-05716-8.
- Bauer, T.; Zimmermann, K. 1999. Assessment of Possible Migration Pressure and its Labour Market Impact following EU Enlargement to Central and Eastern Europe. Study for the UK Department of Education and Employment. Institute for the Study of Labour (IZA), Bonn, Centre for Economic Policy Research (CEPR), London. Also available from: <[http://www.iza.org/en/webcontent/publications/reports/report\\_pdfs/report\\_pdfs/iza\\_report\\_03.pdf](http://www.iza.org/en/webcontent/publications/reports/report_pdfs/report_pdfs/iza_report_03.pdf)>.
- Boeri, T.; Brücker, H. 2000. The Impact of Eastern Enlargement on employment and Labour Markets in the EU Member States. Report for the Employment and Social Affairs Directorate of the European Commission. Berlin and Milan. Also available from: <<http://proquest.umi.com/pqdweb?did=5798765741&gdt=5&Rz=3&clientId=7466&TEQ=198&VName=PBC>>.
- Boeri, T. Brücker, H. 2005. Why are Europeans so tough on migrants? *Economic Policy*. Cambridge. Vol. 20, Iss. 44; pp 16. ISSN 02664658. Also available from: <<http://proquest.umi.com/pqdweb?did=1042374641&sid=6&Fmt=2&clientId=78586&RQT=309&VName=PQD>>.
- Boeri, T.; van Ours, J. 2008. The Economics of Imperfect Labor Markets. Princeton : Princeton University Press. 322 pp. ISBN 978-0-691-13735-3.
- Breitenfellner, A. et al. 2008. The impact of EU enlargement in 2004 and 2007 on FDI and migration flows. Gravity analysis of factor mobility [online]. Available from: <[http://www.oenb.at/en/img/mop\\_2008\\_2\\_analyses\\_5\\_tcm16-88559.pdf](http://www.oenb.at/en/img/mop_2008_2_analyses_5_tcm16-88559.pdf)>.
- Dirschedl, P.; Ostermann, R. 2001. Computational Statistics. Heidelberg: Physica-Verlag, 1994 pp. ISBN 3-7908-0813-X.
- Eurostat. 2011. European Statistics [online]. [cit. 2011-08-25]. Available from: <<http://epp.eurostat.ec.europa.eu>>.
- Dvořáková, D. 2012. Demographic changes in Europe - new challenges for the European labour market. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*. 2012. sv. LX, č. 2, s. 51-59. ISSN 1211-8516.
- Fevre, R. 1998. Labour migration and freedom of movement in the European Union: Social exclusion and economic development. *International Planning Studies*. Abingdon. Vol. 3, Iss. 1; 18 pp. ISSN 13563475. Also available from: <<http://proquest.umi.com/pqdweb?did=28215908&sid=6&Fmt=4&clientId=78586&RQT=39&VName=PQD>>.
- Fertig, M. 2001. The Economic Impact of EU-Enlargement: Assessing the Migration Potential. *Empirical Economics* Vol. 26, issue 4, pp. 707-20. Also available from: <[http://econpapers.repec.org/article/spremeco/v\\_3a26\\_3ay\\_3a2001\\_3ai\\_3a4\\_3ap\\_3a707-720.htm](http://econpapers.repec.org/article/spremeco/v_3a26_3ay_3a2001_3ai_3a4_3ap_3a707-720.htm)>.
- Hindls, R. et al. 2003. Statistics for economists (Statistika pro ekonomy). Praha: Professional publishing, 417 pp. ISBN 80-86419-34-7.
- Jurčík, R. The economic impact of the EC procurement policy. *Agricultural Economics*. 2007. sv. 53., č. 7, pp. 333-337. ISSN 0139-570X.
- King, R. 1993. European international migration 1945-90: A statistical and geographical overview. In: King, R. (ed.), *Mass migration in Europe: The legacy and the future*, London: Belhaven, pp. 19-39.

- King, R., Rybczuk, K. 1993. Southern Europe and the international division of labour: From emigration to immigration. In: King, R. (ed.), *The new geography of European migrations*, London: Belhaven, pp. 175-206.
- Mason, R.; Lind, D. 1990. *Statistical Techniques in Business and Economics*. Boston: Irwin, 910 pp. ISBN 0-256-07696-0.
- Palát, M. 2010. Evaluation of relation between investments and savings in Central European countries. *Acta Universitatis agriculturae et silviculturae Mendelianae Brunensis : Acta of Mendel University of agriculture and forestry Brno = Acta Mendelovy zemědělské a lesnické univerzity v Brně*. sv. LVIII, č. 3, pp. 175-182. ISSN 1211-8516.
- Straubhaar, T. 2002. Ost-West-Migrationspotenzial: Wie groß ist es? *Jahrbücher für Nationalökonomie und Statistik*. Stuttgart. Vol. 222, Iss. 1; 20 pp. ISSN 00214027. Also available from: <<http://proquest.umi.com/pqdweb?did=349618501&sid=6&Fmt=2&clientId=78586&RQT=309&VName=PQD>>.

# **Analysis of holiday behaviour of citizens of the Slovak Republic**

**Lucia Palkechová<sup>1</sup>**

**Roderik Virágħ<sup>2</sup>**

**Lucia Svoradová<sup>3</sup>**

## **Abstract:**

Tourism is a set of activities that are focused on meeting the needs related to travel and persons' sojourn outside the permanent residence and usually in their free time. The main goal is relaxation, learning, health, distraction and entertainment, cultural and sports activities, business trips, i. e. to gain comprehensive experience. Tourism is an interdepartmental industry which directly trench on the sphere of economy, industry, trade and services, finance, transport, regional development, culture, health, education, sports, environment, forestry and water management, agriculture, employment, creating new jobs towns and scope of government. It is an economic activity that is able to generate employment growth in the EU and concurrently to contribute to the economic and social development and integration, especially in terms of rural and mountain areas, coastal areas, islands, remote and very remote regions. European tourism sector, which comprise for about 1.8 million enterprises, especially small and medium – sized enterprises that employ around 5.2 % of the total labour force in the EU, produces more than 5 % of GDP and the rate is still increasing.

Tourism in 2010, the Slovak Republic accounted for 2.56 % of GDP and in 2011 for 2.53 %. From the total number of 3,571,093 visitors represent 1,460,361 foreign visitors and 2,110,732 natives, compared to the previous year, in 2010 was an increase of 2.179 % for natives.

The position of Slovakia in the heart of Europe at the intersection of trade routes, with its cultural and historical wealth and the favourable climatic conditions creates the potential for development of the tourism industry in our country. The tourism potential of Slovakia is vast, covering almost all key forms and types of tourism. Throughout most of Slovakia there is a wealth of cultural, historical and natural attractions which may be utilised for tourism. In addition, a great deal of accommodation, catering and supplementary service capacity already exists in Slovakia. On the other hand, what is on offer does not match our possibilities and potential.

The most popular touristic destinations are historical towns and numerous mountain ski resorts. Slovakia is a country of destination especially for middle class and less demanding visitors, where the most important factor is price. This fact is visible from structure of visitors who visit the Slovak republic.

Slovak citizens generally reflect global trends in terms of information sources. Among young respondents the internet becomes a strong unit. In most cases the Slovak citizens start to plan their vacation 2 – 7 months before the vacation term. Typical season for holiday and vacation is the summer time for 86 % of respondents. In younger categories it is more than 90 %. The older generation over 50 years prefers the spring and autumn time. It could be described by more factors, e. g. prices of vacation are lower because it is not holiday time, less strict timetables in this group of holidaymakers. These tourists or holidaymakers use better prices and before or after seasonal discounts and quieter resorts of tourism.

Aim of this paper is to analyse the holiday behaviour of the Slovak population.

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Background data were obtained from the World Economic Forum, Statistical Office of the Slovak republic, Slovak tourist board and from our electronic survey. In our survey 287 respondents participated. Information from Slovak tourist board used as the background data for creation of this paper were the result of a quantitative market research and public opinion of citizens of Slovakia with the aim to know their behaviour in travel, choosing vacation destinations. Random sample of 1,245 respondents aged over 18 was representative in terms of region, place of residence, gender and age. We have compared their survey with our survey. The random sample is representative in terms of region, age and gender. By the processing and evaluation of holiday behaviour of respondents we have used many methods of comparison, synthesis, mathematical and statistical methods. Examined data were statistically processed and analysed in MS Excel 2010.

We have determined the range of sample with statistical method and we selected option without repeating. The basic set, population of Slovakia by the date of 12<sup>th</sup> of December was 5,410,836 people according to Statistical Office of the SR. Sampling error is set to 5 % and the variability on 65. Calculation was made for significance level of 95 %. From this data we obtained respondents in sample, which are 649 people. In terms of time we could not analyse the whole sample. Querying was done on 287 respondents willing to answer through an electronic questionnaire. For data processing were used some tests, e. g. Friedman test to calculate the results, statistic formula:

$$= \frac{12}{nk(k+1)} R - 3n(k+1)$$

### **Key words:**

Tourism, Slovak Republic, respondents, visitors, vacation, preferences, consumer perceptions, analysis.

### **Introduction**

Tourism is an activity of persons travelling to and staying in places outside. Tourism is a dynamic and competitive industry that requires the ability to constantly adapt to customers' changing needs and desires, as the customers' satisfaction, safety and enjoyment are particularly the focus of tourism businesses. Consumer is an individual who buys products or services for personal use and not for manufacture or resale. A consumer is someone who can make the decision whether or not to purchase an item at the store, and someone who can be influenced by marketing and advertisements. Although many of us have been tourists, everyone of us is different and has different needs, interests and opportunities. Here are some important questions. What consumer behaviour depends on? Are they more willing to seek out their ideal destination using search engines? Will customers continue to look for price of their holiday or the best deal, not just to save money? Will travellers make careful compromises to be able to save money and fulfil their travel dreams? And others.

### **Results**

We do not know the name of the first tourist or the era, in which the first holiday was taken. This is maybe a reason why, it is so difficult to define what is meant by the words „tourist and holiday“. Or does it reflect the fact that chroniclers did not believe that the phenomenon of tourism was significant enough to be worth for recording? Perhaps, but we know that for centuries tourism has existed in one form or another and has given us a legacy of travel, dating back to Roman times. It has also stimulated some of the world's greatest literature, like Chaucer's Canterbury Tales, for instance. Therefore, while we may talk of mass tourism as a twentieth century phenomenon, tourism in the broadest sense of the word has existed for centuries.

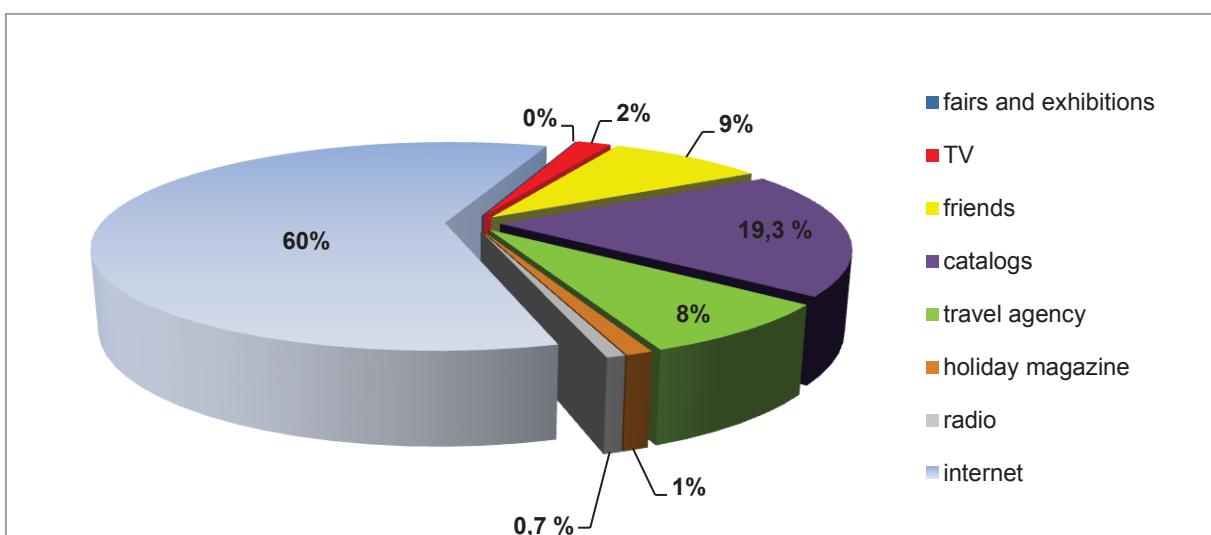
Today, Europe is the most popular continent as a destination for international tourists although it is slowly losing its position in the world tourism market to other regions, such as the Pacific Rim. It is appropriate that Europe should continue to hold this preeminent position, for most commentators consider it to be the birthplace of modern tourism. The development of tourism in Europe, as elsewhere, rested on two essential pre-requisites: a desire to travel, the removal of obstacles that prevented people from taking trips.

It is important from tourism managers to research and understand the way in which tourism consumers make decisions and act in relation to the consumption of tourism product. We need to study tourist's consumer behaviour.

The needs, purchase motives and decision process associated with the consumption of tourism, the impact of the different effects of various promotional tactics, the possible perception of risk for tourism purchases, including the impact of terrorist incidents, the different market segments based upon purchase behaviour, and how managers can improve their chance of marketing success, all this influences tourism all over the world.

There are some elements of consumer decisions. For example, energisers of demand, which means the forces of motivation that lead a tourist to decide to visit an attraction or go on a holiday. Then something like effectors of demand – the consumer will have developed ideas of a destination, product or organisation by a process of learning, attitudes and associations from promotional messages and information. This will affect the consumer's image and knowledge of a tourism product thus serving to heighten or dampen the various energisers that lead to consumer action. Also roles and the decision-making process – the important role is that of the family member who is normally involved in the different stages of the purchase process and the final resolution of decisions about when, where and how the group will consume the tourism product. And at the end, determinants of demands. In addition, the consumer decision-making process for tourism is underpinned by the determinants of demand.

In general, the inhabitants of Slovakia reflect global trends in terms of information sources. As we can see from Pic. 1, that the most used source in obtaining holiday information is the internet, which prefer 60 % of respondents. Internet is becoming a strong leader in the group of respondents from 25 to 35 years. SACR results indicate that group 36 to 49 years has two main sources of information: the internet and friends. Older ages (over 50 years) rely primarily on friends, family and travel agencies and this finding corresponds with the results of our survey, where the most common answer of age group was just the option "travel agency".

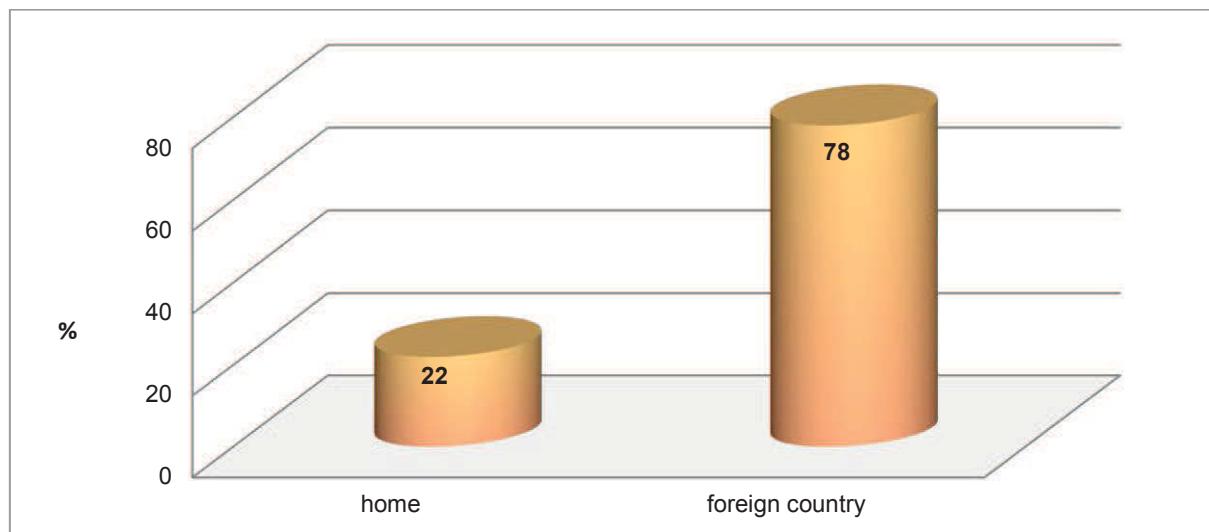


**Pic. 1 Preferences of respondents in obtaining holiday information**

Although the Internet has become the dominant source of information, travel agencies have maintained a stable position. In the future, the importance of travel agencies decline,

but still have quite a secure future, but in a slightly modified form – will act as consultants. Travel agencies can give advice by choosing the optimal destination to travellers who cannot decide for various reasons.

From our survey, it can be concluded that none of the respondents did not mark the option "fairs and exhibitions". The fact that Fairs holidays and tourism are a key element in obtaining information is also confirmed by the survey of SACR.



**Pic. 2 Respondents' decision in selection of holiday country**

An essential part of human life is a vacation. With rising living standards we follow a holiday diversion in Slovakia from the main to the additional leave. Clients along the main vacation at the sea often use some resort near home to rest and relax for a long weekend. These guests are looking for a pleasant environment, not far from the residence (maximum of 3 to 4 hours journey).

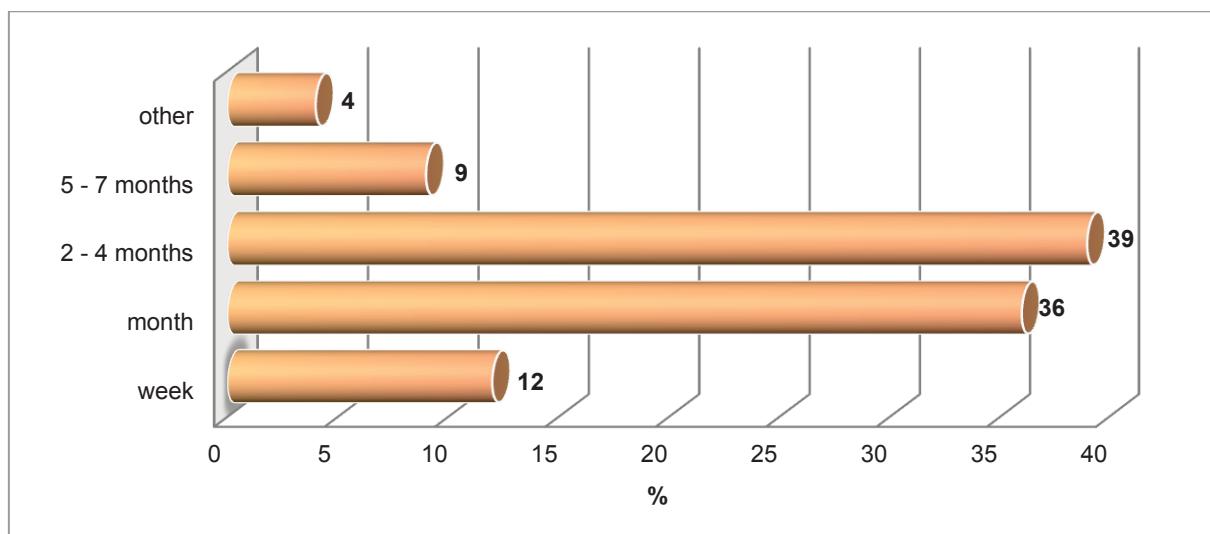
Picture 2 shows, that the 22 % of respondents prefer holiday in Slovakia and 78 % in foreign countries. Up to now, pensioners were target group for Slovak hotels, especially in the off-season in the lower middle class segment. Their goal was inexpensive recreation. To their goal also belong classic spa stays, rehabilitation programs and the holiday classic that may not be in high season.

However it remains a small group of people, who spends the major classic holiday in Slovakia. Most of them are families with children. Their interest is focused on all categories of accommodation, activities and preferring relax in front of number plates leave. They prefer rather to rest than sightseeing tour.

To the main expenses that burden Slovak family are expenditure on housing, instalment loans and mortgages. However, most families postponing some savings aside. When the Slovaks decide to go for a holiday, mostly they are planning it and also save money for it. As can be seen from the survey of agency SACR, more than half of Slovak households affords holidays. Half of Slovaks (53 % of respondents) tend to leave and a third of them (30 %) save money for holiday at least three months. Almost a fifth of Slovak households (20 %) are able to regularly postpone their finances to relax throughout the year.

In most cases, Slovaks begin to plan a vacation usually 2 – 7 months before the expected date of departure. There is not a big difference in this attribute in each age group. The age groups over 49 years are starting to leave holiday a little earlier. Age group from 18 to 25 years prefer to decide at the last minute. Men tend to plan a vacation later, but the time span for women is much broader and they begin the planning much earlier.

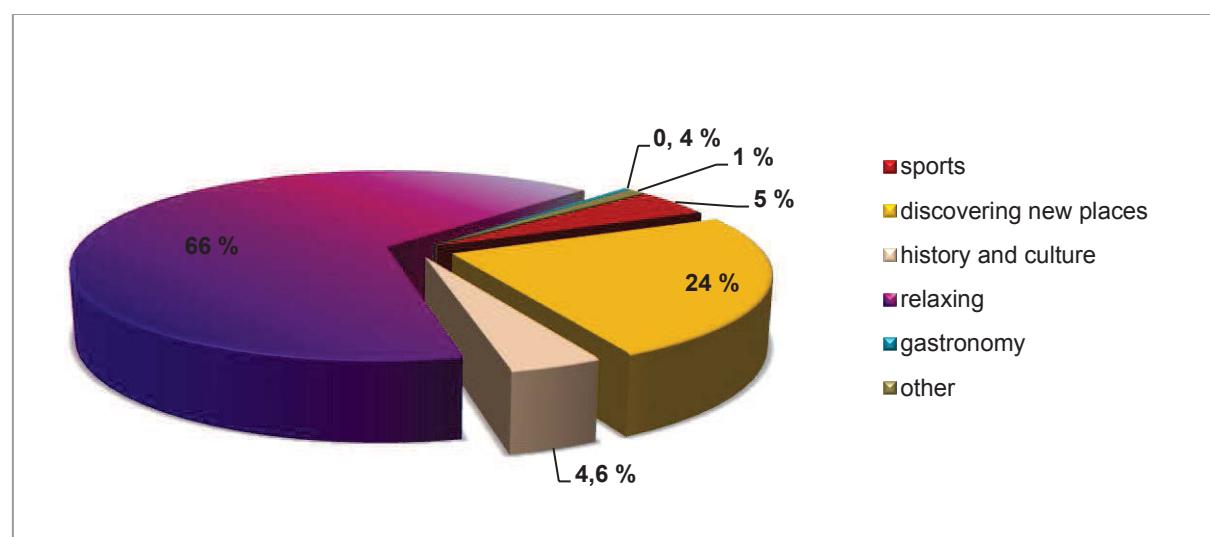
As we can see from Pic. 3, Slovaks begin to plan a vacation mostly 2 – 4 months before the expected departure. 36 % of respondents are taking their holiday one month before leaving.



**Pic. 3 Detection of holiday timing**

Vacation is a time when we leave our daily work which we use for earning our income for our live. It is a phenomenon for centuries. In medieval times in farmer unions or later in time we couldn't talk about summer holiday. The life of a farmer was only about a year cycle, which means they had "vacation" the whole winter. In the spring they began to work on fields, continued in summer with harvesting, in autumn they made wine, butchering hogs, etc. The lifestyle influenced the behaviour of consumers in holiday behaviour and by spending of free time.

Today, when we talk about the modern age full of stress, technologies, we can talk about some significant attributes influencing behaviour of consumers. People unites one motive – the passion of breaking everyday norms and behaviours. A bit of freedom, adventure, laziness, all that gives us strength for our "normal life" – a cycle of duties, timetables and routine.



**Pic. 4 Holiday incentive of respondents**

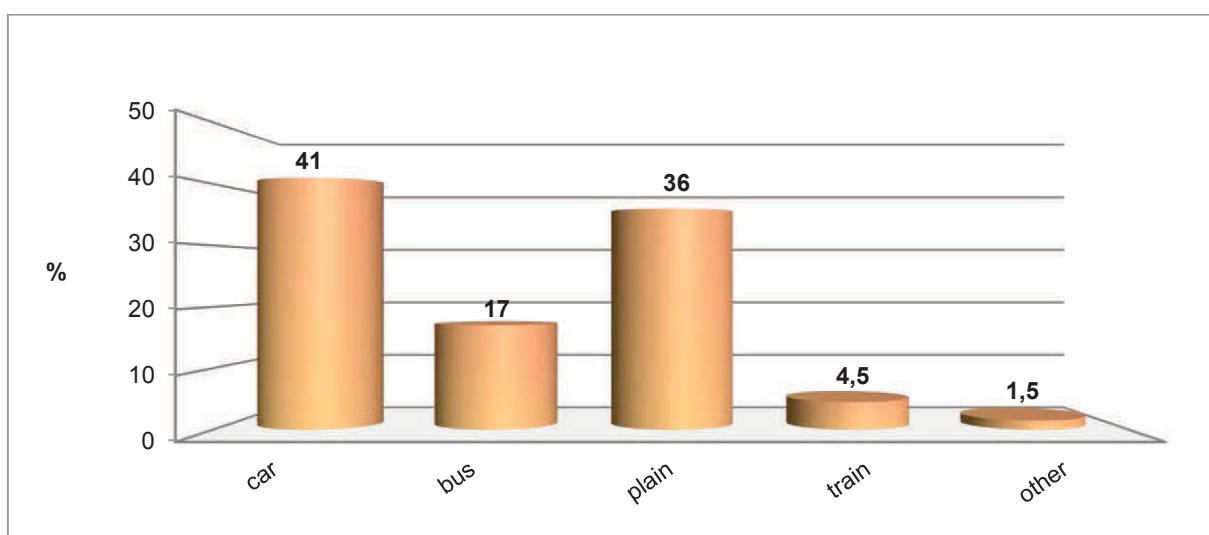
A dominant motive for the holiday in the Slovak Republic is "relaxing". This fact confirms the result of our survey in which 66 % of respondents said that the main reason they leave is just relax and rest. 24 % of respondents said, that they go on holiday for the purpose of getting to know new places. This fact is also confirmed by the survey of SACR.

Sports, history and culture are not the primary motives to take leave. These options – “sports” and “culture and history” identified only about 5 % of respondents. The results of our survey can be seen in Pic. 4

Choosing holiday is partly influenced by the mode of transport. The survey of SACR has shown, that almost half of Slovaks prefers a car to the transport. Our survey also confirmed that the majority of respondents (41 %) marked in the selecting of choice of transportation the option “car”.

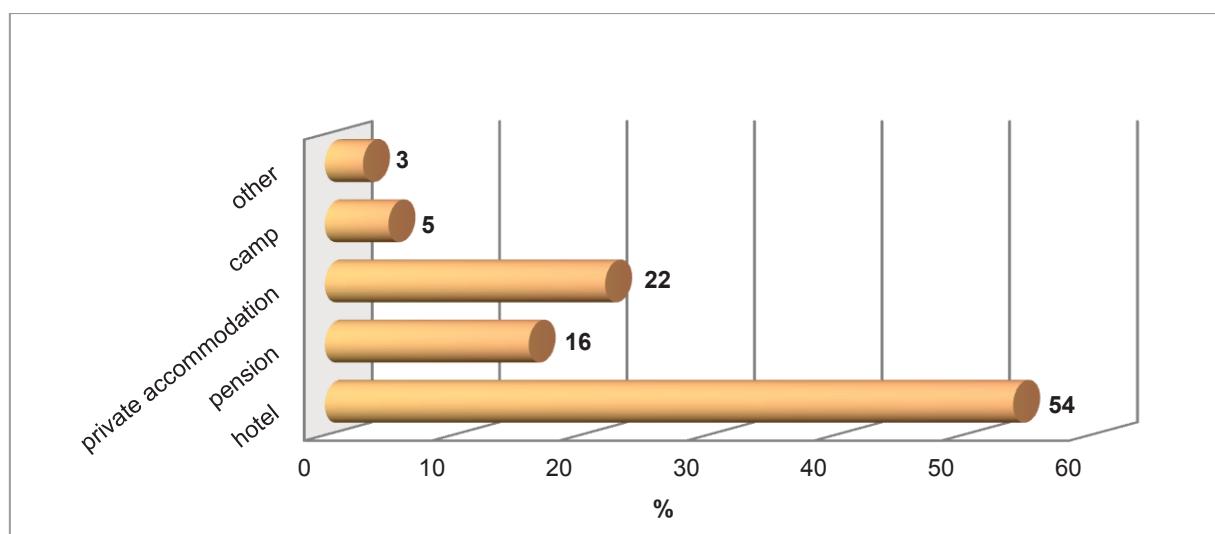
Air transport is in the second place. This kind of transportation uses at about 36 % of Slovaks. Bus transportation is in third place and this option was favoured by 17 % of respondents.

As we can see in Pic. 5, railway transport is one of the least popular transportation, with only 4.5 %. The last option is dominated by older generations over 50 years. Train and bus transportation are the dominant form of transport in this age group.



**Pic. 5 Respondents' choice of transportation**

According to a survey of SACR Slovaks usually opt for private accommodation or lodges, respectively less luxury hotels (one-star to three-star). Just the most solvent groups in the age group 26 – 49 are taking four-star and five-star hotels. Use of camping is typical for younger generation, while living with friends or family is more common among older generation.

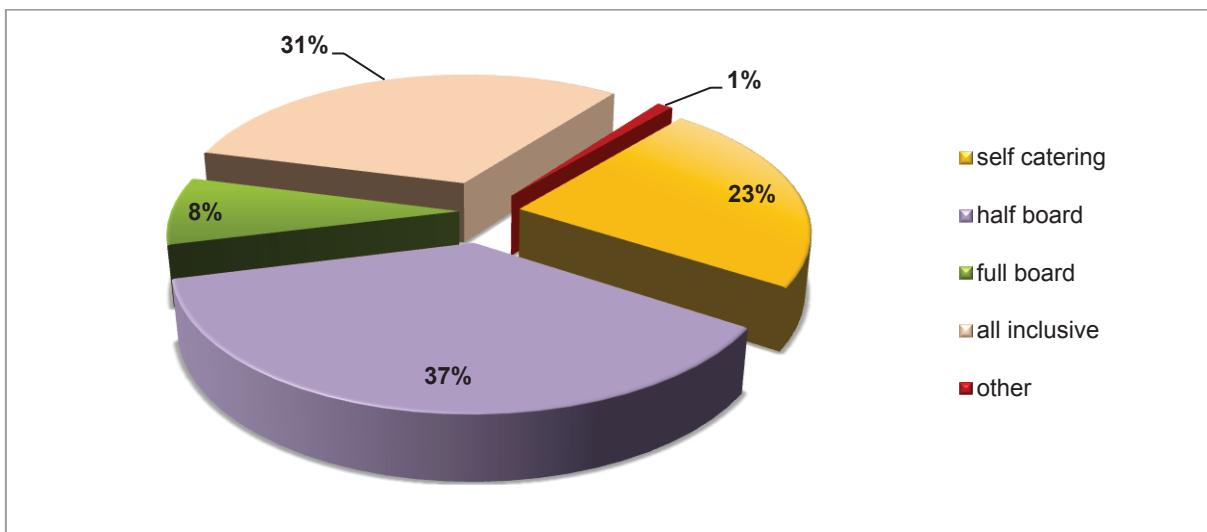


**Pic. 6 Respondents' choice of accommodation**

These facts are also confirmed by our survey, where only 50 % of respondents said they prefer hotel accommodation, specifically 54 %. Private accommodation is also frequently used type of accommodation. As we can see in Pic. 6, this type of accommodation is used by 21 % of respondents. At least utilized type of accommodation is camping (5 %).

Slovaks are also relatively cautious in spending money: they cook for themselves in almost a quarter of cases during the main holiday to (23 %), but increasingly popular choice of half board (34.29 %). However, the increasingly popular choice is half board, which favours 37 % of consumers. Full board is used to a lesser extent – this type of boarding likes only 15.47 % of the population, as it is indicated in the results of the survey of SACR.

From our survey we can see that 40 % of respondents on their vacation choose half board. 23 % of respondents prefer self-catering and 31 % of them prefers all inclusive. The full board was chosen by 8 % of respondents. All these results for the selection of holiday meal we can see on the picture number 7.

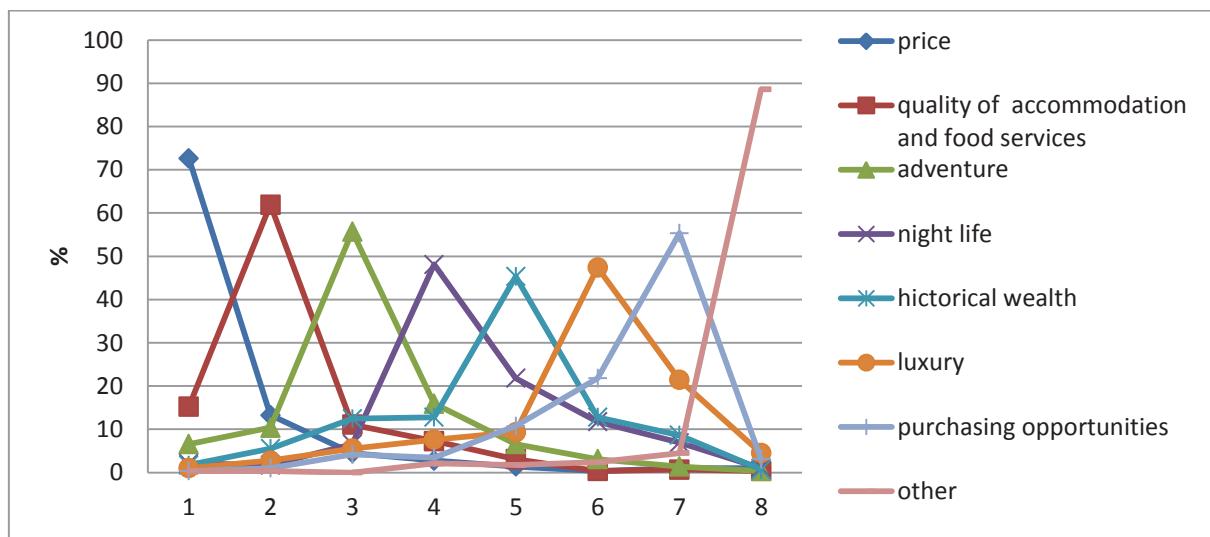


*Pic. 7 Respondents' choice of holiday meal*

In our electronic questionnaire we asked our respondents to rank their answers according to a factor that affects their holiday. The scale was set from 1 – 8, where 1 was the most preferred factor and 8 the least important factor. We have selected these factors: price, quality of accommodation and food services, adventure and trying something else, night life, historical heritage of selected country, luxury, shopping opportunities, etc. We used Friedman's test to prove that all factors are equally preferred. According to this test we tested the selected factors. H<sub>0</sub> hypothesis was formulated to confirm that all factors are equally preferred. H<sub>1</sub> hypothesis says that the selected factors are not equally preferred.

According to our calculations the test characteristic was  $F = 1\ 458,164925$  and the table value was  $TW = 14.06714045$ . Therefore we rejected the H<sub>0</sub> hypothesis.

The most important factor which influences the selection of holiday is price. 72.98 % of respondents considerate this factor as the most important in their decision about holiday and 16.14 % of respondents adds to this factor a lower significance. The second most important factor which influences decision of selection a holiday is the quality of accommodation and food services. Second position this factor attributed to 62.46 % of the respondents. Into the first trinity of the most important factors belongs also the adventure. 56.49 % of respondents gave this third place to this factor among seven other factors.



**Pic. 8 Factors influencing consumers' choosing of holiday**

Results of analysis of holiday behaviour of Slovak citizens from Slovak tourist board with help from source data IPM point out some facts. According to them the main holiday destination for Slovak citizens is Croatia, followed by the Slovak republic and Italy. From the top 3 countries 2 of them have a sea and are relatively close to each other (easily reachable by car or bus). After these countries another countries continue which are also relatively near, e. g. Austria, Czech Republic or Hungary. This corresponds to the findings of the mode of transport, which is most commonly used when traveling on vacation. Preferences of Slovak citizens haven't significantly changed in the last years.

Statistics of travel agencies after year 2008 showed that Croatia, Greece, Egypt, Bulgaria and Italia are the five most visited international destinations.

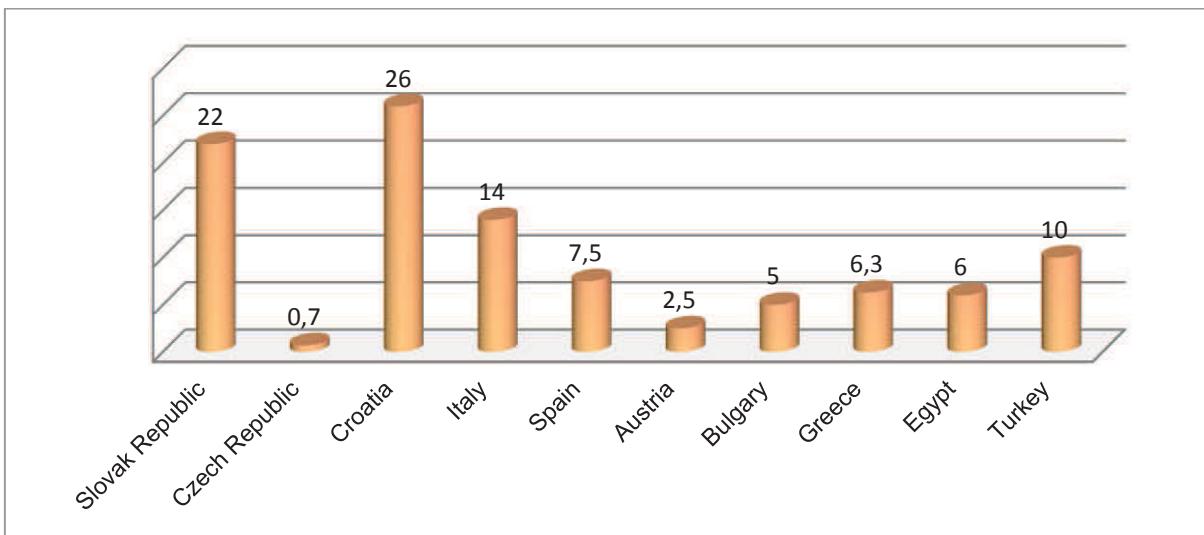
Egypt and Greece dropped out of these five destinations. Massive outflow of Slovak citizens from Greece as a holiday destination was caused by economic situation, political and economic events in the country. Lower prices haven't attracted visitors. Holidaymakers move more to Turkey. Interest for this tourist destination grow up thanks to a good ratio of price and quality.

Croatia is for Slovak tourists the most financial affordable country and every year nearly a million of Czech and Slovak people visit it. Best tourist lures are beautiful beaches and a clear sea. National parks and historical buildings which are in UNESCO are also a good reason for a visit.

For Slovak people is Croatia the holiday destination number one for many years. Many visitors go to Croatia for its crystal clear sea and sunny summer weather. But more and more people visit Croatia for tourist trips, visiting of national parks and walk tourism. In Croatia everyone finds what he or she is searching for.

Slovak people prefer personal accommodation in apartments. Everyone prefers something else and therefore Croatia offers accommodation in hostels or hotels in all categories.

Every type of accommodation and time spending of a summer holiday in Croatia has its own advantages and some specifics. Of course Croatia has for many of us a kind of magic and is one of the most popular destinations for a summer holiday by a sea.

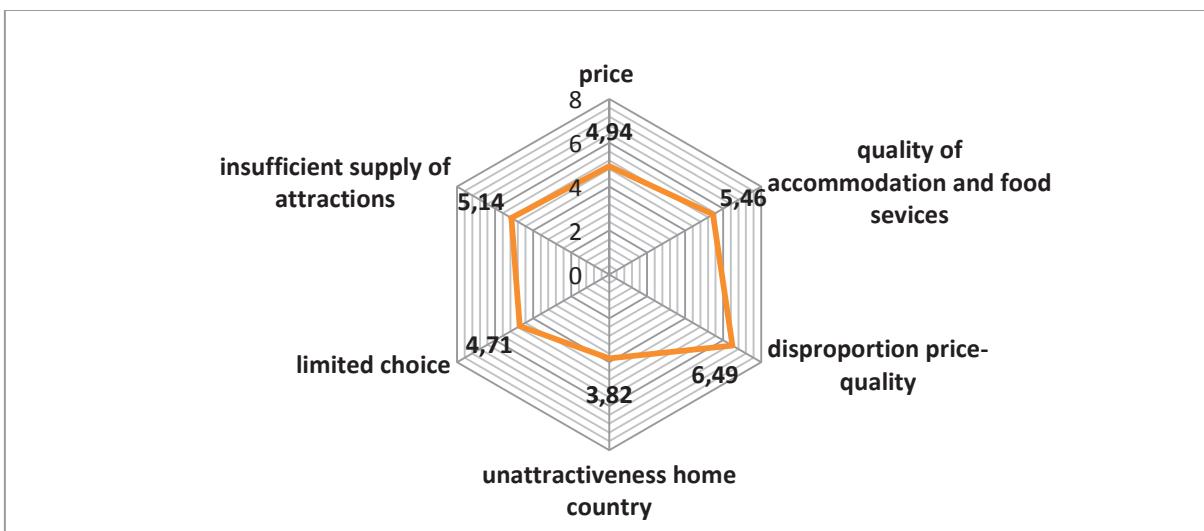


**Pic. 9 Respondents' choice of the most popular holiday destination**

There are some attributes, why Slovaks wouldn't choose their holiday in Slovakia. The most important aspect is the perception of respondents for disproportion of price and quality. Therefore the Slovaks don't choose their holiday in home environment. The second important aspect is the perception of quality of accommodation and food services, which is considered as inadequate.

In our survey we had included following options – price level, quality of accommodation and food services, disproportion of price and quality, unattractiveness of home country, limited options of choice, insufficient offer of attractions. Respondents had the option to assign a weight from 1 to 10. Number 1 means the lowest weight and 10 the highest.

Average weight of option "disproportion of price and quality" reached an average weight of 6.5; followed by "quality of accommodation and food services" with average weight of 5.5. The option "insufficient offer of attractions" closes the trinity of these options with an average weight of 5.14 (Pic. 10).

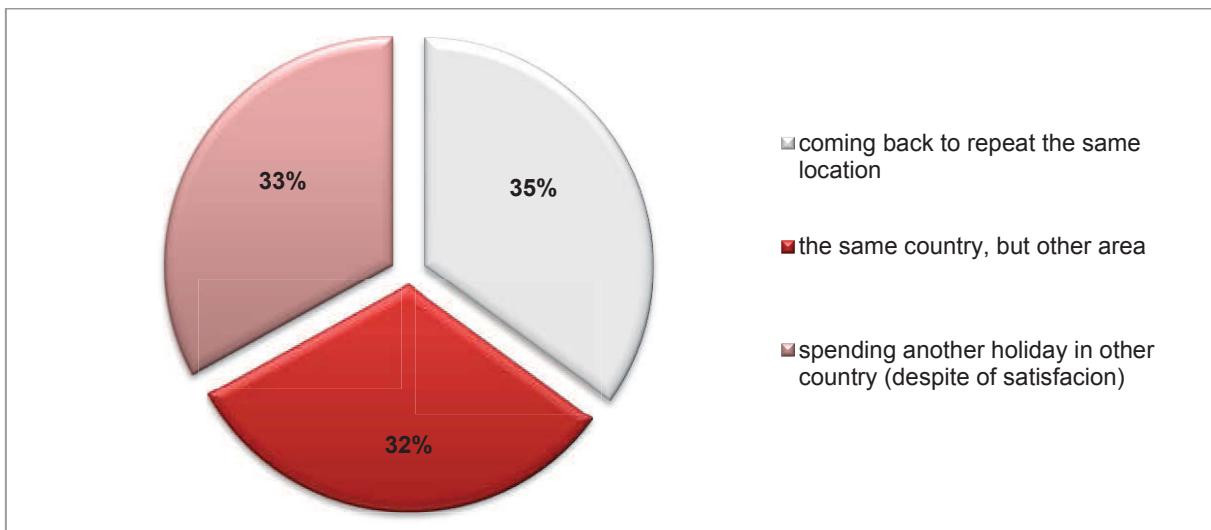


**Pic. 10 Thinking of Slovaks about attributes why don't choose holiday in the SR**

According to results processed by the Slovak association for tourism more than a third of respondents spend their holiday many times in Slovakia. More than a half only once and a bit over 10 % never spend a holiday in Slovakia. Slovak people prefer a vacation more abroad. Alarming is the fact that the structure of those who do not spend holiday in Slovakia

increases with decreasing age of the respondents, suggesting that the attractiveness of Slovakia in the eyes of the young generation and the young fell and the selection for other countries, where they could spend time and money increases. This trend is confirmed by the response to the question, why they don't want to spend holiday in Slovakia. Principally the young generation to 25 years has plans to travel abroad.

It can be noted that Slovak people are conservative in the holiday behaviour. This is also evident from our survey, when only a third of respondents in the case of satisfaction of the previous holiday chose a different country and holiday destination. 70 % of respondents would select the same holiday destination. 35 % of respondents would even return to the same holiday location. This can be seen on picture 11.



*Pic. 11 Characteristic of respondents' holiday behaviour*

## Conclusions:

The Slovak people often start to plan their holiday usually from 1 to 4 months before the expected date of departure. There is not a big difference in ages for this attribute. People about age 46 start to plan their vacation a bit sooner. Younger generation, about age 25 make their decisions on last minute. Dominant source of information is internet, especially for the younger generation. The older generation is still loyal to travel agencies. For booking a vacation is internet less often used. Therefore travel agencies are number one in this service regardless of age.

Cars or planes are the most used ways of travel on a holiday by Slovak people. Demand for bus tours drops. Slovak people prefer comfort of a plane. The reason for drop of demand for bus tours is in fact, that the price of air tours decreases and the price difference between air and bus transport is not as significant as in the past.

Who would not at least once in year break away from business and usual stereotype and enjoy a few days of rest? For most of us is holiday a reward for our year work and a time when usual problems go sideways. However, the economic crisis persists. From survey of the agency Focus we can see that more than a half of Slovak households affords holiday. A third of them saves money for holiday at least three months. This follows from a survey made by FOCUS agency that was conducted by Provident Financial between 21 and 27 February on a sample of 1,036 respondents aged over 18 in terms of gender, age, education, nationality, size categories of municipalities and county breakdowns.

The survey shows that for a vacation only 8 % of respondents want to borrow money, but the reality is different. Only 3 % of respondents have borrowed money for their vacation for rest in home country.

The Slovak people are relatively careful in expenditures for their holiday. They cook for themselves in most cases but half board becomes more popular. Full board is less preferred.

Slovak people start to prefer better service, interest for all inclusive increases. These findings result from statistics of travel agency Invia, which is the largest internet retailer of tours in the Slovak republic. In this kind of service price of all food and beverages, regardless of the amount of food eaten and swallowed drink is included.

Slovak people usually select accommodation in private facilities, cottages or in less luxury hotels (from 1 to 3 stars). Use of camping is typical for the younger generation, while living with friends or family is more common among the older generation. Only the most solvent groups of people around the age 26 – 49 choose four and five stars hotels. The choice of accommodation, diet selection and choice of vehicle depends on the country to spend their vacation.

For Slovak people is Croatia still the most popular holiday destination. Behind Croatia it is the Slovak republic and Italy. Massive outflow of Slovak citizens from Greece as a holiday destination was caused by economic situation, political and economic events in the country. Lower prices haven't attracted visitors. Holidaymakers move more to Turkey. Interest for this tourist destination grows up thanks to a good ratio of price and quality. Demand for holiday in Turkey increases because tourism in Turkey is specialized for luxury services. This can be seen as a consequence of the trend consisting in increasing of demand for five-star and four-star hotels.

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Sports, history and culture are not the primary motives to take leave.

There are some attributes, why Slovaks wouldn't choose their holiday in Slovakia. The most important aspect is the perception of respondents for disproportion of price and quality. Therefore the Slovaks don't choose their holiday in home environment. The second important aspect is the perception of quality of accommodation and food services, which is considered as inadequate.

Slovak population remains loyal to popular model of family vacation - summer by the sea, with optimized transport and catering, accommodation and especially in cheaper accommodation devices. Under these conditions can become a vacation in Slovakia an alternative only when domestic tourism facilities and centres of tourism offer a quality level higher than it is in the coastal centres at prices that are slightly lower than those in the Adriatic. Despite of declarations about preferences of relax and rest should home tourist

centres offer more alternatives how to spend free time on holiday. Actual development of tourism facilities suggests that operators of these facilities know about these needs and making offers for free time is progressing in the right direction. Emphasis on communication must be much greater because young people lose interest for a vacation in Slovakia. This loss is based on ignorance of options which can the Slovak republic offer for alternative for more expensive but better preferred destinations. It is important to create a strong position of the brand of Slovakia on primary and secondary markets and connect this brand with visitors to show them a major holiday destination. The Slovak Republic needs to promote itself for its citizens, only then can be achieved an increased interest of spending holidays in our country.

Only few potential visitors see the Slovak republic as a holiday destination. In order to make better use of the potential, it is necessary to improve the attractiveness of Slovakia and contribute significantly to shaping the country as a holiday destination in terms of product support and the aspect of communication.

## **Literature:**

Focus research. Retrieved March 10, 2013, from

<http://www.sacr.sk/en/slovak-tourist-board>

Slovak tourist board. Retrieved March 9, 2013, from

<http://www.sacr.sk/en/slovak-tourist-board>

Statistic Office of the Slovak republic. Retrieved March 9, 2013, from

<http://portal.statistics.sk/>

SWARBROOKE, J., HORNER. S. (2007). *Consumer behaviour in tourism*. Second edition.

Retrieved March 10, 2013, from

[http://www.google.sk/books?hl=sk&lr=&id=Bhp\\_rUTv3\\_AC&oi=fnd&pg=PP2&dq=consumer+of+tourism&ots=9z8nmCq8z1&sig=yCCVL6YIM7j00UL47YIuDjq8RYk&redir\\_esc=y#v=onepage&q=consumer%20of%20tourism&f=false](http://www.google.sk/books?hl=sk&lr=&id=Bhp_rUTv3_AC&oi=fnd&pg=PP2&dq=consumer+of+tourism&ots=9z8nmCq8z1&sig=yCCVL6YIM7j00UL47YIuDjq8RYk&redir_esc=y#v=onepage&q=consumer%20of%20tourism&f=false)

*Tourist consumer behaviour*. Retrieved March 4, 2013, from

<http://www.slideshare.net/epy/tourism-consumer-behavior>

*Tourist wait, ignore Greece*. Retrieved March 2, 2013, from

[http://m.kusi.sk/cestovanie/dovolenkari-vyckavaju-ignoruju-gr/509596-clanok.html?from=suggested\\_articles](http://m.kusi.sk/cestovanie/dovolenkari-vyckavaju-ignoruju-gr/509596-clanok.html?from=suggested_articles)

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# Trends in production and consumption patterns of selected livestock products in the EU

Jozef Palkovič<sup>1</sup>

Zlata Sojková<sup>1</sup>

## Abstract

Nowadays, one of the most actual problems in the world is to ensure sufficient production of safe and quality food. On the other side, consumption patterns of livestock products have changed considerably as a result of new dietary preferences and new health lifestyle trends. Within this context and large proportion of CAP expenditures for livestock products, especially for milk, it is worth to investigate long run and short run relationship among production and demand of such products. For this purpose was chosen most frequently used livestock food products: milk and hen eggs. Both of these products are controversial in terms of health lifestyle, and also closely connected with food safety issues which could significantly affect their consumption in recent period. The main objective of this paper is to analyze the production and consumption pattern of cow milk and hen eggs, and to identify long and short run relationship between key variables. As a key factors affecting production of selected livestock products were used size and level of growth of the EU market. Market size was measured using data about population, and income (GDP per capita) was used as measure of EU market growth. For the purpose of this analysis were used panel data for 27 EU countries, which covered period for the years 1994 to 2010 (yearly data). For both examined commodities were estimated models for normal products determination. From the methodological point of view were used cointegration techniques and error correction model in combination with panel data analysis. This paper follows article by Batzios-Lawler-Ling-Katsouli-Galanopoulos, who investigated milk and eggs production patterns for the period 1970 to 1994. While authors used aggregated data for the EU, in this paper were used longitudinal data for 27 EU countries over the period 1994-2010. At the end can be concluded, that consumption and production patterns changed over the last two decades considerably.

## Keywords:

Production patterns, error correction model, cointegration, panel data

## Introduction

Nowadays, one of the most actual problems in the world is to ensure sufficient production of safe and quality food. Especially in the EU was this topic highlighted in recent period, by several incidents with dangerous and poor quality food products. These incidents were mostly related to animal products, which resulted to change in consumer behaviour. This was not the only factor affecting consumers. On the other side, consumption patterns of livestock products have changed considerably as a result of new dietary preferences and new health lifestyle trends. European consumer becomes more „health“ conscientious rather

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than price sensitive. Within this context and large proportion of CAP expenditures for livestock products, especially for milk, it is worth to investigate long run and short run relationship among production and demand of such products. For this purpose was chosen most frequently used livestock food products: milk and hen eggs. Both of these products are controversial in terms of health lifestyle, and also closely connected with food safety issues which could significantly affect their consumption in recent period.

The main objective of this paper is to analyze the production and consumption pattern of milk and hen eggs, and to identify long and short run relationship between key variables. As key factors affecting production of selected livestock products were used size and level of growth of the EU market. Market size was measured using data about population, and income (GDP per capita) was used as measure of EU market growth. For the purpose of this analysis were used panel data for 27 EU countries, which covered period for the years 1994 to 2010 (yearly data). For both examined commodities were estimated models for normal products determination. From the methodological point of view were used cointegration techniques and error correction model in combination with panel data analysis. This paper follows article by Batzios-Lawler-Ling-Katsouli-Galanopoulos<sup>1</sup>, who investigated milk and eggs production patterns for the period 1970 to 1994. While authors used aggregated data for the EU, in this paper were used longitudinal data for 27 EU countries over the period 1994-2010. So this paper can be used as comparison of two methodological approaches, and also as comparison of consumption patterns in two periods.

Presented paper is composed into four parts. First section is a brief overview of the average EU production of selected products and also factors which could affects this production. Next section provides theoretical background of the model used for the analysis. Third section describes data, methodology and estimation procedures. Final section presents results, conclusions and comparison with similar analysis carried out by other authors.

## **EU milk and egg production over recent period**

Over the last period, EU has been self sufficient in eggs as well as in milk production. Table 1 shows average eggs and milk production of 27 European countries over the years 1994 to 2010 (1000 tons per one EU country). Average production of milk and eggs was stable with slightly decreasing trend in recent years. Production of selected livestock products exhibits great variability over EU countries, which is result of differences in production among EU countries. Largest producers of cow milk in the EU (year 2010) were Germany (29593 thousand tons), France (23374 thousand tons) and United Kingdom (14081 thousand tons). Countries with the largest production of egg in EU (year 2010) were France (844 thousand of tons), Spain (830 thousand tons) and Italy (737 thousand tons).

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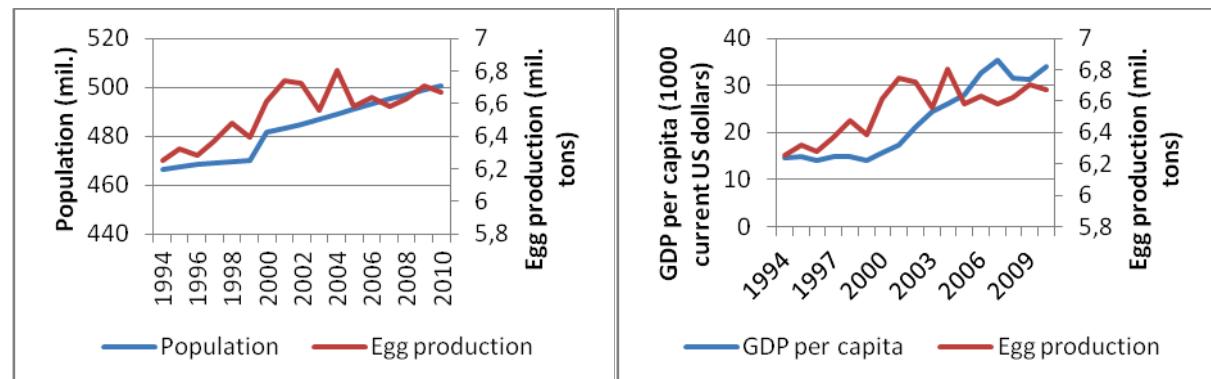
<sup>1</sup> C. Batzios, K. Lawler, M. Ling, E. Katsouli & C. Galanopoulos (1998). "Short and Long Run Trends in Production and Consumption Patterns of Two Livestock Products in the EU". *Medit*, Vol. 4: 44-48.

**Tab. 1: Average egg and milk production of EU27 over analyzed period**

| Eggs |                       |                          |                        |   | Milk                  |                          |                        |  |
|------|-----------------------|--------------------------|------------------------|---|-----------------------|--------------------------|------------------------|--|
| Year | Mean<br>(1000 tonnes) | Std Dev<br>(1000 tonnes) | Coeff of Variation (%) | Average egg production<br>(1000 t per capita) | Mean<br>(1000 tonnes) | Std Dev<br>(1000 tonnes) | Coeff of Variation (%) | Average milk production<br>(1000 t per capita) |
| 1994 | 250,05                | 287,05                   | 114,80                 | 311,59  | 5813,89               | 7308,94                  | 125,71                 | 13,40  |
| 1995 | 252,98                | 292,13                   | 115,48                 | 314,37  | 5879,13               | 7412,57                  | 126,08                 | 13,53  |
| 1996 | 251,21                | 288,80                   | 114,96                 | 313,00  | 5863,30               | 7405,09                  | 126,30                 | 13,41  |
| 1997 | 254,65                | 294,23                   | 115,54                 | 312,34  | 5858,21               | 7391,95                  | 126,18                 | 13,58  |
| 1998 | 259,16                | 297,63                   | 114,85                 | 312,87  | 5874,43               | 7348,01                  | 125,08                 | 13,80  |
| 1999 | 255,60                | 299,21                   | 117,07                 | 313,17  | 5888,55               | 7368,01                  | 125,12                 | 13,59  |
| 2000 | 245,04                | 295,80                   | 120,72                 | 312,89  | 5582,08               | 7161,46                  | 128,29                 | 13,74  |
| 2001 | 249,79                | 295,96                   | 118,49                 | 310,12  | 5548,73               | 7108,48                  | 128,11                 | 13,96  |
| 2002 | 249,04                | 296,77                   | 119,17                 | 309,28  | 5553,41               | 7097,74                  | 127,81                 | 13,87  |
| 2003 | 243,03                | 289,94                   | 119,30                 | 308,53  | 5562,36               | 7145,68                  | 128,46                 | 13,48  |
| 2004 | 252,09                | 297,96                   | 118,20                 | 302,88  | 5483,85               | 7054,52                  | 128,64                 | 13,92  |
| 2005 | 243,75                | 286,10                   | 117,38                 | 303,67  | 5521,51               | 7126,17                  | 129,06                 | 13,41  |
| 2006 | 245,78                | 289,24                   | 117,68                 | 301,24  | 5500,54               | 7004,61                  | 127,34                 | 13,46  |
| 2007 | 243,86                | 288,14                   | 118,16                 | 298,92  | 5481,11               | 7057,81                  | 128,77                 | 13,30  |
| 2008 | 245,47                | 285,55                   | 116,33                 | 298,65  | 5498,48               | 7032,52                  | 127,90                 | 13,33  |
| 2009 | 248,46                | 296,27                   | 119,24                 | 294,30  | 5438,91               | 7011,64                  | 128,92                 | 13,44  |
| 2010 | 247,10                | 287,32                   | 116,28                 | 294,67  | 5464,22               | 7143,57                  | 130,73                 | 13,33  |

**Source of data: Faostat**

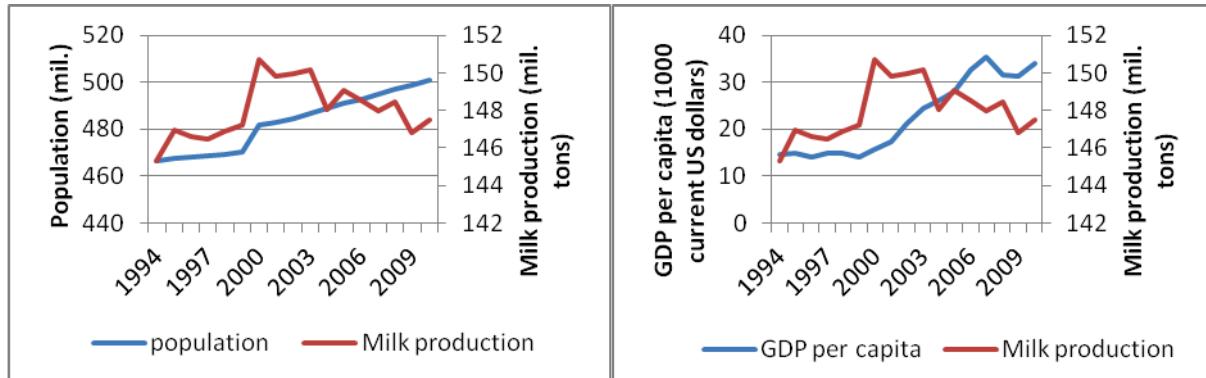
Determinants of selected commodities production used in this paper were market size and its level of growth measured as population and GDP per capita. On the figure 1 is plot of total egg production and population in the EU 27 over analyzed period, while on the figure 2 is egg production compared with GDP per capita over the examined years. On both pictures is significant increasing trend since 1994 to 2004, then production of eggs slightly decreased which could be caused by change in consumer preferences and decrease in production profitability.



**Pic. 1: EU population vs egg production    Pic. 2: EU GDP per capita vs egg production**

Similarly, pictures 3 and 4 compare milk production of EU 27 with population and GDP per capita. Trend in the production of cow milk since 1994 to 2004 is similar to trend in egg

production in the same period, which corresponds with increasing trend in EU population and GDP per capita. After 2004 trend of average milk production in the EU 27 changed to decreasing. In comparison with decrease of egg production, decline in production of milk was more significant. Degradation of milk production could be affected by change in consumption pattern, but also by other economic and political factors. Variation of milk production in next period was not consistent with variation in population and GDP per capita.



**Pic. 3: EU population vs milk production** **Pic. 4: EU GDP per capita vs egg production**

### Theoretical reasoning of the model

Model used for the product estimation in this paper is the function of a “normal product”. Model was developed originally by Chenery (1960) and later modified by Katos (1980). Function is simplified for estimation purposes and can be reduced to give total domestic production as a function of per capita income and population. This paper follows analysis conducted by Batzios et. al. (1998) for the normal product specification and investigation of milk and eggs production pattern which used same theoretical model. Long run model used for estimation is specified:

$$Q_{jt} = f(Y_j, P_t) \quad (1)$$

Where Q - production, j –products (E-eggs and M-milk), Y – per capita Gross Domestic product in 2013 dollars, P – population and t refers to time.

All variables are expressed in natural logarithms and the estimated coefficients for income and population represents the “growth” and “size” elasticity. Hence, equation (1) includes supply and demand effects on egg and milk production in the EU. It is expected that level of production and demand will vary with rising income (growth elasticity) and growing domestic market (size elasticity). In other words, larger income and market can affect production costs, selling prices and final demand of these products in the EU market.

### Data and methodology

For the purpose of analysis were used longitudinal data for 27 European countries covering period of years 1994-2010 (annual observations) about milk and egg production (tonnes), population (thousands) and GDP per capita (current US dollars) obtained by FAO statistical database. Observations of used variables for some EU states did not cover whole period, which makes this panel unbalanced. All variables were transformed to natural logarithms. In contrast with analysis performed by Batzios et. al. (1998) who used aggregate

data for the EU, this analysis was conducted using panel data models. In order to identify long run and also short run dynamics were estimated panel error correction models.

When using error correction methodology, in the first step is necessary to test analysed variables for the unit root. In this case was used unbalanced panel with few missing observations, thus the only usable test was Fisher type panel unit root test (Choi 2001). The Fisher type test uses p-values from unit root tests for each cross-section  $i$ . The formula of the test is as follows:  $P = -2 \sum_{i=1}^N \ln p_i$  (2)

The test is asymptotically chi-square distributed with  $2N$  degrees of freedom ( $T_i \rightarrow \infty$  for finite  $N$ ). This test can handle unbalanced panels which is his great advantage. A drawback of the test is that the p-values have to be obtained by Monte Carlo simulations (in this case was test implemented using Stata11). Null hypothesis of this test means all panels contain unit root. Alternative hypothesis means at least one stationary panel.

Important assumption of the error correction model is long run relationship between analysed variables (cointegration). In this study, we focused on panel cointegration based on Johansen (1990). The cointegrating rank hypothesis is stated as  $H_0$ : rank=r and test against the alternative  $H_a$ : rank>r. Where the likelihood ratio test called trace statistics is calculated as follows:

$$-2 \ln Q_r = -T \sum_{i=r+1}^p \ln(1 - \hat{\lambda}_i) \quad (3)$$

Where,  $\hat{\lambda}_i$  is the  $i$ -th eigenvalue obtained using model introduced by Johansen (1990). Test statistics is obtained by using the average of the individual trace statistics developed by Johansen. If cointegration there would be confirmed cointegration relationship between variable, we can conclude long run relationship between those variables and estimate long run relationship (long run elasticity).

Recalling the long run production model of equation (1), its specific functional form can be expressed:

$$Q_t = AP_t^{\beta_1} Y_t^{\beta_2} \quad (4)$$

$\beta_1$  and  $\beta_2$  represents long run elasticity with respect to population and income. A is a constant term. The natural logarithmic form of (2) can be rewritten as:

$$Q_t = \beta_0 + \beta_1 P_t + \beta_2 Y_t \quad (5)$$

Where  $\ln A = \beta_0$

To incorporate the dynamics of production in different livestock product sectors was employed error correction model (ECM). Such models have the ability to incorporate long run and short run relationship in one equation. By taking first differences of (5) a standard ECM is obtained:

$$\Delta Q_t = \gamma_1 \Delta P_t + \gamma_2 \Delta Y_t - \gamma_3 (Q_{t-1} - \beta_0 - \beta_1 P_{t-1} - \beta_2 Y_{t-1}) + u_t \quad (6)$$

$u_t$  is an error term, if the ECM is correctly specified  $u_t$  should be "white noise". Term in brackets is the error correction term (long run relationship obtained by regression of level data, or cointegration test). The value of  $\gamma_3$  indicates the direction and also the magnitude of

the adjustment mechanism for the ECM. According to Batzios (1998), the sign of  $\gamma_3$  also indicates the relative relationship between normal estimation and actual production values. Positive sign means, normal production is on average below the actual production and vice versa. To account effects of previous periods were included into model also values of lagged explanatory variables. Models with different number of lags and explanatory variables were estimated and the best evaluated models are interpreted in the section with results.

In this case were used longitudinal data, thus long run relationship as well as the error correction models were estimated using panel data methodology. Basic and most frequently used methodology for estimation of panel data models are fixed effects and random effects models. Fixed effects express the individual effects for each cross sectional or time unit in different intercept term. Random effects model incorporate individual effect in specific random error term. Criterion for deciding between fixed or random effects model was Hausman test for random effects. Null hypothesis of Hausman test means consistent estimates of random effects model, alternative hypothesis means inconsistent random effects estimates and then fixed effects model should be used. In case of fixed effects model was used test for individual effects (F test for no fixed effects). If the null hypothesis is not rejected, it means that no individual effect is present. In that case should be used simple pooled regression.

## Results

First step of the analysis was investigation of the data stationarity, resp. Stationarity of time series used in panel. For this purpose was used Fisher type panel unit root test (see methodology section). Null hypothesis means that all panels contain unit root, alternative that at least one panel is stationary. Stationarity is important assumption which should be met in order to use error correction methodology in next steps. Results of unit root test are shown in table 2. All the original variables in logarithmic form were considered non stationary, but their first differences are stationary. All time series can be considered integrated of the first order I(1), thus original time series are non stationary but their first order differences are stationary. This means fulfilment of stationarity condition, thus cointegration and error correction methodology can be applied.

**Tab. 2: Results of the Fisher type unit root test**

| Variable                                    | test statistics | p value | result |
|---|-----------------|---------|--------|
| LnGDP                                       | 28.1639         | 0.9986  | Ho     |
| LnPopulation                                | 67.5363         | 0.1020  | Ho     |
| LnEggs                                      | 64.7714         | 0.1497  | Ho     |
| LnMilk                                      | 47.7767         | 0.7118  | Ho     |
| DifLnGDP                                    | 147.3030        | 0.0000  | Ha     |
| DifLnPop                                    | 111.9562        | 0.0000  | Ha     |
| DifLnEggs                                   | 438.3553        | 0.0000  | Ha     |
| DifLnMilk                                   | 391.388         | 0.0000  | Ha     |
| <b>Ho: All panels contain unit roots</b>    |                 |         |        |
| <b>Ha: At least one panel is stationary</b> |                 |         |        |

*Source: Author's work*

Next step of the analysis was examination of the long run relationship between variables. First, Johansen test was applied for panel data (results are shown in table 3) which confirmed existence of 2 cointegration vector in both production functions of selected livestock products (milk and eggs). In both cases the null hypothesis were not rejected only in case when cointegration rank ( $r$ ) was equal 2.

**Tab. 3: Johansen cointegration test result**

| Cointegration Rank Test Using Trace |               |               |               |                      |                |                |
|-------------------------------------|---------------|---------------|---------------|----------------------|----------------|----------------|
| H0:<br>Rank=r                       | H1:<br>Rank>r | Eggs<br>trace | Milk<br>trace | 5% Critical<br>Value | Result<br>Milk | Result<br>Eggs |
| 0                                   | 0             | 40.4707       | 35.9077       | 24.8                 | H1             | H1             |
| 1                                   | 1             | 14.2313       | 7.23          | 12.21                | H1             | H1             |
| 2                                   | 2             | 0.0656        | 0.0575        | 4.14                 | H0             | H0             |

*Source: Author's work*

Subsequently, long run relationship production functions were estimated for both products (cointegration vectors):

$$\text{Milk: } \ln Q_M = -0.01304 \ln Y + 0.364645 \ln P + e_t$$

$$\text{Eggs: } \ln Q_E = 0.115319 \ln Y + 1.153795 \ln P + e_t$$

In case of milk production ( $\ln Q_M$ ), there is a positive effect of population ( $\ln P$ ) on normal product, in case of GDP per capita ( $\ln Y$ ) is estimated surprisingly negative sign of coefficient. It means that with the increase in GDP per capita production of cow milk decreases. This could be caused by several factors. One of them is change in consumer behaviour. Nowadays, consumers are not certain about position of milk in health lifestyle. Consumers habits have also changed in recent period and consumption of milk decreased. Negative sign could be affected by divergence between rising GDP per capita and declining production of milk. In contrast with results published by Batzios et. al (1998), relationship between milk production and its determinants changed. Authors analyzed earlier period (1970-1994) and elasticity in their estimated long run production function for milk had opposite sign as it is in this case (their investigation lead to negative influence of population and positive influence of GDP per capita on milk production).

In case of egg production, ( $\ln Q_E$ ) both explanatory variables positive signs. This is again in contrast with paper published by Batzios have et. al. (1998), in which were estimated negative effect GDP per capita on normal product. This lead to conclusion, trends in production patterns of eggs have changed over last decades. In both production functions was population the major determinant. Dynamics in production of selected livestock products was incorporated using error correction models. Models express in one equation both long run and also short run dynamics. Models were estimated using panel data. In case of milk was evaluated as most suitable model with random effects in table 4. In the model were used first order differences of natural logarithm form. Models with different number of lagged variables were estimated, and the final model in the table was selected according to decision criteria such as significance of variables, explanatory ability of the model, and information criterion.

**Tab. 4: Error correction model for “normal” milk production**

| Milk - One way random effects model:   |                                 |        |         |        |
|--|---------------------------------|--------|---------|--------|
| $d\ln Q_M = 0.038374d\ln Y_{t-2} - 0.05984d\ln Y_{t-3} + 0.560398d\ln P_{t-3} - 0.27481ECT + ut$ |                                 |        |         |        |
| t  | 2.03                            | -3.08  | 2.00    | -7.11  |
| p-value  | 0.0428                          | 0.0022 | 0.0464  | <.0001 |
| R-square   | Hausman test for random effects |        | p value |        |
| 0.1634   | m value=7.58                    |        | 0.1082  |        |

*Source: Author's work*

Dynamic error correction model is consistent with long run relationship mentioned above. Significant variables are GDP per capita lagged by two and three periods and population lagged by three periods (first differences of logarithm). ECT refers to error correction term. Sign of the GDP coefficients are not consistent and according to significance level we can conclude that short run effects of GDP per capita on production have negative effect similarly as it was in long run case. Main determinant of milk production in EU, according to estimated model, is population. Negative sign of the ECT coefficient indicate that actual milk production in EU27 countries is below normal production. Results are again different from those published by Batzios et. al. (1998). The only significant factor of the normal product of milk in their research was population lagged by one period. Error correction term had also different sign, which possibly means that actual and normal product in earlier period were in different position (normal below actual).

Similar procedure was applied to estimate error correction model for normal product of eggs. In this case was evaluated as the best according to Hausman test for fixed effects and F test for no individual effects fixed effects model in the table 5.

**Tab. 5: Error correction model for “normal” egg production**

| Eggs -One way fixed effects model:                            |                             |        |         |  |
|---|-----------------------------|--------|---------|--|
| $d\ln Q_E = -0.10799 - 0.13273d\ln Y_{t-3} - 0.20581ECT + ut$ |                             |        |         |  |
| t   | -3.65                       | -6.31  | -2.52   |  |
| p-value   | 0.0003                      | <.0001 | 0.0121  |  |
| R-square  | F test for no fixed effects |        | p value |  |
| 0.1575  | F value=1.98                |        | 0.0036  |  |

*Source: Author's work*

Lagged variables of GDP per capita (first differences of logarithms) have in this case negative effects which is not consistent with estimated long run relationship. It means that increase in income cause decrease in egg production. This result is consistent also with model by Batzios et. al. (1998) where has GDP per capita negative effect too. Also error correction coefficients have in both cases negative sign and also similar values. This mean that pattern in egg production with respect to GDP per capita did not significantly changed over last decades. The only difference when compared this model to Batzios et. al. is insignificant effect of population on the eggs production. This result is not consistent with long run estimation where population was the most significant factor. Overall performance of the estimated models for eggs as well as for milk measured by R-squared is very poor, which means that in recent years there were other significant factor influencing production of selected livestock products which were not incorporated into models. Again, if we compare

model explanatory ability with Batzios et. al. which achieved R-square close to 0,5 in both cases, we can conclude that production patterns over the last two decades changed and market size and growth nowadays are not as significant factors as it was before.

## **Conclusions**

In general it can be concluded, that production patterns of selected livestock commodities (milk and eggs) changed considerably over last two decades. This is clear especially in comparison of results provided in this paper with Batzios et. al. (1998) (analysed period 1970-1974). Different models, coefficient signs, R-square and significance of the explanatory variables could possibly mean change of the main factors affecting production. It could be also connected with many economic and political factors influencing agricultural production, as well as consumption patterns and change in consumer's behaviour. Mainly orientation on health lifestyle influence consumers in recent period and with rising income they tend to decrease consumption of milk and eggs. This decrease of the consumption could be possibly alleviated by marketing campaign oriented on milk and its importance for health. Keep in mind that, analysis in this paper was conducted on panel data, in contrast with Batzios et. al. (1998). Authors examined aggregate data for the EU, which could possibly affect investigation and make a difference in results. However, this example could be also used as comparison of two different approaches to the analysis of economic phenomena in EU countries.

## **Literature:**

Batzios C., Lawler K., Ling M., Katsouli E. & Galanopoulos C. 1998: "Short and Long Run Trends in Production and Consumption Patterns of Two Livestock Products in the EU". Medit, Vol. 4: 44-48.

Chenery H. B. 1960: Patterns of Industrial Growth, American Economic Review, 50, 624-653

Choi, I. 2001.:Unit root tests for panel data. Journal of International Money and Finance 20: 249–272.

Johansen, S. And Juselius, K. 1990: Maximum likelihood estimation and inference on cointegration with applications to the demand of money, Oxford Bulletin of Statistics, 52(2), 169-210

Katos A.V. 1980: Portugal, Spain and Greece: On the Dynamic Effects of Joining EEC, Journal of Economic Studies 7(2), 87-98

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# The Moral Reasoning of Business Students

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## Abstract:

The objectives of this research were to study the level of moral reasoning amongst business students and to study the connection of moral reasoning to demographic characteristics (gender, education level, major in university, GPA, religious affiliation, and household income). Lawrence Kohlberg's theory of cognitive moral development (CMD) was the main theory used for this study. The respondents were 400 undergraduate business students from Kasetsart University, Thailand, comprising 5 business majors – finance, management, operations management, marketing, and accounting. A questionnaire was adapted from and based on the Moral Judgment Interview, created by Kohlberg (1969) and his associates, and the Defining Issues Test, created by Rest (1979), to measure different levels of moral reasoning through 10 business dilemmas. Measures of central tendency, mean score and dispersion, analysis of variance t-test, f-test, ANOVA, and Post Hoc were utilized to analyse the data and test several null hypotheses by using the computer program SPSS for Windows. The results indicated that the majority group of business students at Kasetsart University were in Stage 4, the stage of authority and social order maintaining orientation, as based on Kohlberg's Moral Reasoning Theory.

## Key words:

Moral Reasoning, Business Ethics, Business Student, Moral Judgment

## 1. Introduction

Struggling to survive in a world of increasing globalization has led to many problems in society, especially in the realm of morality. For example, according to the McDonald's case in 1972, Ray Kroc, the company's founder, made a \$250,000 donation to Richard Nixon's re-election campaign, which many thought effectively was a payment to lobby Congress and the White House to pass new legislation that would allow employers to pay teenager employees 20% lower than minimum wage (MSN, 2012). In the case of Mattel, the world's 2nd largest toy company, management outsourced the manufacturing of products to China to cut costs. However, the toys were produced with a poor quality coating made from toxic lead paint, which contained 180 times the legal limit of lead content. The dolls were hazardous for children (Knowledge@Wharton, 2007; Nayab, 2011). *The Guardian* pointed out that in 2002, the world's largest food company, Nestlé, sued one of the world's poorest countries, Ethiopia, for USD\$6 million. The country's ministers sold off a joint venture business they had with Nestlé (Bob, 2002), Ethiopian Livestock Development Company (Elidco), to a local firm for profit. Oxfam reported that this sum of money could have been used to feed a million Ethiopians for a month. Recently, a Swiss civil court found that Nestlé and the security company Securitas AG were guilty of spying on ATTAC, an NGO, at a meeting in Vaud Canton in 2003. ATTAC had been campaigning for the regulation of financial markets, debt cancellation for developing countries, and on fair trade issues (Frontline Defenders, 2013). The world has also observed poor business ethics from Wal-Mart, which became a monopoly in local markets by making suppliers dependent on them. Then, the corporation pressured its

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suppliers to sell goods below cost or at prices lower than they would get elsewhere; the company was also accused of forcing employees to work overtime without pay (Scheid, 2013).

Business cases have consistently shown bad business ethics from big companies to serve their selfish motives; these have been harmful to society. Bad business ethics sometimes can include activities that involve no violation of existing law because sometimes law can define what is a right or wrong action but cannot explain greed and other selfish actions. Consequently, moral reasoning in doing business should be a concern because the world needs not only scholars, but also people committed to ethical business practices.

In order to act ethically, an individual is expected to have a well-developed moral reasoning ability (Falkenberg, 2004; Werhane, 1998). One of the most famous moral theories is from Lawrence Kohlberg, who studied and developed the theory of cognitive moral development from Piaget's concept. Kohlberg was not interested in moral behavior but rather in the way moral decision-making and moral reasoning take place (White, Crafford and Schepers, 2001). The initial belief of moral reasoning refers to the reasoning which people use to decide to do or not do certain things. It shows the development of the moral and thinking processes of individuals. Every level of moral reasoning of each person depends on that person's level of thinking and understanding. Kohlberg found that there are several levels of moral development stages apart from Piaget's theory. Moral reasoning is expressed clearly and does not depend on the rules of a society. Moral reasoning from this theory does not evaluate the action, whether it is good or bad. Instead, it depends on reasoning. Although six stages are identified, only a few people reach the highest stage of moral development (Colby et al., 1983). People's actions tend to show the reasons why people act like they do.

Kohlberg's theory has been successfully applied to studies of adults in business settings (Elm and Nichols, 1993; Elm and Weber, 1994; Falkenberg, 2004; Forte, 2004a, b; Goolsby and Hunt, 1992; Helkama et al, 2003; Jeffery, 1993; Pennino, 2002; Rest, 1986, Shaub, 1994; Trevino and Nelson 1999; Warming – Rasmussen and Windsor, 2003; Weber, 1988, 1990, 1996; Weber and Wasieleski, 2001; White, 1999). While moral developments in business students are also important, not many research studies have been completed among Thai student bodies. According to the proverb that says, "the child is the father of the man," business students will play important roles in future business settings. In order to understand the level of moral reasoning in business students of Kasetsart University, Kohlberg's theory was applied to understand the ethical decision-making process and the reasoning capacity of individuals in a variety of dilemma settings (Wimalasiri, 2004). Gaining knowledge and understanding about the level of moral reasoning in business students at Kasetsart University will be useful for government organizations and education institutions alike. The results of the study can be used as reference in order to add more ethics courses for business students in the future.

## 2. Literature review

### Moral reasoning – cognitive moral development

The conceptual and analytical tools for assessing how people go about developing moral reasoning capacity are grounded in philosophy and cognitive developmental psychology (Elm and Nichols, 1993). In 1932, Jean Piaget laid the groundwork for cognitive moral development (CMD) theory in his seminal study of moral development in children (Trevino, 1992). He found a theory of cognitive child development, and his work became directly relevant to contemporary theories of moral development. In the early portions of his work, he focused specifically on the moral lives of children, studying the way children played games in order to learn more about children's beliefs about right and wrong (Piaget, 1965). After that he interviewed children regarding acts such as stealing and lying. From his observations, included in Piaget's original 2 stages (Wright, 1995), Piaget concluded that children begin in

a "heteronomous" stage of moral reasoning, characterized by a strict adherence to rules and duties, as well as obedience to authority. These children then developed into an "autonomous" stage of moral reasoning, characterized by the ability to consider rules critically, and selectively apply these rules based on a goal of mutual respect and cooperation.

### Kohlberg's framework and moral reasoning

The strict Piagetian stages construction may need to be abandoned in the study of adult development, but the idea of soft stages of development in adulthood should not be (Kohlberg et al., 1983). Kohlberg's research, using Piaget's themes, led to the expansion and definition of moral reasoning. Kohlberg had been interested in moral psychology since 1958. He studied moral judgment of children from Piaget's work and then researched children and young adults, specifically American boys aged 10 to 16. Over 20 years, his theory of cognitive moral development (Kohlberg, 1969) emphasized the cognitive basis of moral judgment and its relationship to moral action by presenting children and young adults with hypothetical moral dilemmas and then asking them to judge what was right and wrong and to explain their justifications. This showed that how people thought was related to what they did (Trevino, 1992).

Kohlberg's six stages of moral development are grouped into three levels (Elm and Nichols, 1993). The theory helps people understand behavior but not to predict the behavior. At the basic level of morality is the pre-conventional level, wherein right and wrong are based on one's notion of pleasure and pain – punishments, rewards, and exchange of favors. Morality defines "good" in terms of raw power and self-interest. This level was separated into 2 stages – Obedience and Punishment Orientation, and Self-interest orientation.

Stage 1: Obedience and punishment orientation (How can one avoid punishment?): Piaget's heteronomy (meaning rules from others) inspired Kohlberg to characterize Stage 1 of his moral judgment. Right and wrong were determined by what helps one avoid punishment. Morality is under external control here, and this is the stage where one's mommy and daddy thank him or her for doing right. Furthermore, right and wrong are determined by what will help children avoid bad circumstances.

Stage 2: Self-interest orientation (What's in it for me?): Right and wrong are about need, efficiency, and "you scratch my back, and I'll scratch yours." Moral reasoning is based on what gives you the greatest rewards, and one's actions are determined by a desire to gain. Thus, morality is under external control. If you good, mommy and daddy will give you cookies, so your behavior is the way to gain some source of reward.

Level 2 of morality is the conventional level at which right and wrong are based on expectation of family, friends, and the rules of society. Morality recognizes the interest of others and the legitimacy of authority and law. This level was developed into 2 stages – good boy, nice girl orientation, and law and order orientation.

Stage 3: Good boy, nice girl orientation, or interpersonal conformity (social norms). Right and wrong are based on getting the approval of others. Social conformity is important at this stage. Right and wrong are based on peer approval and by having someone else decide what is right or wrong. Morality is still under external control, and people behave in such a way as to get the approval of others, especially an outside source. Motives and intentions also become important at this stage (Trevino, 1992).

Stage 4: Authority and social order maintain orientation (law and order morality). Moral judgments consider the rules and laws of social, legal, or religious systems that are designed to promote the common good. (Trevino, 1992). Right and wrong are determined by the law, which proclaims that "these are the rules, and therefore, they are right." Morality here is still externally dependent because some rules are the ultimate authority. Right and wrong are based on what the law says. In Stage 4, subjects make moral decisions from the perspective

of society as a whole, and they think from a full-fledged member-of-society perspective (Colby and Kohlberg, 1983).

At the highest level of morality is the post-conventional level, where individuals have gone beyond identification with others' expectations, rules, and laws (Trevino, 1992). Morality emphasizes autonomous ethical thinking and ultimately focuses on principles of justice. The focus is on what is right for all, affected by adherence to universal ethics principles appealing to logical comprehensiveness, universality, and consistency. This level is divided into 2 stages – social contract legalistic orientation, and universal ethical principal orientation.

Stage 5: Social contract legalistic orientation. At this stage, right and wrong are determined democratically. They are matters of personal values and opinion based on universal values and rights that any person would want to incorporate into a moral society. The validity of existing laws and social systems can be evaluated in the light of these human rights and values. This can be done because even though laws and rules guarantee the rights of the individual and society, individual rights at times transcend laws and rules if the laws and rules seem destructive (Daniels, 1984). People try to determine logically what a society ought to be like (Kohlberg, 1981, pp. 21-22; Gibbs et al., 1983, p. 83).

Stage 6: Universal ethical principal orientation (principled conscience). Right and wrong determine behavior, and action is determined by universal truth. Right action is determined by one's conscience in accordance with a set of universal principles or virtues regardless of the consequences. Some values and rights must be held regardless of what others think.

**Tab. 1 The Kohlberg's six moral stages**

| Level and stage   | What is right  | Reasons for doing right   | Social perspective  |
|---|--|---|---|
| Level 1<br>Preconventional  |  |   |   |
| Stage 1<br>Heteronomous<br>Morality   | To avoid breaking rules backed by punishment, obedience for its own sake, and avoiding physical damage to persons and property.      | Avoidance of punishment, and the superior power of authorities  | Egocentric point of view.   |
| Stage 2<br>Individualism,<br>Instrumental<br>Purpose, and<br>Exchange                                 | Following rules only when they serve one's immediate interests or the acknowledged interests of others (a "fair" exchange of favors) | To serve one's own needs or interests in a world where you have to recognize that other people have their own interests, too.                         | Concrete individualistic perspective                                  |
| Level 2<br>Conventional   |  |   |   |
| Stage 3 Mutual<br>Interpersonal<br>Expectations,<br>Relationships, and<br>Interpersonal<br>Conformity | Live up to what is expected by others (especially expectations of "close" others)  | The need to be a good person in your own eyes and those of others. Desire to maintain rules and authority, which support stereotypical good behavior. | Perspective of the individual in relationship with other individuals. |
| Stage 4 Social<br>System and<br>Conscience  | Follow rules and laws of society (social, legal, and religious)  | To keep the institution going as a whole, to avoid the breakdown  | Differentiates societal point of view from interpersonal              |

|  |   |   |                                       |
|--|---|---|---------------------------------------|
|  | systems) in order to maintain the welfare of society (common good)  | of the system.  | agreement or motives.                 |
| Level 3<br>Postconventional                              |   |   |                                       |
| Stage 5 Social Contract or Utility and Individual Rights | Consider the relativism of personal views, but still emphasize rules and law.   | A sense of obligation to law due to one's social contract to make and abide by laws for the welfare of all and for the protection of all people's rights. | Prior-to-society perspective          |
| Stage 6 Universal Ethical Principles                     | Act in accordance with one's self-chosen ethical principles of justice and right (perspective of individual recognizing the nature of morality) | The belief as a rational person in the validity of universal moral principles, and a sense of personal commitment to them.                                | Perspective of a moral point of view. |

Source: Kohlberg, L 1976. Stage and Sequence: The cognitive-development approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research* (pp.347-480) Chicago, IL: Rand McNally.

Despite the fact that Kohlberg's theory is widely used, there are many critics. As Gilligan (1982) and Snell (1996) said, this model is exclusively preoccupied at higher stages with justice-based ethical reasoning and excludes or underrates some equally important values such as warmth, love, and care. Bay (2002) said the model is culturally biased, and it ignores cultural and contextual roots of moral judgment. In addition, Bay stressed that Kohlberg's model does not represent how people make decisions when faced with ethical dilemmas of their own real life situations (Wimalasiri, 2004).

### Measurement of cognitive moral development

#### Moral Judgment Interview

The Moral Judgment Interview (MJI) was developed by Kohlberg and his associates (Colby and Kohlberg, 1987) to measure the moral reasoning stage of children, and was first used in 1969. It consists of open-ended questions and requires the researcher to present three to six moral dilemmas while conducting a face-to-face interview with the subject (Weber and McGiven, 2010). The Association of American Colleges and Universities claims the following:

"MJI is a structured interview measurement that provides an assessment of subjects' development in Stages 1 through 5 of Kohlberg's moral reasoning scheme. Utilizing an interview format, the MJI is a qualitative, production style instrument. Three parallel forms of the MJI are in use, and each has three hypothetical moral dilemmas with standardized probes for clarifying subjects' reasoning. Among these is the oft-cited "Heinz Dilemma." in this hypothetical situation, a man whose wife is dying of cancer must decide if he will steal a drug from a chemist who—simply because he wants to make money—is charging more than the man can pay. "Standard Issue Scoring" of the MJI involves categorizing subjects' responses first by two standard issue categories for each dilemma (for the Heinz Dilemma, preservation of life or upholding the law), then by modal elements (upholding normative order), and value elements (egoistic consequences, utilitarian consequences, or fairness), and then by norms (life, property, truth, punishment, and so forth). A comprehensive scoring manual is used to generate a global stage score on Kohlberg's model for interviewees that can indicate mixed stage positioning in addition to pure stages."

There is a limitation to using MJI; Rest (1979) found that it was difficult to accurately link people's verbal moral reasoning with the various-stage development criteria (Rudd, Mullane, and Stoll, 2010). Moreover, MJI used long-term interviewing to collect data from the samples. For an insufficiency experiment, the interviewer cannot use this instrument (Muntavilak, 1997).

### Defining Issues Test

The Defining Issues Test (DIT) is a self-administered questionnaire. Developed by Rest (1979), this DIT is based on Kohlberg's six stages and presents hypothetical ethical dilemmas that are similar to those developed by Kohlberg in his original MJI (1969). If compared to MJI, DIT is the most widely-used assessment technique for studying moral judgment (Gibbs and Widaman, 1982) because it is composed of multiple choice questions and can be completed within 30-45 minutes. The Association of American Colleges and Universities claims the following:

"The Defining Issues Test (DIT) is a paper-and-pencil, recognition-type test based on Kohlberg's model of moral reasoning. Perhaps the most common measure of moral development, the DIT has been used in well over 500 studies. The basic premise of the DIT is to present enough information regarding a moral dilemma to activate subjects' existing moral schemas, which in turn should guide subjects to respond consistently on the test, and thereby reveal their levels of moral reasoning. The DIT includes six moral dilemmas, including the Heinz Dilemma. The basic structure of the DIT is to present each moral dilemma and then ask subjects to indicate which of the two actions or resolutions to the dilemma they endorse. Next, the DIT presents twelve stage-prototypic statements for each dilemma and asks subjects to rank each statement—in terms of importance to their decision—on a five-item Likert scale. Finally, subjects rank the statement that is most important to their thinking, as well as second, third, and fourth in importance. Although several indices were developed to report scores, the most widely used is the "P" index, which measures the percentage of principled moral reasoning. Recently, the DIT was revised and reformulated into the DIT-2. The DIT-2 features more modern social dilemmas, including a father stealing food for his starving family, a newspaper reporter exposing a favored political candidate's criminal background, a school board holding a contentious or dangerous meeting, a doctor giving an overdose of painkillers to a suffering patient, and college students demonstrating against U.S. foreign policy. The format is the same as the DIT; however, a new "N2" index has been developed and is considered to be more powerful than the traditional "P" index."

The major difference between the DIT and Kohlberg's MJI is that the DIT is a recognition procedure, whereas Kohlberg's methodology is a production procedure (Elm & Weber, 1994). The MJI is a production procedure because it utilizes in-depth interviews and requires expert judges that had to match the verbal statements given by the respondents to a scoring guide (Anonymous). The DIT has respondents read various ethical dilemmas and recognize from a list of behavioral statements the desired action (Fraedrich et al., 1994). The DIT credits participants with more advanced thinking than does the Kohlberg test (Rest, 1986).

The mentioned measurements above have been adapted for research designed for this study to understand the level of moral reasoning in business students; however, there was a limitation of time in order to consume and interpret data from MJI. Social dilemmas in DIT and DIT-2 were out of the scope of this research, which is reviewed below.

### Moral reasoning and gender

The more widely noted work of Caron Gillian (1982) claimed that female respondents are artifactually downscored in Kohlberg's stage system, but this has been generally disconfirmed (L.J. Walker, 1995). In fact, females are often found to be more advanced than males in moral judgment during early adolescence (e.g. Germon, Fasinger, Gregg & Gibbs, 1996; Sillberman & Snarey, 1993). Gilligan also claimed that males favor justice and rights in their moral judgment, whereas females favor care-related concerns. Gilligan conducted

extensive interviews with females, finding that women have different encychological tendencies compared with men. Women considered morality in terms of caring and relationships, whereas men seemed to think of morality as being what is right or wrong in terms of rules and justice. Care-related concerns are more prevalent in the moral judgments of females than males, especially when open-ended assessment methods are used (Garmon et al., 1996; Gibbs, Arnold, & Burkhardt, 1984; Jaffee & Hyde, 2000). This gender difference disappears when participants are asked to recollect "personal" (care-related) moral dilemmas and make moral judgments in that context (L.J. Walker, 1995), indicating that males can but tend not to use prominent levels of care-related concerns in their moral judgment. Bass, Barnett, and Brown (1998) reasoned that because women rely more heavily than do men on deontological norms (rules based), they are more idealistic or ethical than men (Loe and Weeks, 2000). However, Derry (1987, 1989) tested Gilligan's theory and found that there was no conclusive evidence discriminating between female and male managers' moral reasoning orientations (White, Crafford and Schepers, 2001). McCuddy and Perry (1996) found no relationship between students' genders and their ethical judgments, while Galbraith and Stephenson (1993) reported mixed results regarding gender differences and ethical attitudes.

### **Moral reasoning and level of education**

Since moral reasoning is a developmental construct, researchers found that it was reasonable to presume that time, and the experiences of time, can affect the stage level of moral reasoning (Ryan, 2001). There are many research studies indicating that educational level and age are two of the most important factors influencing the level of moral reasoning, especially as measured by the DIT (Brower and Shrader, 2000). Age trends have been demonstrated with Kohlberg's interview measurement techniques as well as with the DIT measures (Rest, 1983; Trevino, 1992; Arlow, 1991; Lane, 1995). Moreover, Terpstra et al. (1993) asserted that people tended to become more ethical as they grew older. Trevino, 1992, found significant positive correlations between adult moral development and education levels. Conversely, from Nichols' study in 1990 about the relationship between age, education, and CMD in managers, the study found no significant relationship between education and moral reasoning level (Trevino, 1992). Rest and Deemer (1986) suggested that education is a surrogate variable for other kinds of life experiences and moral judgment. Accordingly, age and level of education comprise one of the hypotheses regarding the effect on the level of moral reasoning.

### **Moral reasoning and academic majors in business**

Many researchers found a difference in moral reasoning by academic major (Cummings, Dyas, Maddux, & Kockman, 2001; Jeffery, 1993; Paradice & Dejoie, 1991; St. Pierre, Nelson, & Gabbin, 1990). In contrast, there are many research studies that did not confirm this (Bonawitz, 2002; Icerman, Kracher, & Kennelley, 1991; Livingstone, Derryberry, King, & Vendetti, 2006; Zeidler & Schafer, 1984). James Snodgrass and Robert Behling's work in 1996 studied the difference of the moral reasoning level of business and non-business students, which comprised 321 undergraduate students majoring in arts, humanities, social sciences, natural sciences, and business from two private colleges and one state university. It was found that there was no significant difference between the moral reasoning of business and non-business students. Smith (1999) also reported that MBA students exhibited a greater degree of sensitivity to the ethical dimensions of business decision-making.

### **Moral reasoning and GPA**

In relation to grade point average (GPA), there is a significantly positive correlation between GPA and moral reasoning, as reported in Tubtimtong's work (2011). This research found that medical students with high GPAs possess higher moral reasoning levels than medical students with lower GPAs. According to Johnson, Insley, Motwani, and Zbib (2000), GPA had a positive relationship to the p-score of subjects. Furthermore, a relationship

between higher moral reasoning and student GPA has been reported (Dollinger & LaMartina, 1998; Hendel, 1991; Overvold-Ronning, 2005; You and Penny, 2011). One study on the level of moral reasoning in business school undergraduates found that there was no difference in the mean levels of moral reasoning ability (as measured by the DIT2 N2 index scores) for senior undergraduate students based on their self-reported grade point average (Loescher, Hughes, Cavico, Mirabella and Pellet, 2005). So, GPA can be a measurement to predict the level of moral reasoning of students.

### **Moral reasoning and religions**

One's beliefs affect the way people live their lives; religion constitutes one of the more influential institutions in many societies (Norman et al., 1998). Delener (1994) said religion offers a framework within which life is understandable and interpretable. More importantly, in day-to-day activities, religion seems to provide the much needed guidance and direction in sorting out moral dilemmas (Wimalasiri, 2004). The work of Bar-yam, Kohlberg, and Naame in 1980 indicated that the Christian and Muslim Arab middle-class samples have similar levels of moral reasoning to the Turkish middle class, the Oriental Jewish lower class, and the American lower class. On the other hand, Bay (2002) stated that there is little evidence that religion is a correlate of DIT score.

### **Moral reasoning and family's income**

Money is one factor that determines behavior. Money plays an important role in the current study, since people commit crimes because of money, and people who have higher incomes tend to have higher education levels; conversely, there are many groups of wealthy people who have low levels of moral reasoning. Research on the effects of income on moral reasoning also has demonstrated mixed results (Izzo, 2000). There was a positive relationship between moral reasoning and sales representatives who earned more than USD\$40,000 a year (Schwepker and Ingram, 1996). Fin, Chonko, and Hunt (1988) found that high-income accountants perceived fewer ethical issues than did their colleagues at lower levels of income.

### **Conceptual framework**

The previous literature review showed that moral reasoning was related to gender, education level, major, GPA, religious affiliation, and household income. The conceptual framework illustrated the independent variable and dependent variables in this study as follows:

#### **Independent Variable**

- Demographic Characteristics
  - 1. Gender
  - 2. Education level
  - 3. Major
  - 4. GPA
  - 5. Religious Affiliation
  - 6. Household income

#### **Dependent Variable**

- Reasons to make decisions based on the given dilemma.

## Hypothesis

The hypotheses of this study were derived from the conceptual framework above, based on students from the Faculty of Business and Economics at Kasetsart University, with different demographic factors affecting the level of Moral Reasoning among students. The hypotheses are listed as follows:

- H1:* Students with different gender have differences in the level of Moral Reasoning.
- H2:* Students with different education levels have differences in the level of Moral Reasoning.
- H3:* Students with different majors have differences in the level of Moral Reasoning.
- H4:* Students with different GPA have different in level of Moral Reasoning.
- H5:* Students with different religious affiliations have differences in the level of Moral Reasoning.
- H6:* Students with different levels of household income have differences in the level of Moral Reasoning.

## 3. Research methodology

### Popular and sampling

The target population of this study comprised business students of Kasetsart University, Bangkhen and Kamphaengsaen campuses, who were studying in a bachelor's degree program in the faculty of business administration, academic year 2012, including freshmen, sophomores, juniors, and seniors from the departments of finance, management, operations management, marketing, and accounting. The students were both male and female, aged between 17 to 22 years old. The sample consisted of 400 undergraduate business students chosen from the total student population of 1,759 students as per the table below.

**Tab.2 The total number of bachelor's degree students of the faculty of business administration, Kasetsart University.**

|                                    | Freshman |        |       | Sophomore |        |       | Junior |        |       | Senior |        |       |
|------------------------------------|----------|--------|-------|-----------|--------|-------|--------|--------|-------|--------|--------|-------|
|                                    | Male     | Female | total | Male      | Female | total | Male   | Female | total | Male   | Female | total |
| Faculty of Business Administration | 129      | 306    | 435   | 96        | 330    | 426   | 315    | 315    | 421   | 138    | 339    | 477   |
| Department of Finance              | 24       | 44     | 68    | 12        | 61     | 73    | 10     | 60     | 70    | 16     | 83     | 99    |
| Department of Management           | 23       | 64     | 87    | 29        | 58     | 87    | 31     | 60     | 91    | 40     | 59     | 99    |
| Department of Operation Management | 19       | 34     | 53    | 13        | 47     | 60    | 21     | 35     | 56    | 19     | 37     | 56    |
| Department of Marketing            | 31       | 48     | 79    | 21        | 57     | 78    | 21     | 56     | 77    | 33     | 52     | 85    |
| Department of Accounting           | 32       | 116    | 148   | 21        | 107    | 128   | 23     | 104    | 127   | 30     | 108    | 138   |

Source: Office of the registrar, Kasetsart University (2013)

### Research instrument

The instrument of this study was adapted from the Moral Judgment Interview (MJI) and the Defining Issues Test (DIT). And the questionnaire was divided into 2 parts.

#### Part 1: Student's demographic information

This part comprised 6 questions (question 1-6) used to collect students' demographic information, which included gender, education level, major, GPA, religious affiliation, and household income. All responses in this part were measured with a nominal scale.

## **Part 2: Students' level of moral reasoning towards business dilemmas.**

In this part, there were 10 ethical business dilemmas that were designed to create tension in decision-making related to 10 stakeholders, which were employees, owners, managers, suppliers, government officers, customers, communities, investors, trade unions, and creditors. There were 2 opposite choices to select, followed by 7 reasons. Reasons 1 – 6 were derived from 6 stages of Kohlberg's Theory, and the last one was an open-ended answer as shown in the appendix. The respondents could write their own reasons in case the provided reasons could not identify the correct reason. The questionnaire's format was used in previous research, including Jiraphan Phitak (1981), Anocha Jangjing (1986), Thaweerat Nakthiam (1987), Siriphen Phaibulphol (1997), Thanthip Muntavilak (1997), Naowarat Chalermrasi (2000), Orrain Khamkom (2005), and Duanduen and Penkhae. The main point of this part was not about the precise right or wrong answer but reasons why people do particular actions. All dilemmas in this research were based on true stories, and all situations were understandable for students in bachelor degree programs.

As described in Kohlberg Theory, students who reasoned in the frame of moral reasoning stage 1 received 1 mark, a reply in stage 2 received 2 marks, and so on. Therefore, in each dilemma, each student received at least 1 mark and no more than 6. The total number of dilemmas was 10, so one student could possibly attain a score of 10 - 60 (Muntavijak, 1997; Khamkomm, 2005; Tubtimtong, 2011). However, for the open-ended answers, these were interpreted and scores referred to the closest answer in each stage as shown before. Referring back to Rest (1981) and Trevino (1992), the stages were also hierarchical integrations, meaning that people comprehended reasoning at all stages below their own, but not more than one stage above their own. As a result, dividing the scores into moral reasoning stages, the scores were rounded accordingly (Muntavijak, 1997). Therefore, the average was calculated by using the following steps:

|         |          |             |
|---------|----------|-------------|
| Stage 1 | interval | 10.0 – 15.0 |
| Stage 2 | interval | 15.1 – 25.0 |
| Stage 3 | interval | 25.1 – 35.0 |
| Stage 4 | interval | 35.1 – 45.0 |
| Stage 5 | interval | 45.1 – 55.0 |
| Stage 6 | interval | 55.1 – 60.0 |

### **Reliability testing**

After the questionnaire was approved for its content validity, a test was conducted with 30 students who were studying in bachelor degree programs in the faculty of arts and sciences, majoring in management and marketing at Kasetsart University, Kamphaengsaen Campus. The questionnaires were collected, and the data were processed for reliability with the SPSS program for Windows. The Cronbach's alpha coefficient obtained for empathy for moral reasoning was 0.78.

### **Data collection**

After the pretest was completed, the questionnaire was developed, and the self-administration questionnaires were distributed at random to business students at the Faculty of Business Administration Building, Kasetsart University. In addition, the questionnaires were distributed to students through an e-survey, hosted as a Google shared document. The questionnaires were posted on [www.facebook.com](http://www.facebook.com) as well because it is a huge community for all students in Kasetsart University, and it was easy for students to perceive the survey quickly. Additionally, all different levels of students use this social network, and Facebook provided a convenient way for everyone to share the link. Moreover, the link to the questionnaires was published on the Kasetsart University, Faculty of Business and Economics website and at student clubs within the university, including the Thai Classical Music Club, Christian Club, Muslim Club, and Astronomy Club.

## 4. Results

### Demographic profile of respondents

In total, 519 respondents' surveys were collected, composed of 120 respondents from e-surveys and 399 respondents from all other methods. Due to the limit of desired respondents and the fact that there were surveys with uncollected data, a total of 400 undergraduate business students were used to analyze the study. More specifically, there were 163 males (40.8%) and 237 females (59.3%). The education levels reported included freshmen, sophomores, juniors, and seniors; these were limited to 100 respondents per level (25%). There were 5 business majors considered, including finance, management, operations management, marketing, and accounting; these were limited to 80 respondents per major (20%). There were a total of 144 students who had GPAs between 2.00 – 2.50 (36%), 84 students with GPAs between 2.51 – 3.00 (21%), 193 students with GPAs between 3.00 – 3.50 (23.3%), and 79 students with GPAs between 3.51 – 4.00 (19.7%). There were 334 Buddhist students (83.5%), 40 Christian students (10%), and 26 Muslim students (6.5%) in the sample. Those with household incomes below 30,000 baht per month included 87 students (21.8%), those with household incomes from 30,001 – 50,000 baht per month totaled 128 students (32%), those with household incomes from 50,001 – 70,000 baht per month equaled 78 students (19.5%), those with household income from 70,001 – 90,000 baht per month comprised 25 students (6.3%), and those with household income higher than 90,001 baht per month equalled 82 students (20.5%).

**Tab. 3 Sample of characteristics**

| Data category            | Frequency<br>(n=400) | Total percentage<br>(n=400) |
|--------------------------|----------------------|-----------------------------|
| Gender                   |                      |                             |
| Male                     | 163                  | 40.7%                       |
| Female                   | 237                  | 59.3%                       |
| Academic Year            |                      |                             |
| Freshman                 | 100                  | 25%                         |
| Sophomore                | 100                  | 25%                         |
| Junior                   | 100                  | 25%                         |
| Senior                   | 100                  | 25%                         |
| Major                    |                      |                             |
| Finance                  | 80                   | 20%                         |
| Management               | 80                   | 20%                         |
| Operation management     | 80                   | 20%                         |
| Marketing                | 80                   | 20%                         |
| Accounting               | 80                   | 20%                         |
| GPA                      |                      |                             |
| 2.00 – 2.50              | 144                  | 36.0%                       |
| 2.51 – 3.00              | 84                   | 21.0%                       |
| 3.01 – 3.50              | 93                   | 23.2%                       |
| 3.51 – 4.00              | 79                   | 19.8%                       |
| Religion                 |                      |                             |
| Buddhist                 | 334                  | 83.5%                       |
| Christian                | 40                   | 10.0%                       |
| Muslim                   | 26                   | 6.5%                        |
| Monthly household income |                      |                             |
| Below 30,000 baht        | 87                   | 21.7%                       |

|                       |     |       |
|-----------------------|-----|-------|
| 30,001 – 50,000 baht  | 128 | 32.0% |
| 50,001 – 70,000 baht  | 78  | 19.5% |
| 70,001 – 90,000 baht  | 25  | 6.3%  |
| More than 90,001 baht | 82  | 20.5% |

### Moral reasoning stage and hypothesis testing

The majority group of business students at Kasetsart University were found to have Kohlberg's moral reasoning stage 4, the authority and social order maintaining orientation, at an occurrence of 48.5%. There were only 0.5% and 0.8% of the sample who had Kohlberg's moral reasoning stage 1 and stage 6 respectively. This is shown in the following table:

**Tab. 4 The results of moral reasoning stages from the sample.**

| Stage of moral reasoning | Average marks | Total number (%)<br>(N = 400) |
|--------------------------|---------------|-------------------------------|
| stage 1                  | 1.00 – 1.50   | 2 (0.5%)                      |
| stage 2                  | 1.51 – 2.50   | 10 (2.5%)                     |
| stage 3                  | 2.51 – 3.50   | 90 (22.5%)                    |
| stage 4                  | 3.51 – 4.50   | 194 (48.5%)                   |
| stage 5                  | 4.51 – 5.50   | 101 (25.3%)                   |
| stage 6                  | 5.51 – 6.00   | 3 (0.8%)                      |

### Hypothesis Testing

The connection of demographic information and the differences in the levels of moral reasoning are shown in the table below:

**Tab. 5 Mean, Standard Deviation and P score for demographic differences**

| Samples              | N   | Mean | SD  | Sig.  |
|----------------------|-----|------|-----|-------|
| Gender               |     |      |     |       |
| Male                 | 163 | 3.80 | .79 | 0.01  |
| Female               | 237 | 4.09 | .79 |       |
| Academic Year        |     |      |     |       |
| Freshman             | 100 | 3.96 | .80 | 0.606 |
| Sophomore            | 100 | 4.05 | .82 |       |
| Junior               | 100 | 3.90 | .78 |       |
| Senior               | 100 | 4.00 | .83 |       |
| Major                |     |      |     |       |
| Finance              | 80  | 3.91 | .67 | 0.674 |
| Management           | 80  | 4.06 | .81 |       |
| Operation management | 80  | 4.00 | .67 |       |
| Marketing            | 80  | 3.90 | .89 |       |
| Accounting           | 80  | 4.01 | .94 |       |
| GPA                  |     |      |     |       |
| 2.00 – 2.50          | 144 | 3.86 | .77 | 0.141 |
| 2.51 – 3.00          | 84  | 4.10 | .82 |       |
| 3.01 – 3.50          | 93  | 4.01 | .75 |       |
| 3.51 – 4.00          | 79  | 3.97 | .89 |       |

|                          |     |      |     |       |
|--------------------------|-----|------|-----|-------|
| Religion                 |     |      |     |       |
| Buddhist                 | 334 | 4.00 | .78 | 0.262 |
| Christian                | 40  | 3.80 | .99 |       |
| Muslim                   | 26  | 3.88 | .80 |       |
| Monthly household income |     |      |     |       |
| Below 30,000 baht        | 87  | 3.91 | .81 | 0.40  |
| 30,001 – 50,000 baht     | 128 | 3.89 | .83 |       |
| 50,001 – 70,000 baht     | 78  | 4.01 | .82 |       |
| 70,001 – 90,000 baht     | 25  | 4.12 | .72 |       |
| More than 90,001 baht    | 82  | 4.08 | .77 |       |

*H1:* Students with different gender have differences in their levels of Moral Reasoning.

Comparing Kohlberg's moral reasoning stages of business students at Kasetsart University classified by gender, the results indicated that male and female business students have significant differences in the levels of moral reasoning. The results form a significance value lower than 0.05 ( $p<0.05$ ), and the T-test method was applied to investigate the differences. As a result, female business students had higher moral reasoning mean marks than males. However, the difference was not that great, as shown by a mean score ( $\bar{X}$ ) from males of 3.80 and females of 4.09.

*H2:* Students with different education level have differences in their levels of Moral Reasoning (null).

Comparing Kohlberg's moral reasoning stages of business students at Kasetsart University classified by education level, the results indicated that freshmen, sophomores, juniors, and seniors did not show any significant relationship between education level/year and moral reasoning level. The results form a significance value of all 6 reasons higher than 0.05 ( $p>0.05$ ).

*H3:* Students with different majors have differences in their level of Moral Reasoning (null).

Comparing Kohlberg's moral reasoning stages of business students at Kasetsart University classified by major, the results indicated that business students majoring in finance, management, operations management, marketing and accounting did not show any significant relationship between major and moral reasoning level. The results formed a significance value of all 6 reasons higher than 0.05 ( $p>0.05$ ).

*H4:* Students with different GPAs have differences in their level of Moral Reasoning.

Comparing Kohlberg's moral reasoning stage of business students at Kasetsart University as classified by GPA (grade point average), students with different levels of GPA between 2.00 – 2.50 and 3.51 – 4.00 showed a significance value lower than 0.05 ( $p<0.05$ ). Thus, there was a difference among levels of GPA from the sample. The LSD (least significant difference) method was applied to investigate which pair of GPA levels had a significant mean difference. The results examined a group of undergraduate business students whose GPA level was 2.00 - 2.50 and 2.51 – 3.00 ( $p=0.027$ ). Level 1 was the minimum level of the sample that had GPA levels between 2.00 – 2.50, and level 5 was the maximum, while level 2 was the minimum level of the sample that had GPA levels between 2.51 – 3.00, and level 5 was the maximum. The difference between means was 3.86 and 4.10. Otherwise, the results of this study did not show any significance between GPA levels higher than 3.00.

*H5:* Students with different religious affiliations had differences in their levels of Moral Reasoning. (null)

Comparing Kohlberg's moral reasoning stage with business students at Kasetsart University, as classified by religion, the results indicated that business students who were

Buddhist, Christian, and Muslim did not show any significant relationship between religion and moral reasoning level. The results formed a significance value of all 6 reasons higher than 0.05 ( $p>0.05$ ).

*H6: Students with different household income have differences in the level of Moral Reasoning. (null)*

Comparing Kohlberg's moral reasoning stage of business students at Kasetsart University classified by level of monthly household income, the results indicated that business students with levels of income below 30,000 baht and over 90,000 baht per month did not show any significant relationship between level of family income and moral reasoning level. The results formed a significance value of all 6 reasons higher than 0.05 ( $p>0.05$ ).

## **5. Discussion and Conclusions**

The purpose of this study was to investigate relationships between moral reasoning level and demographic characteristics of undergraduate business students at Kasetsart University. The results showed that almost half of the sample population, 48.5%, were in level 4 of Kohlberg's moral reasoning, the authority and social order maintaining orientation. A total of 25.3% were in level 5 of Kohlberg's moral reasoning, the level of self-interest orientation. Only 0.5% of the undergraduate business students were in level 1, the level of obedience and punishment orientation, and 0.8% reached the highest level, the level of universal ethical principal orientation. Thus, it was considered appropriate to conclude that undergraduate business students at Kasetsart University were in the moderate level of Kohlberg's moral reasoning scale, and just a few students were in the lowest level and the highest level.

Furthermore, the results of this study showed that there was a significant difference between genders, male and female. Following the idea of Gilligan about gender differences and moral reasoning level, male and female undergraduate business students were shown to have differences in moral reasoning. Because of this, moral education programs for males and females may need to be different to achieve equivalent moral advancement in both genders. Indeed, women's orientation to relationship of interdependence brings a different point of view and order of priorities to the development cycle (Wright, 1995). According to the results, there was a small significant difference in moral reasoning used in the group of student who had GPAs between 2.00 – 2.50 and 2.51 – 3.00. While GPA was not the best predictor of moral reasoning level for this study, it was indicated that students who had GPA levels from 2.00 – 2.50 had a lower moral reasoning level than students who had higher GPAs, in the range of 2.51 – 3.00. There are many previous research studies showing the relationship between GPA and moral reasoning including Dollinger & LaMartina, 1998; Hendel, 1991; Johnson, Insley, Motwani and Zbib, 2000; Overvold-Ronningen, 2005; and You and Penny, 2011. Tumtimtong's work (2011) reported that the findings showed high GPA medical students possessed high moral reasoning levels.

There were no statistically significant differences in the moral reasoning levels in the relationship between education level, major in business, religious affiliation, and monthly household income found in the sample populations. It was then concluded that the referred factors could not affect moral reasoning differences. However, previous research showed the relationship between education level and moral reasoning (Rest, 1983; Arlow, 1991; Trevino, 1992; Lane, 1995; Brower and Shrader, 2000; Ryan, 2001), and higher education levels were positively related to higher moral reasoning levels. This point should be a concern for the university, and it should consider adding more ethics courses in order to develop moral thinking in higher education. The differences in religion did not change moral thinking as in Bar-yam, Kohlberg and Naame's work in 1980. Results from Schwepker and Ingram in 1996 and Fin, Chonko, and Hunt in 1998 showed that the level of monthly household income does not affect moral reasoning level in undergraduate business students.

## **6. Limitations and implications for future research**

According to the small population used in this study, the results are to be viewed with caution. This study cannot be a conclusive result for all business students from Thailand. The small population of business students from Kasetsart University formed an exploratory conclusion. Moreover, the sample data represented only a segment of undergraduate business students, and this study cannot cover all students. Additionally, the study excluded other academic departments and also excluded higher levels of study like master's degree and doctoral degree programs. The impact of this study can be applied only to undergraduate business students at Kasetsart University.

Findings beyond the scope of this sample should be investigated with a more elaborate test. There may be other factors that are relevant to the level of moral reasoning, such as work experience, occupational classification of the family, background of the domicile, or not having a stable emotional state before answering the questionnaire. For future research, it is suggested that representative samples of international culture should be used, especially in a cross-cultural context between Thai students and foreign students. Moreover, future studies should include other departments such as medical students, engineering students, and agricultural students. Due to the fact that this research focused on undergraduate business students, all dilemmas were applied for undergraduate business students use only, and they cannot be applied to other departments or higher levels of education.

## **Appendix A**

### **Dilemma #7 (business owner and communities)**

Somkid, a researcher and owner of an exported orchid company, later found that his company was using harmful chemicals to produce special orchids. This chemical can cause illness to employees and communities around her company. Even if the use of this chemical is illegal, it must be used to produce the specific type of orchid, Somkid sells. She needs to decide whether to stop using the harmful chemical or not. Currently, sales of this orchid create a lot of profit, and Somkid needs the money to save his son from a serious sickness. What would you do if you were Somkid? What is the reason why you would make this decision?

- Continue selling this orchid because you
  - Afraid that customers will cancel all orders.
  - Get money to save your son from sickness.
  - Received respect from family in your efforts to save family's member.
  - Are the head of the family and receive a duty to take care of the lives and welfare of the family.
  - Must decide to save a person you love.
  - Believe that saving a life is the most important thing now.
  - Other.....
- Stop selling this orchid because you
  - Can be punished, and according to the law, selling harmful products is illegal.
  - Can lose income if the customers know that this orchid is harmful to others.
  - Do not want to be a selfish person in the eyes of family members and subordinates.
  - Are members of society and have a duty to follow the law.
  - Cannot violate others people's life, everyone has a right to be alive.
  - Make other people's life in danger, this is a bad moral action.
  - Other.....

## References

- A. Colby, L. K., J. Gibbs, & M. Lieberman. (1983). A Longitudinal study of Moral Judgment. .  
*Monographs of the Society for Research in Child Development* 48, 1-124.
- Andrew Rudd, S. M., and Sharon Stoll. (2010). Development of an Instrument to Measure the Moral Judgments of Sport Managers. *Journal of Sport Management*, 24, 59-83.
- Arlow, P. (1991). Personal characteristics in college students' evaluations of business ethics and corporate social responsibility. *Journal of Business Ethics*, 10, 63-69.
- Bay, D. (2002). A critical evaluation of the use of the dit in accounting ethics research. *Critical Perspectives on Accounting* 13(2), 159-177.
- Behling, J. S. a. R. (1996). Differences in Moral Reasoning Between College and University Business Majors and Non-Business Majors. *Business & Professional Ethics Journal* 15(1), 79-84.
- Bob, J. (2002). Nestle sues Ethiopian staving, 2013, from  
<http://www.indymedia.org.uk/en/2002/12/49292.html>
- Bonawitz, M. F. (2002 ). Analysis and comparison of the moral development of students requires to graduate with an ethics course. *Dissertation Abstract International* 63(4).
- Daniels, M. (1984). The Relationship between Moral Development and Self-Actualization. *Journal of Moral Education*, 13(1), 25-30.
- Dawn R. Elm, a. J. W. (1994). Measuring moral judgment: the moral judgment interview or the Definining Issues Test? *Journal of Business Ethics*, 13, 341-355.
- Dawn R. Elm, a. M.-L. N. (1993). Executive-Behavior; Business-ethics; Moral-development. *Journal of Business Ethics*, 12, 817-833.
- Day, M. L. N. a. V. E. (1982). A Comparison of Moral Reasoning of Groups and Individuals on the "Difining Issues Test". *The Academy of Management Journal*, 25(1), 201-208.
- Deemer, J. R. a. D. (1986). *Life experience and development pathways*. New York: Praeger.
- Defenders, F. L. (2013). Switzerland: Nestlé and Securitas AG Spied on NGO ATTAC, 2013, from <http://www.frontlinedefenders.org/node/21523>
- Dejoie, D. B. P. a. R. M. (1991). The Ethical Decision-Making Process of Information Systems Workers. *Journal of Business Ethics*, 10(1-21).
- Delener, N. (1994). Religious contrasts in consumer decision behavior patterns: their dimensions and marketing implications. *European Journal of Marketing*, 28, 36-53.
- Denny, C. (2002). Nestle claims £3.7m from famine-hit Ethiopia, 2013, from  
<http://www.guardian.co.uk/uk/2002/dec/19/marketingandpr.famine>
- Di You, N. H. P. (2011). Assessing Students' Moral Reasoning of a Values-Based Education. *Psychology Research*, 1(6), 385-391.
- Falkenberg, A. W. (2004). When in Rome...Moral Maturity and Ethics for International Economic Organizations. *Journal of Business Ethics*, 54, 17-32.
- Fraedrich, J. (1994). *Business ethics: Ethical decision making and cases* (2nd edition ed.). Boston: Houghton Mifflin Co.
- G. Livingstone, W. P. D., A. King and Vendetti. (2006). Moral development consistency? Investigating differnces and relationship among academic majors *Ethics and Behavior*, 16(3), 265-287.
- Galbraith, H. B. S. a. S. (1993). Ethical compatibility of small business owners/entrepreneurs and consultants. *Journal of Small Business Strategy*, 4(1), 41-58.
- Gilligan, C. (1982). *In a Different Voice: Psychological Theory and Woman's Development* (Vol. 326): Harvard University Press.
- Hyde, S. J. a. J. S. (2000). Gender differences in moral orientation: A meta-analysis. *Psychological Bulletin*, 126, 703-726.
- Ingram, C. H. S. a. T. N. (1996). Improving sales performance through ethics: The relationship between salesperson moral judgment and job performance. *Journal of Business Ethics*, 15(11), 1151-1160.

- Ingram, C. S. T. (1996). Improving sales performance through ethics: The relationship between salesperson moral judgment and job performance. *Journal of Business Ethics*, 15, 1151-1160.
- Izzo, G. (2000). Cognitive moral development and real estate practitioners. *Journal of Estate Research*, 20, 119-142.
- J. Gibbs, S. S., M. Berkowitz and D. Goldstein. (1983). Relations Between Formal Operations and Logical Conflict Resolutions. *Paper presented at the biennial meeting of the Society for Research in Child Development, Detroit*.
- J. Lynn Johnson, R. I., Jaideep Motwani, and Imad Zbib. (1993). Writing Performance and Moral Reasoning in Business Education? *Journal of Business Ethics*, 12, 397-406.
- J.C. White, A. C., & J.M. Schepers. (2001). The construction of a normative instrument for the measurement of moral reasoning. *Journal of Industrial Psychology*, 27(3), 61-67.
- Jeffery, C. (1993). Ethical development of accounting students, non-accounting business students, and liberal arts students. *Issues in Accounting Education*, 8(1), 86-96.
- K.E. St.Pierre, E. S. N. a. A. L. G. (1990). A study of the ethical development of accounting majors in relation to other business and non-business disciplines. *Accounting Educators' Journal*, 3, 23-55.
- Klaus Helkama, A. U., Esa Pohjanheimo, Sino Salminen, Anne Konen & Leena Rantane (2003). Moral Reasoning and Values in Medical School: A longitudinal study in Finland. *Scandinavian Journal of Educational Research*, 47(4), 399-411.
- Kohlberg, L. (1969). *Stage and Sequence: The Cognitive-developmental Approach to Socialization*: Rand McNally.
- Kristie J. Loescher, R. W. H., Frank Cavico, Jim Mirabella, Pedro F. Pellet. (2005). The Impact of an "Ethics Across the Curriculum" Initiative on the Cognitive Moral Development of Business School Undergraduates. *Teaching Ethics*, 5(2), 31-72. doi: 10.5840
- M.D., N. T. (2011). The Moral Resoning of Medical Students in Naresuen University. *J Psychiatr Assoc Thailand*, 56(3), 287-296.
- McGivern, J. W. a. E. (2010). A New Methodology Approach for Studying Moral Reasoning Among Managers in Business Settings. *Journal of Business Ethics*, 149-166. doi: 10.1007
- Miriam Bar-Yam, L. K. a. A. N. (1980). Moral Reasoning of Students in Different Cultural, Social, and Educational Settings. *American Journal of Education*, 88(3), 345-362.
- Muntavijak, T. (1997). *Factors Affecting Moral Reasoning of Officers in Metropolitan Telephone Department in Telephone Organization of Thailand*. Master of Science, Kasetsart University, Thailand.
- Nayab, N. (2011). The Bad Boys of Business, from <http://articles.moneycentral.msn.com/Investing/Extra/the-bad-boys-of-business.aspx?slide-number=1>
- Nelson, L. K. T. a. K. A. (1999). *Managing business ethics: straight talk about how to do it right*. New York: Wiley and Sons.
- P. Terpstra, G. V. H., N. Shadbolt and B. Wielinga. (1993). *Elicitatin Technique using Personal Construct Technology* New York: Plenum Press.
- Pennino, C. M. (2002). Does Tenure Impact Upon the Principled Reasoning of Managers? *Journal of Business Ethics*, 40(3), 219-226.
- Pennsylvania, W. U. o. (2007). Trouble in Toyland: New Challenge for Mattel -- and 'Made in China', from <http://knowledge.wharton.upenn.edu/articlepdf/1796.pdf?CFID=89772482&CFTOKEN=N=22712455&jsessionid=a830dfd923665104706d274e393e1d4d514c>
- Piaget, J. (1932). *The Moral Judgment of the Child*. New York: Free Press.
- R. Cummings, L. D., C.D. and A. Kochman. (2001). Principled moral reasoning and behavior of preservice teacher education students. *Computers in Schools* 17, 85-104.
- R. Norman, R. W., P. Neumann, J. Frank, H. Shannon and M. Kerr. (1998). A comparison of peak vs. cumulative physical work exposure risk factors for the reporting of low back pain in the automotive industry. *Clinical Biomechanics*, 13, 561-573.

- R.C. Iceman, J. N. K. a. M. K. (1991). A baseline of moral development: Accounting, other business and nonbusiness students *Accounting Educators' Journal*, 3, 46-62.
- Rest, J. R. (1979). *Development in Judging Moral Issues*: University of Minnesota Press.
- Rest, J. R. (1986). *Moral Development: Advances in Research and Theory*. New York: Praeger.
- Ryan, J. J. (2001). Moral reasoning as a determinant of organizational citizenship behaviors: A study in the public accounting profession. *Journal of Business Ethics*, 33(3), 233-244.
- Schafer, D. L. Z. a. L. E. (1984). Identifying mediating factors of moral reasoning in science education. *Journal of Research in Science Teaching*, 21(1), 1-15. doi: 10.1002
- Scheid, J. (2013). Real-World Examples of Bad Business Ethics, 2013, from <http://www.brighthub.com/office/entrepreneurs/articles/115557.aspx>
- Shaub, M. K. (1994). Limits to the Effectiveness of Accounting Ethics Education. *Business and Professional Ethics Journal*, 13(1/2), 129-145.
- Shelby D. Hunt, J. R. G. (1992). Cognitive Moral Development and Marketing. *Journal of Marketing* 56, 55-68.
- Shrader, H. H. B. a. C. B. (2000). Moral Reasoning and Ethical Climate: Not-for-Profit vs. For-Profit Boards of Directors. *Journal of Business Ethics*, 26, 147-167.
- Snell, R. S. (1996). Complementing Kohlberg: Mapping the Ethical Reasoning Used by Managers for their Own Dilemma Cases. *Human Relations*, 49(1), 23-49.
- Terry W. Loe, W. A. W. (2000). An Experimental Investigation of Efforts to Improve Sales Students' Moral Reasoning. *The Journal of Personal Selling and Sales Management*, 20(4), 243-251.
- Tim Barnett, K. B., and Gene Brown. (1994). Ethical ideology and ethical judgment regarding ethical issues in business. *Journal of Business Ethics*, 13(6), 469-480.
- Trevino, L. K. (1992). Moral Reasoning and Business Ethics: Implications for Research, Education, and Management. *Journal of Business Ethics*(11), 445-459.
- Walker, L. J. (1995). Whither moral psychology? *Moral Education Forum*, 20(1), 1-8.
- Wasieleski, J. W. a. D. (2001). Investigating Influences on Managers' Moral Reasoning: The Impact of Context and Personal and Organizational Factors. *Business & Society*, 40(1), 79-111.
- Weber, J. (1988). *The Relationship Between Managerial Value Orientations and Stages of Moral Development: Theory Development and Empirical Investigation with Behavioral Implications*: University Microfilms International
- Weber, J. (1990). 'Managers' Moral Reasoning Assessing Their Responses to Three Moral Dilemmas *Human Relations*, 43(7), 687-702.
- Weber, J. (1996). Welcoming Another CMD Instrument-The MES. *Business Ethics Quarterly*, 6(4), 517-522.
- Weber, J. (2010). Assessing the "Tone at the Top": The Moral Reasoning of CEOs in the Automobile Industry. *Journal of Business Ethics*, 167-182. doi: 10.1007
- Werhane, P. H. (1998). Moral Imagination and the Search for Ethical Decision-Making in Management. *The Ruffin Series of the Society for Business Ethics*, 75-98.
- White, J. E. (1999). *Contemporary Moral Problems*: Wadsworth.
- Widaman, J. C. G. a. K. F. (1982). *Social intelligence: Measuring the development of sociomoral reflection*. Englewood Cliffs, NJ: Prentice-Hall.
- Wimalasiri, J. S. (2004). Contrasts in Moral Reasoning Capacity: The Fijians and the Singapore. *Journal of Business Ethics*, 49, 253-272.
- Windsor, B. W.-R. a. C. (2003). Danish evidence of auditors' level of moral reasoning and predisposition to provide fair judgments *Journal of Business Ethics*, 47(2), 77-87.
- Wright, A. (1995). *Storytelling With Children* Oxford: Oxford University Press.

# Local or Global Consumer

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## Abstract:

This paper analyses whether in their decisions students are influenced by global brands and if so, to what extent. The data obtained from the primary survey are compared with the world's top global brands rankings. The paper examines the key performance indicators for individual brands in the Top of Mind Awareness (TOMA). The main objective is to compare the first three positions of the categories with TOMA and world rankings of global brands. Where necessary, the author uses Analysis based on the distribution of brands according to the RIO 2002 Master, Prestige, Super, Local and GloCal Brands was used. Through the two methods the data is transferred to score and it expresses not only the overall conclusion about consumer behaviour of the young respondents surveyed, but also identifies the situations in the individual product categories, which are Car, Drink, Fast-food, Mobile phone, Perfume, Detergent, Cough drops, and Beer.

## Key words:

Top of Mind Awareness, brand, local and global brands

## Introduction

The aim of this paper is to answer the question of whether young people are influenced by marketing activities of the major global players or local brands and manufacturers.

The reason why so much attention is paid to young consumers is the fact that they are going to have the main purchasing power in near future and that they (their market) will determine the winning marketing strategy. So the question is whether young respondents who were involved in the survey, unconsciously prefer strong global brands at the expense of less dominant brands. To verify this claim there will be used the detection of key performance indicators for each brand, Top of Mind Awareness (TOMA).

## Theoretical background

The recall of a brand within a given product category when purchasing goods is one of the key moments of consumer behaviour. The most appropriate definition seems to be the following (Salomon, Marshall, Stuart, 2006, p 271): "The brand is more than the product - the best brands build consumer's emotional relationship. A strong brand not only satisfies the rational needs but also creates an emotional reaction. Think about the absolutely most popular brand diapers - Pampers is not Absorbancy Master. The name evokes the pleasures of parenthood, not utility property diapers."

A similar definition of a brand was formulated by David Ogilvy in 1955 (In SYNEXT): "Brand is a complex symbol. It is an indefinable set of product attributes, its name, packaging, pricing, its history, reputation and the way of promotion. The brand is also defined by customer perceptions of the people who use it, as well as their own experience."

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For your own physical definition of a brand is very necessary to give an extended definition: "It is a name, character symbol, colours (and their combinations), whose task is to give identity to the product or service and distinguish them from the competition" (SYNEXT).

However, the brand itself is not enough. It is advisable to use a more powerful tool and that is branding. Branding as an active process of communication, which brings advantages compared to the brand only (Kneshke, 2007). Branding is able to distinguish the product from other products, it is understood and kept in the minds of customers, it gives the opportunity to demand a higher price and last but not least, it forms an emotional bond. But it is necessary to remember also the other aspects of branding that do not derive directly from the marketing.

Branding is not, exclusively, a marketing practice. It is also a customer service practice. A management practice. An HR practice. An R&D practice. Even a manufacturing practice. Tom Peters says (In Brandinsightblog), "Branding is ultimately about nothing more and nothing less than the heart. It's about passion... what you care about. It's about what's inside you, your team, your division, your company." Branding (HORSKÁ et al., 2011) can be described as "the formation of a customer's affection for a particular brand" or "ensuring the customer's preference of this brand among the competitors."

The key term of this article is Top-Of-Mind Awareness (TOMA). TOMA is when (DOLAK In Building A Strong Brand) "you ask a person to name brands within a product category and your brand pops up first on the list".

For the purpose of this article it is necessary to define the notion of global and local brands. The access to global brands in terms of their management is not easy to define, according to Jez Frampton, Global Chief Executive Interbrand (Report: BEST GLOBAL BRANDS 2011). The business leaders who manage the Top 100 Best Global Brands understand that what consumers want in Hong Kong may be very different from what they desire in Rajasthan. They also recognize that it is about more than simple market expansion! But, savvier, and more discerning customers are demanding greater degrees of engagement from brands, and as such, brand owners must become more sensitive to their needs and desires to ultimately evolve the brand experience across the whole organization. These trends demand significant change in management structures and decision making for large, traditional, organizations.

The questions about global brands were surveyed by the Research International Observer (RIO). The study by a large global agency Research International examined perceptions of brands and modern challenges of globalisation. Group discussion on these issues took place in 52 cities in 41 countries in 2002, attended by over 1,500 respondents (KÖPPL). The study found four different types of global brands, which can be schematically represented as follows (In BAKER, STERENBERG and TAYLOR):

- Master brands like Nike, Sony and Coca-Cola define their category and are built on powerful myths or narratives (e.g. Levi's theme of independence or Nokia's theme of connection). For these brands it is this universality of their narrative rather than the fact of globalness itself that is at the heart of their appeal. Often, these are "first mover" brands that define a category. While they can thus leverage their heritage, on the other hand the marketers of the Master brands face another challenge, the need to keep the myth relevant to each new generation. Coca-Cola has been superbly successful at this; Levi's has been less so. As Coca-Cola also illustrates, Master brands can transcend their national origins to be embraced by consumers as truly global brands. They thus require – and permit – little if any localization that might threaten to undermine their universality or mythical appeal. Master brands are also less exclusive – and exclusionary – than Prestige brands: As one consumer observed, "it is a status symbol, but anyone can have it."

- Prestige brands such as Chanel, BMW, Rolex and Gucci have an appeal built on specific myths of cultural origin or the provenance of a founder or a technology (e.g.

Mercedes as the embodiment of German design and engineering excellence). These brands are nearly always in the categories of strong presence with high aspirational value. Like a magic amulet, a Prestige brand “increases the value of the person who uses it.” At the risk of excluding many to appeal to the chosen few, Prestige brands actively reject localization. For example, BMW and Mercedes in Japan and Singapore will usually avoid the use of local icons to stay sufficiently aspirational.

- Super brands are universally available like Master brands. Unlike Master brands, Super brands are defined more by their category than by a myth or narrative. Examples include Gillette, Pepsi, McDonald's, Shell, Philips and American Express (regular card). In the words of one respondent, they are “trusted, silver-medal winners.” As such, a Super brand may be quite successful and as good as any other in the category without being differentiated on the basis of a distinctive myth or narrative that it “owns.” Instead, Super brands try to become relevant by localizing somewhat (e.g., McDonald's adapting versions of local foods to a quick service environment) and remain relevant by constant product or service innovation (e.g., the evolution of Gillette's “shaving systems”).
- GloCal brands such as Dove, Nestle and Danone are available globally, but marketed locally, often under a variety of local or regional product names (sub-brands). Even where consumers are aware of this global distribution, a GloCal brand may “feel close” and be seen as “one of ours” equity. These brands thus require and permit the greatest degree of localization and are usually, though not always, in categories with weak display value such as food, household products and personal care. (As such they are brands with the lowest threshold for triggering negative reactions if consumers perceive that their own or their families' health or safety are threatened.) We should also note that the potential aspirational value of a given product is relative to local economic conditions; in many less-developed countries and newer consumer societies, a variety of fast moving consumer goods can take on this character.

## **Research method**

The basic data for our analysis was obtained through students of a college in Znojmo implemented under the guidance of the author during 2011 and 2012. The Students of Private College of Economic Studies in Znojmo and secondary school students in South Moravian Region were interviewed. The investigation detected the first brands that the respondents recall in different product categories that belong to the active life of young people. The following product categories were examined:

- Car,
- Drink,
- Country for holidays (not part of the evaluation for the purposes of this article),
- Fast-food,
- Mobile phone,
- Perfume,
- Detergent,
- Cough drops,
- Restaurant (not part of the evaluation for the purposes of this article),
- Beer.

The research included 71 full-time college students respondents (combined study results are not included in the comparison) and 195 secondary school students.

To compare of the obtained results there were used the below world ratings of global brands:

- BEST GLOBAL BRANDS 2011 by Interbrand,
- BrandZ Top 100 Most Valuable Global Brands 2011 by Millward Brown,
- BrandZ Top Brands by Branch 2011 by Millward Brown.

The brands that have been ranked at the top three places in the individual product categories were then awarded points according to the order. The first place was rated with 5 points, second with 3 points and the last with only one point. In case that the identified brand was among the top global brands (whether Best Global Brands or Brandz), points were assigned to a global indicator of consumer behaviour of young respondents, otherwise when the brand did not come up, the points were allocated to the category of Local and GloCal brands. The obtained values were then compared for each category and overall.

A comparison, to express the intensity of the occurrence of the brand in each product category, its overall position against the main competitors, has been prepared by yet another method. The best-positioned brands did not get points for the first to third place, but they were assigned according to their relative share of occurrence in overall response incl. "unanswered".

This relative proportion is then multiplied by 9 points in order to maintain ratings from the previous method. For example, if the first of the brands in the product category represents only 27 occurrence, it gets only 0.91 points, whereas if the first brand in the category occurred 186 times, it will receive 6.3 points for a global or non-global brand.

## **Results and discussion**

The results obtained from a survey of South Moravian students were processed in the form of contingency tables. The object of the investigation was whether the brands the most commonly recalled by the students are likely to show the signs of global brands category (Global Brands - Master and Super Prestige Brands, marked G.), or rather less well-known brand worldwide (Local and GloCal brands, marked in the table as Loc. and GC.).

In Table 1 are the overall results obtained. The "globally" strongest category are the mobile phones, which was due to the intense globalisation of this segment which is obvious and it was confirmed the investigation. The first position is occupied by Nokia (125 occurrences, 47%), the second is Samsung (66 occurrences) and the last Sony (including Ericsson - 33 occurrences).

The opposite extreme is the beer category, the three most frequently mentioned brands are the representatives of domestic production in this order: Hostan (64 occurrences), Pilsner Urquell (40) and Gambrinus (33 occurrences), in all three cases traditional Czech brands. The beer Hostan is the strong local brand, because for most respondents, this beer is from their place of residence.

Brewery Hostan now belongs to the Heineken Group, which is also among the indicated brands, but only at the opposite end of the sequence (8 hits). A similar situation like with beer occurs with cough drops (Mucosolvan with 50 occurrences, Stoptusin 49 and Bromhexin 38) and laundry detergent, with the traditional Central European brands (Ariel is first with 131 occurrences, the second Persil with 86 and third place Perwoll with 13 occurrences).

In the case of automotive product category, the winning non-global brand due to its strong position of domestic car manufacturer is Skoda Mlada Boleslav (77 occurrences compared with the second BMW - 40 occurrences, AUDI 37). Conversely, in beverages, which was obvious already before the research that Coca-Cola will be a typical representative of TOMA (convincing result of 106 occurrences), the second place is a local brand Mattoni (mineral water with only 13 occurrences) and the last scoring place is shared by Sprite and Kofola (Czech favourite soft drink) in both cases, with 11 occurrences.

For global consumer behaviour of students, fast foods play important role too. The obvious winners are McDonald's (109 occurrences) and KFC (107 occurrences), the third place is a local fast-food Hungry Vokno (translated as a joke "Hungry window", 5 occurrences).

The last assessed category were perfumes, where the Playboy brand ranked first with 29 occurrences, then Adidas with 27 and Chanel 21 occurrences.

**Tab. 1 Global and Local and GloCal points for consumer behaviour - points by position**

| Pos. | Car   | G. pts. | Loc. and GC. pts. |
|------|-------|---------|-------------------|
| 1st  | Škoda | 0       | 5                 |
| 2nd  | BMW   | 3       | 0                 |
| 3rd  | Audi  | 1       | 0                 |

| Pos. | Drink     | G. pts. | Loc. and GC. pts. |
|------|-----------|---------|-------------------|
| 1st  | Coca-cola | 5       | 0                 |
| 2nd  | Mattoni   | 0       | 3                 |
| 4th  | Sprite    | 0,5     | 0                 |
| 4th  | Kofola    | 0       | 0,5               |

| Pos. | Fast-food                | G. pts. | Loc. and GC. pts. |
|------|--------------------------|---------|-------------------|
| 1st  | McDonald's               | 5       | 0                 |
| 2nd  | KFC                      | 3       | 0                 |
| 3rd  | Hladový vokno<br>(local) | 0       | 1                 |

| Pos. | Mobile phone       | G. pts. | Loc. and GC. pts. |
|------|--------------------|---------|-------------------|
| 1st  | Nokia              | 5       | 0                 |
| 2nd  | Samsung            | 3       | 0                 |
| 3rd  | Sony<br>(Ericsson) | 1       | 0                 |

| Pos. | Perfume | G. pts. | Loc. and GC. pts. |
|------|---------|---------|-------------------|
| 1st  | Playboy | 0       | 5                 |
| 2nd  | Adidas  | 3       | 0                 |
| 3rd  | Chanel  | 1       | 0                 |

| Pos. | Cough drops | G. pts. | Loc. and GC. pts. |
|------|-------------|---------|-------------------|
| 1st  | Mucosolvan  | 0       | 5                 |
| 2nd  | Stoptusin   | 0       | 3                 |
| 3rd  | Bromhexin   | 0       | 1                 |

| Pos. | Detergent | G. pts. | Loc. and GC. pts. |
|------|-----------|---------|-------------------|
| 1st  | Ariel     | 0       | 5                 |
| 2nd  | Persil    | 0       | 3                 |
| 3rd  | Perwoll   | 0       | 1                 |

| Pos. | Beer            | G. pts. | Loc. and GC. pts. |
|------|-----------------|---------|-------------------|
| 1st  | Hostan          | 0       | 5                 |
| 2nd  | Pilsner Urquell | 0       | 3                 |
| 3rd  | Gambrinus       | 0       | 1                 |

|                   | Total | %     |
|-------------------|-------|-------|
| G. pts.           | 30,50 | 42,36 |
| Loc. and GC. pts. | 41,50 | 57,64 |
| Sum               | 63    |       |

Resource: Our own survey based on Průzkum TOMA – Top of Mind Awareness, BEST GLOBAL BRANDS 2011, BrandZ Global Top 100.

The situation changes a bit, if we use the methodology with the relative allocation of points in relation to the number of occurrences of a given brand. The most represented brand in the survey was the brand Ariel (washing powder - 131 occurrences, 49.25%), Nokia (125 occurrences, 46.99%), followed by McDonald's (109 occurrences, i.e. 40.97%), KFC (107 occurrences, 40.23%), and Coca-Cola (106, i.e. 39.85%).

The top five brands are not local brands and first place went to GloCal brand only through unfamiliarity of respondents with other products in that category, which is due to the fact that many of the respondents do not make choices in this product category. The top five brands together account for almost half the points awarded for the number of occurrences (19.56 points, i.e. 43.76%).

**Tab. 2 TOMA brands by occurrence**

| Pos. | Brand      | Occurrence | Percentage of occurrence | G. pts.   | Loc. and GC. pts. |
|------|------------|------------|--------------------------|-----------|-------------------|
| 1st  | Ariel      | 131        | 0,492481                 | 04,432331 | 0                 |
| 2nd  | Nokia      | 125        | 0,469925                 | 4,229323  | 0                 |
| 3rd  | McDonald's | 109        | 0,409774                 | 3,68797   | 0                 |
| 4th  | KFC        | 107        | 0,402256                 | 3,620301  | 0                 |
| 5th  | Coca-cola  | 106        | 0,398496                 | 3,586466  | 0                 |

Resource: Our own survey based on Průzkum TOMA – Top of Mind Awareness, BEST GLOBAL BRANDS 2011, BrandZ Global Top 100.

The summary of results for all brands and product categories are shown in Table 3. So it is possible to evaluate consumer behaviour of respondents in each category. For example, in case of cars, the situation looks balanced for strong global brands and other brands (2.61 vs. 2.61 pts), but in case of drinks the respondents are strongly global (3.96 points for the Master, and Super Prestige brands vs. 0.81 Local and GloCal for brands). Fast-food restaurants (7.31 points out of maximum possible 9 for the global brand and 0.17 for others) and mobile phones (7.58 for the Master, and Super Prestige Brands) are even more clear-cut. The situation is balanced for perfumes (0.98 points for Playboy vs. 1.62 total for Adidas and Chanel).

A different situation occurs with the cough drops and beer (both 4.64 points GloCal and Local brands). Quite the opposite situation than in the mobile phones category is in laundry detergents (7.78 points for GloCal and Local brands).

**Tab. 3 Global and Local and GloCal points for consumer behaviour - points by percentage of occurrence**

| Pos. | Car   | Occurrence | % of occurrence | G. pts. | Loc. and GC. pts. |
|------|-------|------------|-----------------|---------|-------------------|
| 1st  | Škoda | 77         | 29%             | 0,00    | 2,61              |
| 2nd  | BMW   | 40         | 15%             | 1,35    | 0,00              |
| 3rd  | Audi  | 37         | 14%             | 1,25    | 0,00              |
| Sum  |       |            |                 | 2,61    | 2,61              |

| Pos. | Drink     | Occurrence | % of occurrence | G. pts. | Loc. and GC. pts. |
|------|-----------|------------|-----------------|---------|-------------------|
| 1st  | Coca-cola | 106        | 40%             | 3,59    | 0,00              |
| 2nd  | Mattoni   | 130        | 5%              | 0,00    | 0,44              |
| 4th  | Sprite    | 11         | 4%              | 0,37    | 0,00              |
| 4th  | Kofola    | 11         | 4%              | 0,00    | 0,37              |
| Sum  |           |            |                 | 3,96    | 0,81              |

| Pos. | <b>Fast-food</b>      | Occurrence | Percentage of occurrence | G. pts. | oc. and GC. pts. |
|------|-----------------------|------------|--------------------------|---------|------------------|
| 1st  | McDonald's            | 109        | 41%                      | 3,69    | 0,00             |
| 2nd  | KFC                   | 107        | 40%                      | 3,62    | 0,00             |
| 3rd  | Hladový vokno (local) | 5          | 2%                       | 0,00    | 0,17             |
| Sum  |                       |            |                          | 7,31    | 0,17             |

| Pos. | <b>Mobile phone</b> | Occurrence | Percentage of occurrence | G. pts. | oc. and GC. pts. |
|------|---------------------|------------|--------------------------|---------|------------------|
| 1st  | Nokia               | 125        | 47%                      | 4,23    | 0,00             |
| 2nd  | Samsung             | 66         | 25%                      | 2,23    | 0,00             |
| 3rd  | Sony (Ericsson)     | 33         | 12%                      | 1,12    | 0,00             |
| Sum  |                     |            |                          | 7,58    | 0,00             |

| Pos. | <b>Parfume</b> | Occurrence | Percentage of occurrence | G. pts. | oc. and GC. pts. |
|------|----------------|------------|--------------------------|---------|------------------|
| 1st  | Playboy        | 29         | 11%                      | 0,00    | 0,98             |
| 2nd  | Adidas         | 27         | 10%                      | 0,91    | 0,00             |
| 3rd  | Chanel         | 21         | 8%                       | 0,71    | 0,00             |
| Sum  |                |            |                          | 1,62    | 0,98             |

| Pos. | <b>Cough drops</b> | Occurrence | Percentage of occurrence | G. pts. | oc. and GC. pts. |
|------|--------------------|------------|--------------------------|---------|------------------|
| 1st  | Mucosolvan         | 50         | 19%                      | 0,00    | 1,69             |
| 2nd  | Stoptusin          | 49         | 19%                      | 0,00    | 1,66             |
| 3rd  | Bromhexin          | 38         | 14%                      | 0,00    | 1,29             |
| Sum  |                    |            |                          | 0,00    | 4,64             |

| Pos. | <b>Detergent</b> | Occurrence | Percentage of occurrence | G. pts. | Loc. and GC. pts. |
|------|------------------|------------|--------------------------|---------|-------------------|
| 1st  | Ariel            | 131        | 49%                      | 0,00    | 4,43              |
| 2nd  | Persil           | 86         | 32%                      | 0,00    | 2,91              |
| 3rd  | Perwoll          | 13         | 5%                       | 0,00    | 0,44              |
| Sum  |                  |            |                          | 0,00    | 7,78              |

| Pos. | <b>Beer</b>     | Occurrence | Percentage of occurrence | G. pts. | Loc. and GC. pts. |
|------|-----------------|------------|--------------------------|---------|-------------------|
| 1st  | Hostan          | 64,0       | 24%                      | 0,00    | 2,17              |
| 2nd  | Pilsner Urquell | 40,0       | 15%                      | 0,00    | 1,35              |
| 3rd  | Gambrinus       | 33,0       | 12%                      | 0,00    | 1,12              |
| Sum  |                 |            |                          | 0,00    | 4,64              |

|                   | <b>Total</b> | %   |
|-------------------|--------------|-----|
| G. pts.           | 23,08        | 52% |
| Loc. and GC. pts. | 21,62        | 48% |
| Sum               | 44,70        |     |

Resource: Our own survey based on Průzkum TOMA – Top of Mind Awareness, BEST GLOBAL BRANDS 2011, BrandZ Global Top 100.

## Conclusions

Taking into account the very similar overall results in the Global and GloCal and Local brands from Table 1 (i.e. 42.36% of points assigned to a Global brand) and Table 3 (i.e. 51.36% for Global brands), we can state that the prevailing consumer behaviour among the respondents is global and GloCal product orientation.

For the eight product categories the only typical local brand is the beer Hostan. Other brands can be described rather as GloCal brands. The exception is the fast-food Hungry Vokno, which received the third place by coincidence, not that it would play any key role for respondents. The other brands that can be marked "Made in Czech Republic" and represent

a traditional Czech products, are now looking for new customers on international markets and do not present themselves as local brands.

The investigation showed that young respondents are significantly affected by the global market players and their own consumer behaviour is largely implemented in the global market, which offers a number of attractive options to meet their needs, but also brings a number of risks.

The results presented in this article were created as a part of the project "VGS 2013K01 Analýza vztahů a vazeb mezi podniky, zákazníky, veřejnou správou a občany".

### **Literature:**

- BAKER, Malcolm, Greet STERENBERG a Earl TAYLOR. Managing Global Brands To Meet Consumer Expectations. [online]. p. 24 [cit. 2012-05-03]. Available at: [http://www.brsgroup.com/PDFs/Managing\\_Global\\_Brands.pdf](http://www.brsgroup.com/PDFs/Managing_Global_Brands.pdf)
- Brandinsightblog: Back to Basics — A working definition of Brands and Branding. FURGURSON, John. BrandInsightBlog [online]. 2010 [cit. 2012-05-02]. Available at: <<http://www.brandinsightblog.com/2010/01/14/back-to-basics-%E2%80%94-a-working-definition-of-brands-and-branding/>>
- BrandZ Global Top 100: Most valuable global brands. MILLWARD BROWN. Millward Brown [online]. [cit. 2012-05-03]. Available at: [http://www.millwardbrown.com/Libraries/Optimor\\_BrandZ\\_Files/2011\\_BrandZ\\_Top100\\_Report.sflb.ashx](http://www.millwardbrown.com/Libraries/Optimor_BrandZ_Files/2011_BrandZ_Top100_Report.sflb.ashx)
- Building A Strong Brand: Brands and Branding Basics. DOLAK, Dave. Dave Dolak [online]. 2001, 2003 [cit. 2012-05-02]. Available at: <<http://www.davedolak.com/articles/dolak4.htm>>
- Globální značky na rozcestí. KÖPPL, Ladislav. MARKETING&MEDIA. Marketing&Media [online]. 2003 [cit. 2012-05-03]. Available at: <http://mam.ihned.cz/c1-12222300>
- HORSKÁ, Elena, PALUCHOVÁ, Johana, PROKEINOVÁ, Renáta, MOSEIVA, Oľga Aleksandrovna Vnímanie imidžu krajiny pôvodu potravinárskych produktov a aspekty ich kvality vo vybraných európskych krajinách. 1. ed. Nitra : Slovenská poľnohospodárska univerzita v Nitre, 2011. 158 p. ISBN 978-80-552-0686-8.
- KNESHKE, Jan. Marketingovenoviny.cz [online]. 2007 [cit. 2012-03-07]. Articles. Available at WWW: <[http://www.marketingovenoviny.cz/?Action=View&ARTICLE\\_ID=5161](http://www.marketingovenoviny.cz/?Action=View&ARTICLE_ID=5161)>. Report: BEST GLOBAL BRANDS 2011. In: BEST GLOBAL BRANDS 2011 [online]. Interbrand, 2011, 2011-10-04 [cit. 2012-05-03]. Available at: [http://www.interbrand.com/Libraries/Branding\\_Studies/Best\\_Global\\_Brands\\_2011.sflb.ashx](http://www.interbrand.com/Libraries/Branding_Studies/Best_Global_Brands_2011.sflb.ashx)
- ŠABATA, Marek, Jana HORÁKOVÁ, Lenka RYBAROVÁ a Tomáš MIKULČÍK. Průzkum TOMA – Top of Mind Awareness. Banská Bystrica, 2012. Soutěžní práce - Študentská vedecká aktivita. Soukromá vysoká škola ekonomická Znojmo. Vedoucí práce Ing. Martin Přibyl, Ph.D.
- SALOMON R., Michael; MARSHALL W., Greg; STUART W., Elnora. Marketing očima světových marketing manažerů. První vydání, Brno 2006. Brno: Computer Press, a. s., 2006. ISBN 80-251-1273-X
- Žebříček nejcennějších značek světa: Mezi elitu se derou i ruské firmy. MARKETING&MEDIA [online]. 2011, 2011-05-09 [cit. 2012-05-03]. Available at: <http://byznys.ihned.cz/zpravodajstvi-svet/c1-51802080-zebricek-nejcennejsich-znacek-sveta-mezi-elitu-se-derou-i-ruske-firmy>
- Značka a positioning. SYNEXT S.R.O. SyNext [online]. [cit. 2012-05-02]. Available at: <<http://www.synext.cz/znacka-a-positioning.html>>

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# Scenario model of investment project in vineyards

Jozef Repiský<sup>1</sup>

## Abstract:

One of the appropriate ways of making investment alternatives, assessment and choosing the best variant is modelling approach. The main objective of the firm investment policy should be the formation and realization of investment projects that could lead to the increase of the firm market value represented by its net present value. The process of the identification of optimal strategies under risk is done as the following:

1. The construction of multiperiodical balance models of investment projects,
2. The deterministic assessment of the efficiency of investment projects based on criteria of NPV,
3. The construction of simulation model of risk assessment and the selection of the optimal variant.

The multiperiodical balance models covering a period of 20 years include cost structure estimation (cost of capital, working capital, variable and fixe operating costs), the estimation of production, depreciation, the financing of investment project (equity and loans), repayment scheduling and projected annual income statement, cash flow and the balance sheet. We use data from financial report of different farms situated in similar conditions and assessed by expert estimations. The deterministic assessment of the efficiency of different investment projects is based on the evaluation of the criteria of Net Present Value.

The risk factors in the deterministic models are identified with the help of the sensitive analysis. The Simulation analysis is executed by the program Risk for Excel.

We analysed three variants of projects, which differ only by structure. Variant 1 assumes that the total area of lands 25,26 ha is a combination of two vine varieties, in the first year 13,74 ha Chardonnay, in the second year 7,01 ha Cabernet Sauvignon and in the third year 4,45 ha Chardonnay. Variant 2 only counts with the planting of the variety Chardonnay and variant 3 with Cabernet Sauvignon. The best strategy it is considered the variant 2 at the value 51728 Euros. The second best option is the variant 1 with the value at 39595 Euros. The worst variant from the aspect of NPV value is the variant 3 at 36102 Euros.

The, risk factors were identified through the sensitive analysis - selling price, and average annual yield. The risk factors in the following stochastic model are formulated as random variables with a certain probability distribution. The construction of distributions for criteria is executed by the program Risk. The simulation output is represented by the statistical results that describe each probability distribution for the simulated results.

The investment efficiency can be evaluated based on critical values. The investor is willing to accept only a certain degree of risk. The perceptual values give the probability where the NPV falls under the value assigned to the given probability. With probability 20% we might expect for example that the NPV for the variant 2 will be less -4689 Eur. The criterion becomes positive only with a 25% risk level. It is only up to the investor to define up to what level he is willing to take the risk related to the investment.

## Key words:

investment project in vineyard, multi-periodical models, net present value, risk factors, simulation analysis.

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## Introduction

The appropriate selection of variants of the investment projects can contribute to the development and increase the company market value, but on the other hand, the wrong selection can contribute to the decline, or possibly the bankruptcy of the company. One of the appropriate ways of making investment alternatives, assessment and choosing the best option is modelling approach. Model solution of vineyard establishment allows a detailed analysis of the investment, including risk analysis, which helps to increase the likelihood of success, as well as to reduce the risk of project failure.

In the investment decision one should take into consideration the time factor as well as the risk bearing factors of potential changes and at the same time following the main objective of the firm i.e. maximizing its market value and as a result the shareholder welfare. Consequently, the main objective of the firm investment policy should be the formation and realization of investment projects that could lead to the increase of the firm market value represented by its net present value. In terms of accuracy, investments are evaluated by two approaches: The Net Present Value (NPV) and The Internal Rate of Return (IRR). The advantages and potential problems faced while using such approaches are treated for example in the articles of Northcott (1992), Lumby (1996), McLaney (1994), and Fotr (1995).

However, in order to maintain an objective evaluation of investment decision process, it is necessary to include the risk factor of its implementation. The formation of a simulation model (Goodwin, 1991; Sojková, 2000; Repiský, 2000) requires the definition of probabilities of the distribution for risk factors and the assumption of correlation between the risks factors that given by the correlation coefficients. Simulation techniques consist mainly on the Monte Carlo approach or the Latin Hypercube (Kaye, 1994). The alternative with the highest utility could be identified based on the rules of stochastic dominance (Goodwin, 1991) through distribution functions.

## Methodology

The process of the identification of optimal strategies under risk is done as the following:

- The construction of multiperiodical balance model of investment project,
- The deterministic assessment of the efficiency of investment projects based on criteria of NPV,
- The construction of simulation model of risk assessment and the selection of the optimal variant.

The multiperiodical balance model covering a period of 20 years includes cost structure estimation (cost of capital, working capital, variable and fixed operating costs), the estimation of production, depreciation, the financing of investment project (equity and loans), repayment scheduling and projected annual income statement, cash flow and the balance sheet. The deterministic assessment of the efficiency of different investment projects is based on the evaluation of the criteria of Net Present Value – NPV (Northcott, 1992; Lumby, 1996; McLaney, 1994; Fotr, 1995).

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+i)^t} - I_0 \quad (1)$$

|        |             |  |
|--------|-------------|--|
| Where: | NPV         | – Net Present Value                                |
|        | i           | – discount rate                                    |
|        | $1/(1+i)^t$ | – discounted factor at time t                      |
|        | $I_0$       | – initial investment costs                         |
|        | n           | – number of years of investment                    |
|        | $CF_t$      | – Cash Flow from the investment in different years |

This criterion takes into account the time value of money. Cash receipts and expenditures of future periods are converted into discounted present value. As the discount rate can be used the cost of capital in the financial market, the degree of risk-free investment the rate of return the company's capital, or other interest rate represented by the required or selected rate of return on capital. For a company, the investment projects is acceptable when it has a positive net present value, because the amount of cash expenditures over the life of the investment must cover the money spent, as well as ensure the required rate of return, expressed as a discount rate, and should increase the cash flow, thus contributing to the increase in market value of the firm. The company reaches a state where the value of the net present value is positive.

The individual variants are based on the assumptions that the investment objective will be implemented in an area, with specific climatic, orographic and soil conditions and properties belonging under the category I. The cultivation area is suitable for cultivation of all wine grape varieties, without limitation, that are registered in the list of permitted varieties in Slovakia. The investor uses his own mechanization and is labouring sufficient. The estimation is based on the experiences of other similar investment projects estimations implemented in Slovakia in recent years. Due to the continuously changing prices the budgetary costs are used only in a partially indicative manner.

The risk factors in the deterministic models are identified with the help of the sensitive analysis. They are represented by random variables, where a change in their level, causes a significant change in the estimated criteria figure. We introduce the risk of investment projects through the simulation analysis. The following analysis, after the risk specification, is executed in the following stages:

- the estimation of the shape of risk factors distribution and the estimation of distribution parameters,
- the construction of the probability distribution of the analysed criteria objective and the definition of its basic characteristics.

We formulate the identified risk factors in the stochastic model as random variables with certain probability distribution. The comparison of the distribution function of different projects enables the identification of optimal strategy while the critical values of the objective criteria offer information about the expected value of risk taking. The Simulation analysis is executed by the program Risk for Excel.

## Discussions of the Results

The multiperiodical deterministic model of vineyard plantation is build in a Microsoft Excel sheet for a period of 20 years and includes the following interrelated parts : initial decisions, fencing, the liquidation of the previous vineyard, pre-agglomeration of land, building of the supporting construction, vineyard plantation and cultivation in the 1-st. year, vineyard cultivation in the 2-nd. year v 3. and in other years, drop irrigation, operating capital, depreciation, sales of final production, the way of financing of the investment and repayment scheduling, projected annual income statement, projected cash flow and balance sheet. Initial decisions – a competence of the investor – are marked in different colours and respective units are given for each item, i.e. units of input parameters. The investor chooses the length and width of the future plantation, as well as the number of internal corridors useful for harvesting and other agro-technical services. In this way the investor indirectly determines the size of the plot and the maximum possible number of rows that can be cultivated.

**Tab. 1 Initial Decisions**

|  |                                |       |
|--|--------------------------------|-------|
| Plot With                                |                                | 421   |
| Plot Length                              |                                | 600   |
| Way of Keeping Vines                     | middle trellis construction- s | z     |
|  | high trellis construction- z   |       |
| Buckle - Distance between Lines of Vines |                                | 3,20  |
| - Distance within the Line               |                                | 0,90  |
| Number of Internal Corridors             |                                | 1     |
| Distance between Stakes in Construction  |                                | 1,8   |
| Plot in ha                               |                                | 25,26 |
| Real Number of Lines                     |                                | 185   |
| Number of Roots in a Row                 |                                | 467   |
| Total Number of Roots                    |                                | 86395 |
| Elected Number of Lines in the 1. Year   |                                | 100   |
| Total Number of Roots in the 1. Year     |                                | 46700 |
| Length of the Uses Plot in the 1. Year   |                                | 326,4 |
| Used Plot in the 1. Year                 |                                | 13,74 |
| Land Tax                                 |                                | 18    |
| Yield ton per 1 ha                       |                                | 10    |
| Selling Price per 1 ton                  |                                | 650   |

In case of financial insufficiency, the investor need not build and plant the fenced plot in the first year. The model gives the option to the investor to choose the speed and the stages of vineyard plantation according to his financial situation, so that he can split it into many years. In the model it is possible to specify if the production would be sold completely or only partially.

The model accepts to full extent initial decisions on the supposed yields, selling prices and the way of depreciation of vineyard and its fencing. In other parts of the model, the investor introduces only prices per unit of labour to services such as pre-agglomeration of land, vineyard plantation and its cultivation in different years, fencing and supporting construction (color distinction) and all other calculations are done automatically representing the intermediate results and model outputs. Part of the model covering the loan gives information on total initial costs of the projects including working capital and total capital costs. They are financed from equity, loans and subsidies. For the purposes of vineyard plantation we assume subsidies up to 50 % of real costs. The ratio between equity and loans is chosen by the investor himself. He chooses also the interest rate, maturity period, annuity period, as well as the way of loan payment, with equal principal payment or equal annuity payment. In our case equity is 20%, loans 30%. In the introduced scenario, it is selected such a mode of repayment of the loan with the same annuity, with a repayment period 15 years at an interest rate of 9% and a potential instalment delay period of 4 years. Various simulated financial terms are automatically reflected in the rescheduling. After the projected income statement, which is based on the difference between future revenues and costs, the most important statement for deterministic assessment of the effectiveness of the investment plan follows: the projected cash flow statement. This report provides information on the movement of cash and is therefore based on the difference between future cash receipts and expenditures of funds.

## The Deterministic Evaluation of the Investment Efficiency

The efficiency of the project is evaluated based on the equity assessment techniques. NPV to equity is calculated such that from the annual net cash flow is deducted the initial capital invested by the investor and as a result the adjusted cash flow reflects the discounted present value.

**Tab. 2 The Projected Cash Flow**

| Year                             | 1             | 2             | 3             | 4             | 5             | 6             |
|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Cash Inflow</b>               |               |               |               |               |               |               |
| Equity                           | 60152         | 37970         | 31016         | 12386         | 17720         | 7912          |
| Subsidies                        | 150380        | 94925         | 77541         | 30964         | 17720         | 7912          |
| Loans                            | 90228         | 56955         | 46525         | 18579         | 0             | 0             |
| Sales of Grape                   | 0             | 0             | 0             | 71455         | 134855        | 160775        |
| <b>Total Income:</b>             | <b>300760</b> | <b>189851</b> | <b>155082</b> | <b>133384</b> | <b>170295</b> | <b>176599</b> |
| <b>Cash Outflow</b>              |               |               |               |               |               |               |
| Total Costs of Capital           | 297460        | 186551        | 151782        | 64113         | 29168         | 12550         |
| Working Capital                  | 0             | 0             | 0             | 2716          | 3272          | 274           |
| Costs Excluding the Depreciation | 2000          | 2000          | 2000          | 47850         | 93300         | 101487        |
| Interest and Loan Payment        | 0             | 0             | 0             | 0             | 15801         | 25775         |
| Income Tax                       | 0             | 0             | 0             | 2432          | 0             | 0             |
| <b>Total Amount:</b>             | <b>299460</b> | <b>188550</b> | <b>153782</b> | <b>117110</b> | <b>141541</b> | <b>140086</b> |
| <b>Net Cashflow</b>              |               |               |               |               |               |               |
|                                  | <b>1300</b>   | <b>1300</b>   | <b>1300</b>   | <b>16274</b>  | <b>28754</b>  | <b>36513</b>  |
| <b>Cumulative Cashflow</b>       | <b>1300</b>   | <b>2600</b>   | <b>3900</b>   | <b>20174</b>  | <b>48928</b>  | <b>85441</b>  |
| Present Value NCF                | 1193          | 1094          | 1004          | 11529         | 18688         | 21771         |
| Owners Equity                    | 60152         | 37970         | 31016         | 12386         | 17720         | 7912          |
| Return to Owners Equity          | -58852        | -36670        | -29716        | 3888          | 11034         | 28601         |
| Present Value                    | -53993        | -30864        | -22946        | 2755          | 7171          | 17054         |
| Discount Rate                    | 9,0%          |               |               |               |               |               |
| <b>NPV</b>                       | <b>51728</b>  |               |               |               |               |               |

Under a set of assumptions (the price of the variety Cabernet Sauvignon € 735 per tonne, Chardonnay € 650 per tonne, Cabernet Sauvignon yield 8.7 tons per hectare, Chardonnay 10 tonnes per hectare, financial cover of initial costs: 20% of own funds, 50% from grants and 30% from a commercial loan with a 9% interest rate and repayment term of 15 years with the same annuity instalments and a potential principal and interest time delay repayment of 4 years), based on the calculated NPV, we can conclude that the scenario of the investment project is acceptable, since the NPV is positive. Also, other conditions are satisfied like the financial cover of the project and the positive cumulative cash flow at every time period.

By changing input parameters of the model, the investor can test for the acceptability or unacceptability of the assumed changes based on the NPV as well as the financial cover of the project at any time period. The investor can change the strategy of the structure and the scale of production, the financing of investment, loans or depreciation and he can follow the immediate effect of these changes on final results of efficiency of different investment scenarios. In the case of the assessment of three variants of the establishment of vineyards, which differ only in varietal structure - variant 1 assumes that the total area of lands 25,26 ha is a combination of two vine varieties, in the first year 13,74 ha Chardonnay, in the second year 7,01 ha Cabernet Sauvignon and in the third year 4,45 ha Chardonnay. Variant 2 only counts with the planting of the variety Chardonnay and variant 3 with Cabernet Sauvignon.

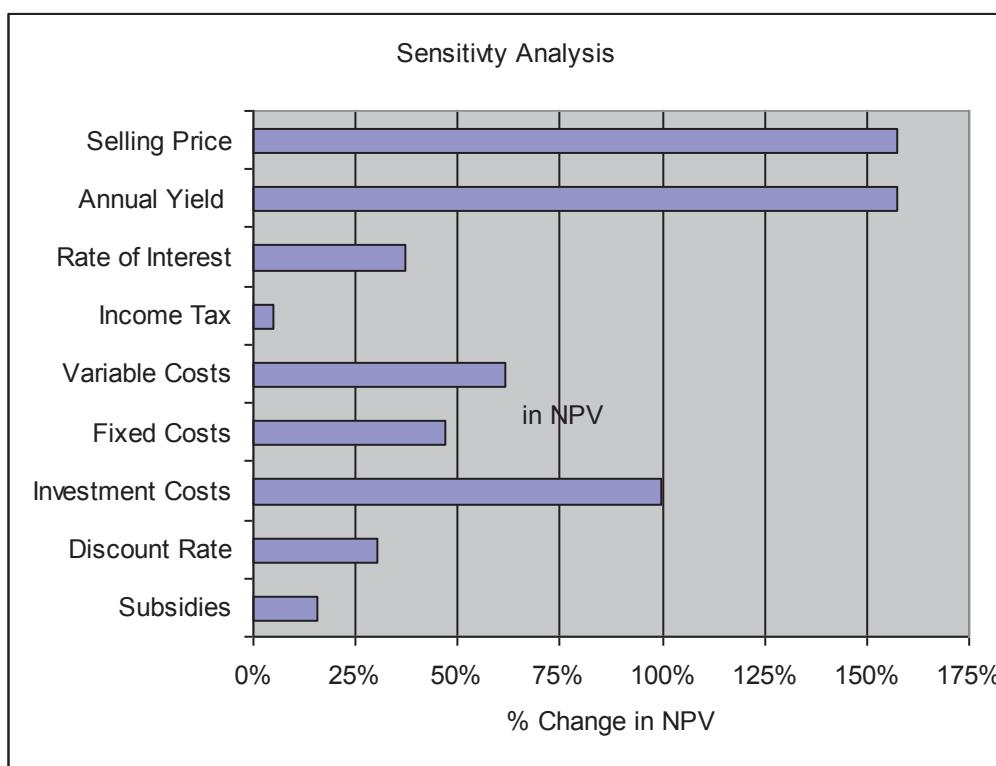
The best strategy it is considered the variant 2 at the value 51728 Euros. The second best option is the variant 1 with the value at 39595 Euros. The worst variant from the aspect of NPV value is the variant 3 at 36102 Euros.

These results suggest that the investor should decide to invest in planting Chardonnay respectively in combination with a variety of varieties of Cabernet Sauvignon. The investor can also test the effect of the financing method of the investment on its economic efficiency. Increasing the share of foreign capital in the sources of funding at the expense of own equity leads to improved economic efficiency of the project and hence a higher net present value. On the other hand, it increases the risk of the business entity meeting its obligations toward the lender.

In case, that the investor would not have the opportunity to use assistance from EU funds and the project would be financed 20% from own funds and 80% from the loan, it would be possible to achieve a positive NPV only at an interest rate lower than 5.2%. It is clear that the evaluation of the investment plan could have been different should the company have its own processing capacities, but that is beyond the scope of the paper.

### **The Identification of Risk Factors (The Sensitivity Analysis)**

The presented model is based on certain assumptions, which are represented by deterministic parameters on the basis of best estimates. However, it is useful and necessary to examine by sensitive analysis how changes in various parameters affect the resulting value of criteria. When we evaluate the investment projects we can change the value of one parameter while the other will remain constant (*ceteris paribus* rule) and we measure the impact of this change on the final value of the NPV of the project. Significant change of criteria values suggest how the project is sensitive to changes in the particular parameter values while other parameters are constant. Factors, which changes induce the biggest change of values of considered criteria, are known as risk factors. In the context of the assessment of the above mentioned project, the results of the sensitivity analysis of a 10% change of selected factors on the total change of NPV CF are presented in the graph 1 below.



**Graph 1 The Sensitivity Analysis**

From the results of the sensitivity analysis above it is apparent that the most influential risk factors are the grape prices and yields.

### The Simulation Model of the Risk Assessment

Working with risk and uncertainty should be part of business project planning from its beginning to the final decision on the acceptance of the project and its implementation. The project may be rejected due to unsatisfactory economic expediency, respectively, due to too much risk. The risk of an investment project can be evaluated by simulation analysis techniques, which belong to one of the most effective techniques of risk analysis. It is based on a combination of simulated values of individual risk factors. Risk factors are formulated as random variables with some probability distribution. For the estimation of their distribution there were used subjective estimates backed up by expert testimony, supplemented by price analysis, as well as the yields from previous years.

To estimate the distribution shapes there were used subjective estimates backed up by expert testimony. Vineyard yields are indeed determined by a large number of factors, but if agro-technical conditions are met than it is possible to achieve relatively stable harvest distribution parameters. Based on the characteristics described above, for the grape harvest estimation, normal distribution with mean  $\mu$  and standard deviation  $\delta$  was used. The price is defined by symmetrical triangular probability distribution. Distribution parameters represent pessimistic, optimistic and the most likely estimate of the standard quality. For the simulation model was used support program @ Risk for Excel. The result of simulation output data were obtained from 10 000 iteration steps. By implementing Monte Carlo methods, values of input random variables - risk factors were generated. The output of the simulation is statistical indicators (Table 3), which further characterize the individual probability distributions resulting criterion value.

**Tab. 3 Statistical Figures of NPV for Each Variant**

| Figures            | Variant 1 | Variant 2 | Variant 3 |
|--------------------|-----------|-----------|-----------|
| Expected Value     | 75 268    | 89 074    | 39 848    |
| Minimum            | -331 107  | -363 941  | -141 645  |
| Maximum            | 449 905   | 522 845   | 203 911   |
| Standard Deviation | 102 704   | 113 055   | 45 882    |

With the assessment of the statistical indicators of the variant it can be expected that the mean of net present value will be 89074 Euro, while values can vary within the interval from -363941 Euro to 522845 Euro.

The expected value calculation provides a measure of the investment performance, whereas risk measured by standard deviation is concerned with the likelihood that actual performance may diverge from what is expected. The greatest standard deviation has variant 2, so it has also the greatest dispersion of possible return around what is the expected return. It can be said about variant 2: there is approximately a 68,25 % chance that the actual return will lie somewhere between -23981 Euros and 202129 Euros, or there is approximately a 95.45 % chance that the actual return will lie somewhere between -137036 Euros and 315185 Euros, or there is approximately a 99.73 % chance that the actual return will lie somewhere between -250091 Euros and 428240 Euros.

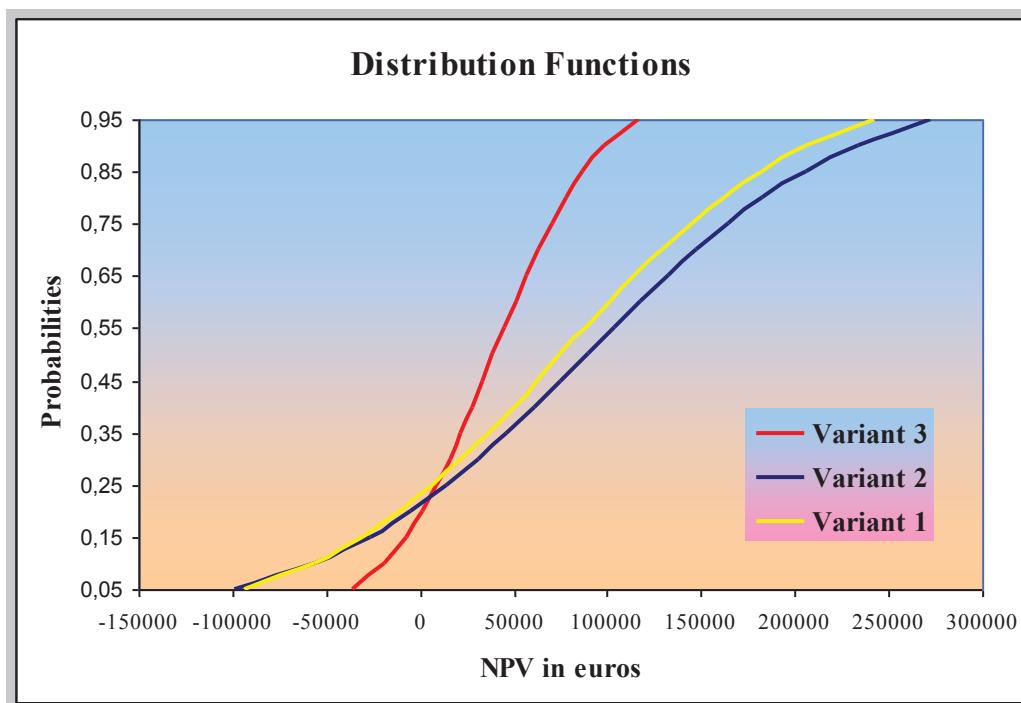
The efficiency of investment projects can be evaluated based on the critical values of targeted indicators (Table 5). The investor is willing to take only a certain risk level. Under the assumption of a risk averse entrepreneur, it is assumed that the investor could take a 10 till 35% risk.

**Tab. 4 The Critical Value of NPV for Each Variant**

| % Risk | Variant 1 | Variant 2 | Variant 3 |
|--------|-----------|-----------|-----------|
| 5%     | -93374    | -98397    | -35786    |
| 10%    | -55722    | -56207    | -18366    |
| 15%    | -30745    | -25896    | -7200     |
| 20%    | -10394    | -4689     | 1883      |
| 25%    | 6606      | 14231     | 9228      |
| 30%    | 21582     | 31316     | 16138     |
| 35%    | 36316     | 45825     | 22028     |

The percentages indicate the probability at which NPV falls below the value associated with a given probability. With 20% probability it can for example be expected that the NPV of variant 2 will be less than -4,689 million Euros (with a probability of 80% that it will be higher than this value) and variant 1 below -10,394 Euros. With 20% probability it can be expected that the NPV of the third variant will be less than € 1,883 (with a probability of 80% that it will be higher than this value). The NPV of variant 2 becomes positive at a risk level of 25%. At this risk level, with a probability of 25% it can be expected that the NPV will be less than € 14,231 and an investor willing to bear that risk may accept the plan. So it is only for a particular investor, the extent to which it is willing to bear a certain level of risk associated with the investment.

The investment project efficiency can be evaluated also through distribution and density functions. The distribution functions represent the basis of the comparison of the efficiency of different investment strategies with respect to risk levels according to the rules of stochastic dominance.



**Graph 2 The Distribution Function of NPV for Each Variant**

When comparing the economic efficiency of variants 1, 2, and 3, the stochastic dominance of the first degree cannot be used, since the distribution functions of these variants intersect, neither can be used the stochastic dominance of the second degree, as intersection in the lower range of values is larger compared to the intersection in the upper range of values. If an investor is willing to bear some degree of risk for a higher return on

investment he should definitely go for variant 2, because for the same value of NPV, the percentage of failure is higher for variant 1

Simulation techniques however in this case confirmed the preference of the individual variants that have been identified on the basis of deterministic assessment of the investment projects efficiency. The consideration of risk can lead to a different order of preferential ranking of different project especially in the case when substantially different investment projects are assed, while their NPV from the deterministic assessments are about the same.

## Conclusions

The applied model documents the suitability of application of modelling techniques in creating investment plans, as well as evaluating them and choosing alternative solution variants. The scenario model o the investment project of vineyard establishment is designed as multi-periodical balancing model. It is processed in spreadsheet and allows the simulation of different technology, or manufacturing processes, different strategies of financial investment cover, as well as credit and depreciation aspects. It is reflected in basic economic reports - projected profit and loss account, balance sheet and cash flow. It also allows for the evaluation of investment projects through the variable Net Present Value, as well as the application of various techniques of risk analysis.

The net present values of different investment alternatives in vineyard plantation over the long-term horizon were quantified by the scenario models (variant 1 assumes that the total area of lands 25,26 ha is a combination of two vine varieties, in the first year 13,74 ha Chardonnay, in the second year 7,01 ha Cabernet Sauvignon and in the third year 4,45 ha Chardonnay, variant 2 only counts with the planting of the variety Chardonnay and variant 3 with Cabernet Sauvignon). From the results of deterministic approach and based on the value NPV it can be concluded that the most efficient variant is the second one establishing the variety Chardonnay. The second, slightly less efficient variant is number 1 where it plans a combination of varieties Chardonnay and Cabernet Sauvignon. The simulation techniques confirmed the references for different variants, identified by the deterministic evaluation of the investment efficiency.

By means of sensitivity and simulation analysis was possible to identify appropriate investment strategy under the risk conditions. The risk factors, which were identified by sensitivity analysis are defined as random variables with certain probability distribution in stochastic model. Critical values of target criterion give information which value can we expect with willingness to tolerate given risk quantification. The comparasion of distibution functions of investment alternatives allows the identification of optimal strategy.

Vhodnou úpravou je možné viacperiodický bilančný model pretransformovať na optimalizačný model. Účelová funkcia by bola reprezentovaná maximalizáciou majetku na konci uvažovaného obdobia. Okrem podmienok rešpektovaných v bilančnom modeli množina obmedzujúcich podmienok by sa rozšírila o výrobné a úverové ohraničenia, ako aj o podmienky, ktoré zabezpečia likviditu podniku v každej časovej període prostredníctvom pozitívneho kumulatívneho cash flow a dostatočné zdroje krytie kapitálových investícií a prevádzkového kapitálu. Modelom tohto typu je možné identifikovať optimálny rozsah investície v príslušnom časovom horizonte, ako aj optimálne financovanie investície. Detailnejšie aplikácie uvedených postupov možno nájsť v publikácii Repiský (2000)

An appropriate approach adjustment can be the transformation of the multi-periodical balancing model into an optimization model. The objective function would be asset maximization at the end of the analyzed period. In addition to the restrictive conditions from the balance model, the set should be extended with manufacturing and credit limits, as well as the conditions that ensure the liquidity of the company in each time period by a positive cumulative cash flow and sufficient resources to cover capital investment and working capital. With the implementation of models of this type it is possible identify the optimal scale

of investment in an appropriate timeframe, and the optimum investment financing. A detailed application of these procedures can be found in the publication of Repiský (2000).

### **Literature:**

- Fotr, J., (1995). "Podnikateľský plán a investiční rozhodování", Grada Publishing.  
ISBN 80-85623-20-X
- Goodwin, P., (1991). "Decision Analysis for Management Judgment", Chichester: John Wiley Ltd. ISBN 0-471-92833-X
- Kaye, R. G., (1992). "Financial Planning Models", London: Academic press LTD.  
ISBN 0-12-403770-4
- Lumby, S., (1996). "Investment Appraisal and Financial Decisions", London: Chapman & Hall. ISBN 0-412-58840-4
- McLaney, E.J., (1994). "Finance for Decision Makers", London: Pitman Publishing.  
ISBN 0-273-60421 X
- Northcott, D., (1992). "Capital Investment Decision-Making", London: Academic press LTD.  
ISBN 0-12-521685-8
- Repiský, J. (2000). "Tvorba a hodnotenie investičných zámerov pomocou modelovej techniky", Nitra: SPU. ISBN 80-7137-806-2
- Sojková, Z. (2000). "Aplikácia analýzy rizika v investičnom rozhodovaní", In: Sborník príspevku z konference k aktuálnim otázkam rozvoja české ekonomiky a univerzitného ekonomickeho vzdelávaní k 40. výročí vzniku provozné ekonomickej fakulty MZLU Brno. 147-152. ISBN 80-85615-87-8

# Vertical coordination in milk production in Slovakia

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## Abstract:

The objective of our paper is to evaluate the process of vertical coordination and its effect on Slovakia that in fact differs from many other European Union countries, given the size structure of farms and processing sector. We draw specific attention on recent research in the dairy sector of Slovakia to document the changes that have taken place and to identify the effects and the determinants on farmers. We present data that were collected on firms downstream in the dairy supply chain (e.g. dairy processors and retailers). We selected dairy processors to provide a mix based on size and ownership (domestically or foreign owned; private or cooperative). Then we analyze information collected on farm level. In general it has been concluded that most of dairies (mainly owned by foreign investors) offers different support programs for farmers that have contributed to increased yields, efficiency and quality of raw milk delivered. However, while the situation is thoroughly mapped for the period prior to the accession of Slovakia into EU, the phenomenon that are characteristic for the post-accession period will be the objective of authors' further study and research.

**Keywords:** Vertical coordination, milk, dairy, milk processors, Slovakia, EU

## 1. Introduction

Under the system of centrally planned economy, the exchanges with up and downstream industries were centrally regulated and enforced. A higher authority always solved a contracting problem. The situation has changed with the beginning of reforms. In functioning market economies, exchanges are enforced by either legal system or by the market itself. Explicit contracts enforced by legal system are costly in market economy due to their incompleteness. Incompleteness of contracts stems from the impossibility to foresee all contingencies and the non-observability of outcomes. In the transitional Slovak economy, contract enforcement by third party became even more difficult because the legal system, which is under transformation too and relatively inexperienced with market transactions, works slowly. Relying on markets rather than on legal institutions is a predominant way of enforcing long-term contracts. When implicit contracts are broken, the defector can be punished by the loss of reputation and subsequently by the loss of future business. This type of contract enforcement requires certain generally accepted trading rules that are not present in transitional economy. Transitional economy lacks the generally accepted codes of behavior, adherence to ethical norms, and experience in solving the conflicts. All these factors make contracts less stable (Pokrivčák, J., 2002).

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In 2004, Slovakia was among the top ten destinations of foreign direct investment (FDI) by global retail chains. Only two decades ago, Slovak economy was just emerging from state control of food markets. Moreover, the retail investments are just the latest foreign investment wave. The combined forces of “globalization” and “transition” have, caused dramatic changes in the agri-food supply chains in the past 20 years. After vertically integrated supply chains collapsed in the early transition years with privatization and company restructuring, recently vertical coordination has increased again, due to a combination of factors, such as rising standards and major market imperfections (Gow and Swinnen, 1998; 2001, Swinnen et. al. 2006). These changes had important effects on efficiency and equity (Swinnen, 2005). Important equity issues are whether this process is excluding small farms or whether contracting with downstream companies leads to rent extraction of farmers by creating dependency.

## **2. Objectives**

In this paper we draw on recent research in the dairy sector of Slovakia to document the changes that have taken place and to identify the effects and the determinants of farmer.

## **3. Methodology**

In the paper we present data that were collected on firms downstream in the dairy supply chain (e.g. dairy processors and retailers). We selected dairy processors to provide a mix based on size and ownership (domestically or foreign owned; private or cooperative). Then we analyze information collected on farm level. The data at the farm level allow to econometrically estimating the effect of investments and assistance programs of processors on suppliers.

## **4. Results and Conclusions**

### **The Main Characteristics of Dairy Supply Chain Structure in Slovakia**

The Slovak dairy sector includes 1200 farms and more than 30 dairies. The main characteristic of Slovak dairy sector is that the primary production is realized through big farms (stock companies as well as cooperatives) and more than 90% of milk is produced in big agricultural farms. The rest is produced by small farmers thus their share is small. Data from surveys, indicates, that only 10% of family farms own dairy cows and more than a half of produced milk is used for own consumption. On the other side, 81% of companies own dairy cows and sells 100% of their production (87% direct to dairy processing industry). Nearly a half of all dairy farms own between 100 and 500 dairy cows. National average is 183 cows per farm (see table 4.1).

In 2003 there were 220500 dairy cows in Slovakia but their number fell dramatically ten years later (150272 dairy cows in 2012). This number was already approximately the half of dairy cow number at the beginning of the transformation process. After a sharp decrease in milk yields after year 1989, in 1991 they started to increase gradually and reached the pre-transformation level in 1997. In 2003, the milk yield was almost 50% higher than in 1989. Nevertheless is the milk yield in Slovakia still about 18% lower than in EU-15.

**Table 4.1 The Structure of Dairy Farms in the Slovak Republic in 2003**

|      | Number of farms | Number of dairy cows | Average number of dairy cows on farm | % of dairy cows in given category | Average yield on cow (kg/year) |
|------|-----------------|----------------------|--------------------------------------|-----------------------------------|--------------------------------|
| 0-10 | 257             | 749                  | 3                                    | 0,3                               | 3563                           |

|                |      |        |     |       |      |
|----------------|------|--------|-----|-------|------|
| <b>11-30</b>   | 91   | 1711   | 19  | 0,8   | 4553 |
| <b>31-50</b>   | 51   | 2035   | 40  | 0,9   | 4161 |
| <b>51-100</b>  | 159  | 12095  | 76  | 5,5   | 4098 |
| <b>101-500</b> | 547  | 129852 | 237 | 58,9  | 4962 |
| <b>&gt;500</b> | 102  | 74097  | 726 | 33,6  | 5280 |
| <b>Total</b>   | 1207 | 220540 | 183 | 100,0 | 5010 |

Source: Data from a survey realized by VUEPP Bratislava and MP SR Database Centre.

The dairy processing industry is much less concentrated than malting or brewing. Table 4.2 includes 22 main milk processing companies in Slovakia, which represented in 2003 a market share at about 97%. Three biggest companies produced together less than 30% of total market. FDI is very influential in the Slovak dairy sector. In Slovakia there are eight international dairy companies present: Sole, Italy; Meggle, Germany; Bongrain, Danone and Fromageries Bel, France; Artax, Austria; Friesland Coberco, Netherland; and Amine Aour, Libanon. The report of Slovak dairy association in 2003 states that 77% of milk, purchased in Slovakia, was processed in companies with foreign owners (Agra Europe, April 2003).

Table 4.2 also points on the fact, that FDI, (with the exemption of Meggle that entered Slovak market in 1993), have been realized from 2000. In comparison to other CEE countries, this process of FDI penetration has been developed relatively late due to political changes after vote in 1998 and key reforms implementation afterwards.

**Table 4.2. The Structure of the Slovakian Dairy Processing Sector, 2003**

| Company name                      | Location       | Majority owner                      | FDI since | Market share* |
|-----------------------------------|----------------|-------------------------------------|-----------|---------------|
| <b>Mliekospol, a.s.</b>           | Nové Zámky     | 95% Sole, Italia                    | 2002      | 8%            |
| <b>Tamilk, a.s.</b>               | Trnava         | 100% Sole Italia                    | 2001      | 4%            |
| <b>Sole Slovakia, a.s.</b>        | Bratislava     | 99% Sole Italia                     | 2001      | 4%            |
| <b>Rajo, a.s.</b>                 | Bratislava     | 51% Meggle, Germany                 | 1993      | 13%           |
| <b>Liptovská mliekareň, a.s.</b>  | Lipt. Mikuláš  | 97% Bongrain, France                | 2000      | 6%            |
| <b>Zvolenská mliekareň, a.s.</b>  | Zvolen         | 100% Bongrain, France               | 2001      | 4%            |
| <b>Milex Nové. M. n. Váhom</b>    | Nové M. n.V    | 51% coop. (49% Bong. Fra.)          | 2001      | 4%            |
| <b>Zempmilk, a.s.</b>             | Michalovce     | 91% Fromagelies Bel Fra.            | 2000      | 7%            |
| <b>Prievidzská Mliek., a.s.</b>   | Prievidza      | 95% Artax, Austria                  | 2000      | 4%            |
| <b>Milsy, a.s.</b>                | B. n. Bebravou | 95% Artax, Austria                  | 2001      | 4%            |
| <b>Nutricia Dairy, s.r.o.</b>     | Nitra          | 100% Friesland Nederland            | 2000      | 4%            |
| <b>Laktis, a.s.</b>               | Žilina         | 9% Friesland Nederland              | 2002      | 5%            |
| <b>Milex Galanta, a.s.</b>        | Galanta        | 100% Amine AOUR Midde Foods Libanon | 2002      | 3%            |
| <b>Danone, s.r.o.</b>             | Modranka       | 100% Danone Fra.                    | 2000      | 1%            |
| <b>Senická mliek., a.s.</b>       | Senica         | 67% koop.                           |           | 4%            |
| <b>Levická mliek., a.s.</b>       | Levice         | Domestic                            |           | 4%            |
| <b>Milkagro, s.r.o.</b>           | Prešov         | Domestic                            |           | 4%            |
| <b>AGW Milk, a.s.</b>             | Trebišov       | Domestic                            |           | 3%            |
| <b>Humenská mliek., a.s.</b>      | Humenné        | Domestic                            |           | 4%            |
| <b>Gemerská mliek., s.r.o.</b>    | Rim. Sobota    | Domestic                            |           | 1%            |
| <b>Tantranská mliek., a.s.</b>    | Kežmarok       | Domestic                            |           | 2%            |
| <b>Tvrdošínska mliek., s.r.o.</b> | Tvrdošín       | ???                                 |           | 4%            |
| <b>Others</b>                     |                |                                     |           | 3%            |

Source: Source: Dries and Swinnen, 2004

Notices: \* estimate

Slovakia is a net exporter of milk products. It exports approximately 300.000 tons of milk or 25-30% of domestic milk production. Milk is processed into various milk products. However,

the share of liquid milk products is high, what indicates, that domestic industry produce mostly less sophisticated products.

### **Vertical Coordination in the Slovak Dairy Chain**

Based on official data and data from conducted surveys, Slovak dairy farms sell milk mainly to one processor. Only very few farms sell to more than one processor.

After a period of initial decline, the investments in dairy farms increased, mainly since 2001. These investments were induced by the need, to prepare farms on EU membership and were related to improve hygienic standards in farms and reflected the veterinarian and welfare requirements resulting from implementing the legislation of the European Community.

This investments were subsidized by EU, more exactly from SAPARD program. Data show, that average investments into dairy farm represented in 2003 approximately 776 000 euro in 2003 (using exchange rate 41,5 Sk/€), while bigger farms invested up to 4 million euro. This means that there invested 4 240 €/cow, what is a very high number on Slovak terms.

#### *Contracts and Contract Partners*

Most farms have milk supply contracts with dairy processors. All this contracts are formally signed in paper form. Most of the farms have contract directly with processors. Only few farms sell milk through a dealer. Most farms are satisfied with chosen contract form, they consider the cooperation with dairy processors as good and negotiated conditions as advantageous.

All farms have contracts with specially defined qualitative requirements on milk (based on STN 570529). Universal qualitative norms related to fat content and protein are applied to all farms. The system of quality control is important. Processors and farmers are controlling the quality (half in half). Third parties like State veterinary institute or Central probing laboratory Milex Progress a.s. can also control results. Quality control is usually tested directly by farms, by taking samples, only in few cases is control by processor.

Moreover, in most cases is the processing process determined by special contract provisions about quality and only few farms report, that the qualitative requirements are specified by customers of the company.

In few farms there are qualitative requirements related only to raw material. Most of the farms have also to meet qualitative norms related to production process and control the quality by HACCP rules.

The quota regime is valid for all Slovak dairy farms. Most of the farms have contracts to exact supply volumes. In contracts prices are explicitly stated, while price related to quality is only in one contract. Other farms gain additional charge for high quality milk supply.

#### *Farmers Support Program*

Dairies are providing logistic support and ensure the collection of milk on farms. In few cases, the responsibility for milk transportation is shared between farm and processor.

Data shows, that most of dairy farms obtain no support from processors. In reality, only few farms receive some kind of support (see Table 4.3).

**Table 4.3 Farmers Support Program Components**

|   | <b>Share of Farms Using Farmers Support Programs (%)</b> |
|---|--|
| <b>Assistance related to production and storage</b> | 11   |
| <b>Assistance related to quality improvement</b>    | 22   |
| <b>Credit providing by yours company</b>            | 11   |
| <b>Assistance by agricultural inputs purchase</b>   | 11   |

Source: Data from a survey realized by VÚEPP Bratislava

While most farms state that the dairies have requirements related to some types of inputs, like feed mix, only very few farms state that the purchase of inputs is pre-financed by dairy processor. Mostly this is the case for big farms, with more than 1000 dairy cows, with the highest milk yield and the biggest milk supplier to dairies.

Next elements of support are offered to farm with highest milk yield on cow (7 020 kg/year) and to farms with highest dairy cows number, being among the biggest milk supply (1 619 heads and 6,7 million liters in year) to dairies. Those with the lowest milk yield have invested into purchase of dairy cows. Dairy companies, which are offering this support have no special requirements on farmers.

Dairies sign contracts with self-employed farmers as well as with cooperatives. Contracts are in paper form. 50% of their contracts is applied for 4-5 years, and bigger dairies are using long term contracts. Regarding to farm size, dairies prefer bigger farms. This preference is based on the assumption, that big suppliers are more reliable regarding the supply frequency than smaller dairy farms.

Moreover, bigger farms are considered as stronger economic subjects with property (land, dairy cows, and buildings) and its size is guaranty of lower transaction costs thanks to relatively high milk supply volumes

It is important to notice, that few dairies started to cooperate with processor association. This association represents a group of small self-employed farmers. Membership in association is important for small self-employed farmers to become attractive for dairies.

Other points in contract are related mainly to quality. All dairies have exact requirements on quality of raw cow's milk in contracts. Most of them (90%) use general (public, state) quality norms (for example casein proteins, anaerobe bacteria – SAP). The quality control is important and is managed by dairies. The results can be controlled by third subjects. Quality control is usually tested by taking samples directly in farms in combination with control at the dairy gate. Usually it is the processor who set up the quality criteria and closes agreements in given subject. Only few dairies state that requirements are determined by company clients. In some dairies the requirements on quality are related only to raw material, while in most dairies there are also requirements on quality of raw cow's milk processing. Quality in milk processing is managed by HACCP system, daily intercompany controls and preventive measures. The supervision over quality of milk and milk products at farms and at the level of processors is ensured by SVFA SR (State veterinary and food administration of Slovak republic), in case of processors – Central probing laboratory (in Žilina), and own dairy laboratories. These institutions can perform inspections randomly and in own laboratories at daily basis.

Contracts include clear agreements about supply volumes. Provisions and price making are in contracts exactly specified, but the final payment depends on real quality of supplied milk, and prices are agreed regularly, sometime weekly. In most cases the transportation is ensured by the processor. Few dairies share the responsibility for logistic fifty-fifty with the farm. In some cases it does through an independent carrier.

In general, after contract expires, it is not automatically prolonged (with few exceptions) and new contract negotiations are conducted.

Few dairies require compliance of criteria's referring to used inputs. They recommend to farms using only certified inputs. They offer inputs pre-financing in exchange for raw cow's milk supplies.

Most often the offered support is related to quality (see Table 4.4). Dairies do not specify specific conditions under which this support is provided.

**Table 4.4 Components of farmers support program**

|  | The Share of Dairies Providing Assistance (%) |
|--|---|
| Assistance related to production and storage | 22  |
| Assistance related to quality improvement    | 78  |
| Assistance related to management             | 44  |

|   |    |
|---|----|
| <b>Credit providing by yours company</b>          | 44 |
| <b>Assistance by obtaining bank loans</b>         | 22 |
| <b>Investments guidance</b>                       | 22 |
| <b>Assistance by agricultural inputs purchase</b> | 22 |

Source: Data from a survey realized by VÚEPP Bratislava

#### *The Effects of Vertical Coordination*

In case of malting barley, it is hard to evaluate the impacts of vertical coordination; however the development in dairy supplying chain shows possible effects of vertical relationships.

- Impact on quality, processing and yields

There are indications, that the quality of milk produced by Slovak farms had improved in the last years. For example the share of milk in the highest quality classes (class Q and class I.) has increased from already satisfying level at the end of 90's to state, when 95% of all supplied milk belongs to class Q and I. (see Table 4.8). This quality milk is acceptable by EU standards.

Quality of milk is not considered as the biggest problem in dairy sector, however it still exist space for improvements. In the last years dairies invested a lot of resources into new technologies to improve the efficiency of production and to improvement the production equipment with the objective to meet the qualitative standards of the EU and distribution requirements of the market. It brought significant results. After the fulfillment of standard norms in dairies, realized by the EU and Slovak veterinary and food administration in spring of 2004, all dairies have a certificate to export into EU market. This bigger companies have the capacity of about 1,5 million tons. Low capacity dairies (with production capacity less than 2 million liters in year) can place their production only on domestic market and investments into equipment are not expected.

**Table 4.5 Milk Quality in Slovak Dairies**

|                   |      | <b>Class Q</b> | <b>1.Class</b> | <b>2.Class</b> | <b>3.Class</b> | <b>Under standard</b> |
|-------------------|------|----------------|----------------|----------------|----------------|-----------------------|
| <b>Liptovská</b>  | 1995 | -              | -              | -              | -              | -                     |
|                   | 1997 | 75%            | 25%            | -              | -              | -                     |
|                   | 2000 | 80%            | 20%            | -              | -              | -                     |
|                   | 2003 | 80%            | 20%            | -              | -              | -                     |
|                   |      |                |                |                |                |                       |
| <b>Mliekospol</b> | 1995 | -              | -              | -              | -              | -                     |
|                   | 1997 | 50%            | 43%            | -              | -              | 7%                    |
|                   | 2000 | 55%            | 48%            | -              | -              | 2%                    |
|                   | 2003 | 55%            | 48%            | -              | -              | 2%                    |
|                   |      |                |                |                |                |                       |
| <b>Rajo</b>       | 1995 | -              | -              | -              | -              | -                     |
|                   | 1997 | -              | -              | -              | -              | -                     |
|                   | 2000 | -              | -              | -              | -              | -                     |
|                   | 2003 | 98%            | -              | -              | -              | 2%                    |
|                   |      |                |                |                |                |                       |
| <b>Levická</b>    | 1995 | 96 – 98%       | -              | -              | -              | 2 – 4%                |
|                   | 1997 | 96 – 98%       | -              | -              | -              | 2 – 4%                |
|                   | 2000 | 96 – 98%       | -              | -              | -              | 2 – 4%                |
|                   | 2003 | 98%            | -              | -              | -              | 2%                    |

|                       |      |       |       |       |   |       |
|-----------------------|------|-------|-------|-------|---|-------|
|                       |      |       |       |       |   |       |
| <b>Tatranská</b>      | 1995 | 20,4% | 28,7% | 38,6% | - | 12,3% |
|                       | 1997 | -     | -     | -     | - | -     |
|                       | 2000 | 59,7% | 28,2% | 6,4%  | - | 5,7%  |
|                       | 2003 | 55%   | 42%   | -     | - | 4%    |
|                       |      |       |       |       |   |       |
| <b>Nutricia Dairy</b> | 1995 | -     | -     | -     | - | -     |
|                       | 1997 | -     | -     | -     | - | -     |
|                       | 2000 | 70%   | 28%   | -     | - | 2%    |
|                       | 2003 | 70%   | 28%   | -     | - | 2%    |

Notices: Tatranská used classification system 2. and 3. Quality till 2002. Other dairies stopped to reporting this classes with export licences into EU granting. Milk with lower quality like class Q or 1. Is classified like not standard milk. Class Q and 1. Milk have the quality required by EU.

Source: Dries and Swinnen, 2004

#### - Access to input and output markets

Only less milk producing farmers are entitled to credits or inputs pre-financing. Farms are usually financing inputs from their own sources. Only few farms refer using this kind of help. It seems, that the access to input markets is not prevented by financial resources. However this is mainly true for big dairy farms which represent almost 70% of total Slovak farms.

#### Conclusion

The process of vertical coordination and its effect on Slovakia differ from many European countries, given the size structure of farms and processing sector. Compared with other countries in Slovak republic are the primary producers cultivating larger areas. Vertical coordination has become an important phenomenon in Slovak agri-food chain. Vertical coordination between primary producers and other commercial companies in the sector has significantly strengthened in recent years, as in other countries in Central and Eastern Europe. Since 1999 Slovak government introduced reforms, that made the country more attractive to foreign investors, which is reflected in the inflow of foreign investment. The foreign investment in the dairy industry increased significantly since then. This process stimulated vertical coordination which helped to improve the quality and productivity of the agri-food chain. Products and type of manufacturing are very different. The food industry in Slovakia is still relatively fragmented, even though in sectors such as dairy production, meat production, sugar and beverage a process of concentration is going on. Although some companies are operating as local monopolies, market entry is also quite fragmented. The combination of these factors causes the relatively large sized farms and the relatively more fragmented processing sector puts the first in a stronger negotiating position relative to the processor, compared with other European countries. However this conclusion can vary greatly in different commodity chains. Vertical coordination contributed to the positive development in the sector, while foreign direct investments in the dairy processing sector have brought the required capital to set up the restructuring and modernization. For farms with limited access to credits, specific contracts have been designed containing pre-financing of inputs, representing a significant opportunity to improve access to finance.

## **5. Literature**

Gow, H. and J. Swinnen, 1998, Up- and Downstream Restructuring, Foreign Direct Investment, and Hold-Up Problems in Agricultural Transition, European Review of Agricultural Economics, 25(3): 331-350.

Gow H. and J. Swinnen, 2001, Private Enforcement Capital and Contract Enforcement in Transition Economies, American Journal of Agricultural Economics, 83(3), pp. 686-690.

Pokrivčák, J. Agricultural credits and contracts, Slovak Agricultural University, Nitra, Slovak Republic, AGRIC. ECON., 48, 2002 (5): 215–218

Swinnen, J.F.M., 2005, When the Market Comes to You - or Not. The Dynamics of Vertical Coordination in Agri-Food Chains in Transition. Final report of the World Bank (ECSSD) ESW on “Dynamics of Vertical Coordination in ECA Agrifood Chains: Implications for Policy and Bank Operations”, Worldbank, Washington, DC.

Swinnen, Johan F. M., Dries, Liesbeth, Noev, Nivelin and Germenji, Etleva, Foreign Investment, Supermarkets, and the Restructuring of Supply Chains: Evidence from Eastern European Dairy Sectors. LICOS DP 1652006 Available at SSRN: <http://ssrn.com/abstract=881731> or <http://dx.doi.org/10.2139/ssrn.881731>

# **Comparison of the different classification tools during evaluation of the bonity clients**

**Michael Rost<sup>1</sup>**

**Pavel Tlusty<sup>2</sup>**

## **Abstract:**

In this paper we provide comparison of the two modern methodology approach represented by two analytical tools. More concretely we will focus our attention on comparison among SRM methodology which will be represented by Knowledge extraction engine analytical network known as KXEN and classical data mining methodology CRISP represented by programming environment R. The comparison is demonstrated on example from bank sector.

## **Key words:**

SRM, CRISP, R, KXEN, classification, credit, scoring

## **Introduction**

In the present day there is huge demand for data analysis of a big datasets. As examples could serve data classification of business applicants, propensity modelling, fraud modelling or area of human resources in small and middle enterprises. Such computation tasks are not possible without efficient algorithmic tools implemented in specialized software. In proposed paper we focused our attention on evaluation of the results obtained from two distinct methodology approaches which could be marked as classical and modern one. For this aim we used binary classification problem from bank sector see material and methods part below in the text. These two approaches are represented by programming environment R [4] with open binary code in case of classical approach and monolithic "black box" software called KXEN (Knowledge Extraction Engine) which implements modern SRM approach (mix of neural networks, svm, and others modern classification tools). Classical approach to data analysis is based on methodology called CRISP (Cross-Industry Standard Process for Data Mining). This process defines a hierarchy of task and process instances. More concretely this methodology consists of following steps: Business understanding, Data understanding, data preparation, modelling, evaluation and model deployment. Modern approach is based on structural risk minimization methodology, derived on Vapnik and Chervonenkis theory [3] and in KXEN tool is implemented into following proposed steps by the KXEN authors: business understanding, create analytic dataset, modelling, data understanding, deployment and maintenance. In this paper we focus our attention only on result of these two approaches, e.g. on comparison of classification efficiency reached by these software tools.

## **Material and methods**

For demonstration purposes we used data matrix with dimension [693 x 7]. This data matrix consists of six explanatory variables and one binary response. More concretely explanatory variables contain information about age, number of year in present employment, number of year stayed at current address, level of education, income and present debt. Response variable has only two levels, e.g. it is binary with coding in following manner: 0 for problem-free credit applicants and 1 for problematic credit applicants.

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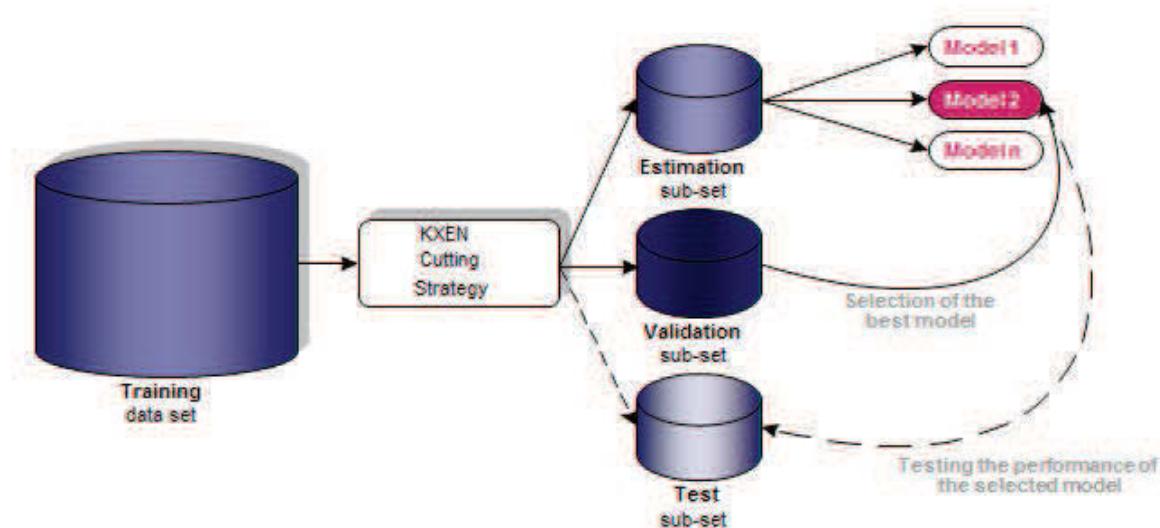
## SRM – Structural risk minimization approach

In case SRM approach we used special statistical software KXEN. The KXEN approach is based on statistical learning theory proposed by Vapnik and Chervonenkis [7]. It could be said that SRM is inductive principle for model selection on the basis of finite training dataset. SRM describes general model of capacity control and provides a trade-off between hypothesis space complexity and the quality of fitting the training data [5].

Particular steps of SRM procedure could be explained as follows [5]:

- Using a priori knowledge of the domain, choose a class of functions, such as polynomials of degree  $n$ , neural networks having  $n$  hidden layer neurons, a set of splines with  $n$  nodes or fuzzy logic models having  $n$  rules.
- Divide the class of functions into a hierarchy of nested subsets in order of increasing complexity. For example, polynomials of increasing degree.
- Perform empirical risk minimization on each subset (this is essentially parameter selection).
- Select the model in the series whose sum of empirical risk and VC confidence is minimal. Where VC stands for Vapnik Chervonenkis dimension [2].

The KXEN implementation of this SRM methodology is in simplified version provided on picture 1.



**Pic. 1 Process of building classification model – approach realized by KXEN**

## DM-CRISP approach

In case of classical methodology we chose software R with well-known CART algorithm. Classification and regression trees shortly CART is a tree-based method which partitions the feature space into a set of rectangles. During the building the set of classification rules, e.g. tree growing, we usually employ the following phases [1] or [2]:

- The split criterion for each node of growing tree is chosen. This problem is usually solved by impurity measure. As an impurity measure, we chose the Gini index. Other

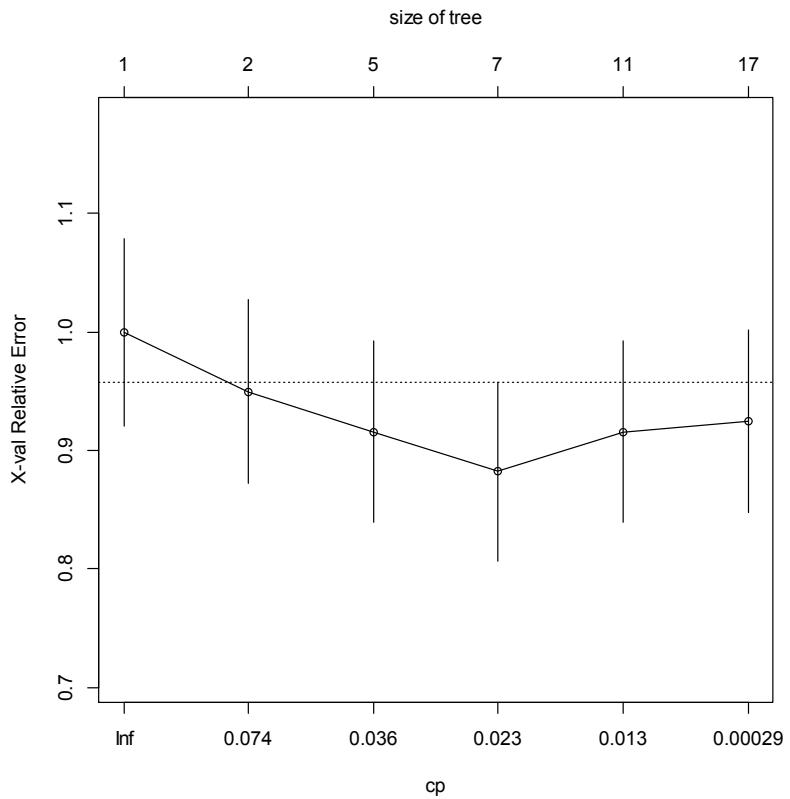
possibilities are for example Misclassification error, Cross-entropy or deviance. For more technical details see [1] or [6].

- To decide which node becomes a leaf (terminal node of tree) is an essential problem solved in the second stage. Usually pruning of tree is used. After building  $T_{\max}$  tree (each leave contains the objects only from one class, or the number of classifying objects in each leave is smaller than the prescribed value) is this tree pruned to tree  $T_{\text{optim}}$ . The new tree  $T_{\text{optim}}$  is the subset of  $T_{\max}$ . This pruning of tree  $T_{\max}$  to tree  $T_{\text{optim}}$  minimize estimation of relative error of classification.
- The third phase is the simplest part of the tree growing process. Each of the classes is assigned to one of the leaves. The idea is following: to assign correctly the specific class to leaves is to assign the value, that minimizing the estimate of the misclassification error. More information about CART methodology can be found in [1] or in [2]. As we can see, the major advantage of the recursive binary tree is its nice interpretability. The whole feature space partition is fully described by one tree.

Whole data preprocessing and the numerical computation and model building were carried out in the programming language R 3.0.1 in case CRISP approach. In the case of SRM we used software Knowledge Extraction Engine shortly called KXEN version 6.1. For evaluation purpose was the data matrix randomly divided (sampling without replacement) into two non-overlapping subsets: training subset ( $n_{\text{training}} = 462$ ) and test subset ( $n_{\text{test}} = 231$ ). Classification models were derived on training subset and consequently applied on test subset with aim to evaluate their differences in classification accuracy.

## Results

At the beginning of the building classification rules, the sufficiently branched tree  $T_{\max}$  was created. To manage the growing process, the complexity parameter  $cp$  was specified by zero value because the low value of the complexity parameter made the tree sufficiently branched. For decision where stop the growing process and to prune the tree, we used 1-SE rule. Visualisation of this process is proposed on picture 1. From this is clearly evident that tree with seven terminal nodes reached minimal relative error of classification on training dataset.



**Pic. 1 Graph of complexity CART methodology – result for training dataset provided by R 3.0.1**

The resulting rules in guise of classification tree are proposed in form of following R output:

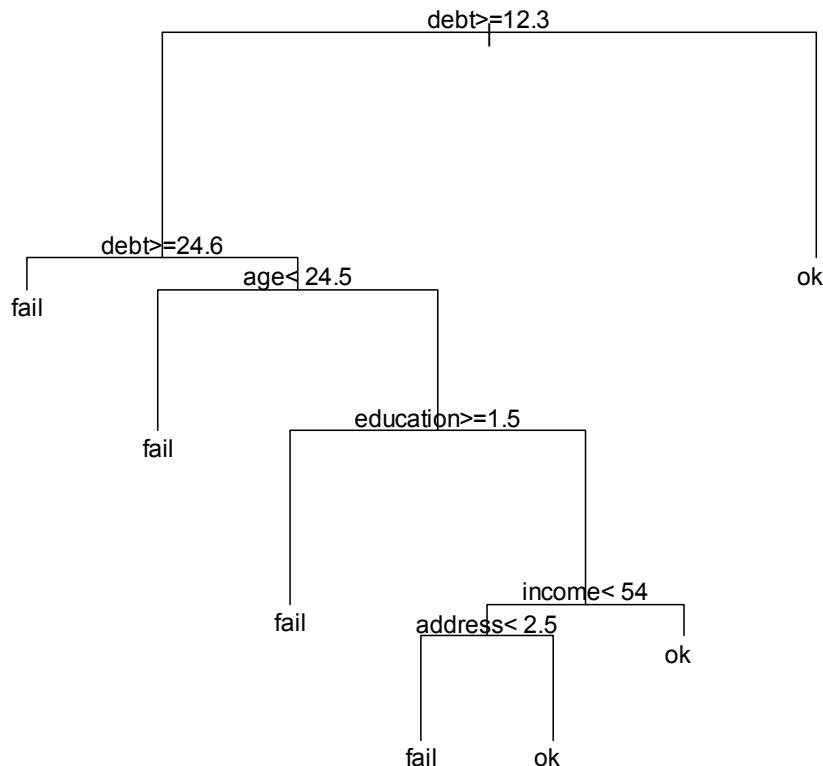
*n= 462*

*node), split, n, loss, yval, (yprob)*

*\* denotes terminal node*

- 1) root 462 119 ok (0.25757576 0.74242424)
- 2) *debt*>=12.3 147 67 fail (0.54421769 0.45578231)
- 4) *debt*>=24.6 17 2 fail (0.88235294 0.11764706) \*
- 5) *debt*< 24.6 130 65 fail (0.50000000 0.50000000)
- 10) *age*< 24.5 10 1 fail (0.90000000 0.10000000) \*
- 11) *age*>=24.5 120 56 ok (0.46666667 0.53333333)
- 22) *education*>=1.5 58 24 fail (0.58620690 0.41379310) \*
- 23) *education*< 1.5 62 22 ok (0.35483871 0.64516129)
- 46) *income*< 54 49 21 ok (0.42857143 0.57142857)
- 92) *address*< 2.5 10 2 fail (0.80000000 0.20000000) \*
- 93) *address*>=2.5 39 13 ok (0.33333333 0.66666667) \*
- 47) *income*>=54 13 1 ok (0.07692308 0.92307692) \*
- 3) *debt*< 12.3 315 39 ok (0.12380952 0.87619048) \*

On picture 2 is provided final classification tree with seven terminal nodes. From this picture is obvious that classification rules are based only on following variables: debt, age, education, income and address. The variable "number of year in present employment" was not used during the process of derivation classification rules.

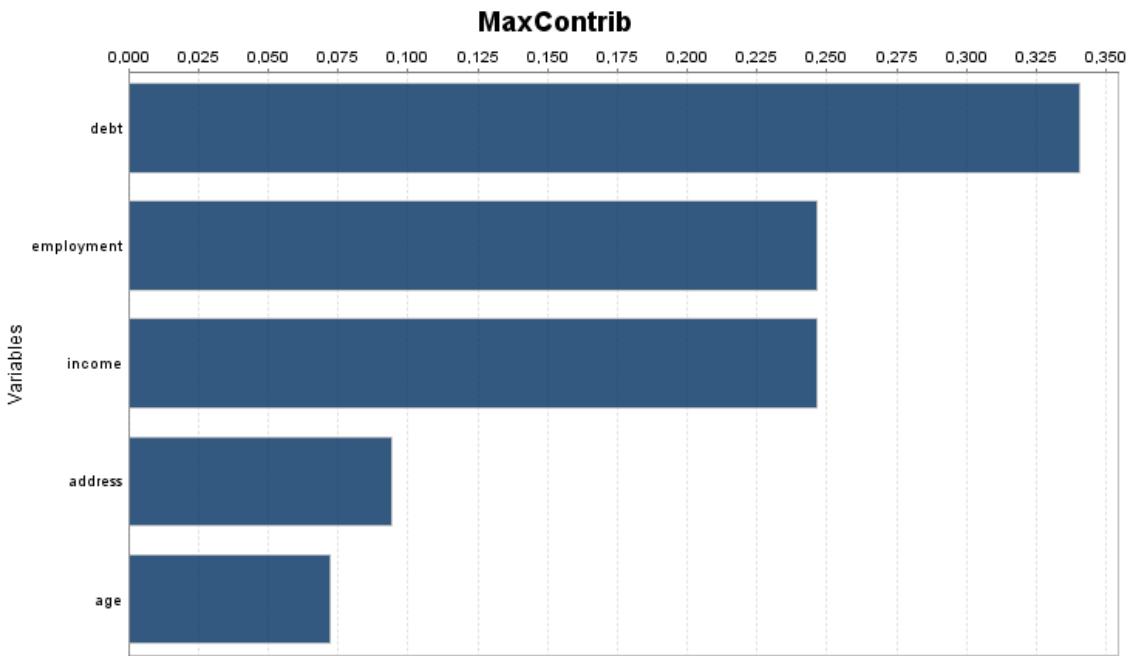


**Pic. 2 Final classification tree based on CART methodology – result for training dataset provided by R 3.0.1**

From structure of classification tree is obvious that the most impact on classification has explanatory variable "debt" followed by age and education.

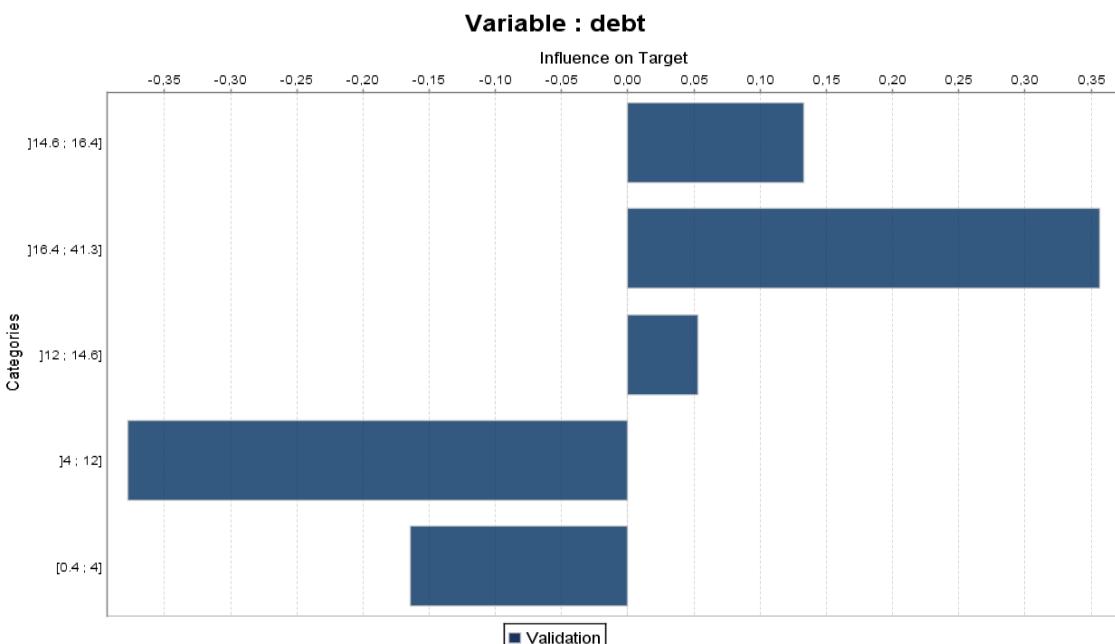
In case of SRM approach we obtained from KXEN following results for training data set. The main performance characteristics are two measures called KI and KR. Such acronyms stands for „Information Coefficient” who measures the capacity of the explanatory variables to explain the dependent variable, i.e. the “proportion of response variability” explained by constructed classification model. The second characteristic KR stands for „Coefficient of Robustness”. KR measures the ability of model to display the same level of performances on a new data set that is different from training data set. They reached 0.646 for KI and 0,9 for KR on validation data set. The maximum is one for both characteristic. Slightly lower value for KI indicated needs for including other explanatory variables.

Quality of classification could be assessed through various characteristics and graphs. At picture 3 we can see one of the most important graphs called “Maximum smart variable contribution graph”. This graph inform as about relevance of particular explanatory variables included in classification model. From this graph we can see that most important variable for classification of applicant is value of their debt. The same is true for CRISP approach. The second and the third are number of year in present employment and income.



**Pic. 3 Maximum smart variable contributions - result provided by KXEN**

As a bonus the KXEN gives the deeper insight into mechanism of classification process. More concretely KXEN provides set of specific graphs for every explanatory variable included in current classification model. The example of such graphs (see pic.4) is provided for variable “debt” which has the biggest impact on response variable. These graphs KXEN provides for validation data set.



**Pic. 4 Influence of particular intervals of numeric predictor “debt” on classification - result provided by KXEN**

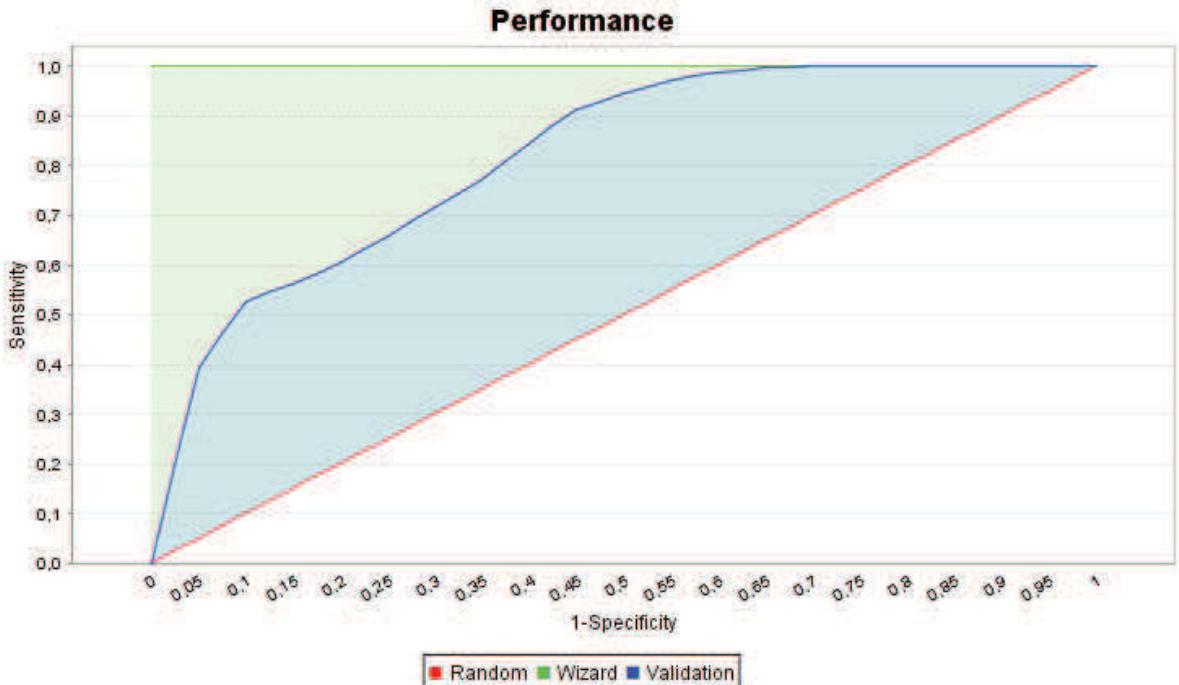
From this graph is evident that respondent with lower value of “debt”, e.g. with debt in intervals [0.4; 4] or (4; 12] has negative impact on prediction case, e.g. credit applicant is problematic and is marked as a “fail”, while intervals with higher amount of debt has positive

impact. In other words these cases are predicted as “problematic applicant” with higher probability. At the same time KXEN also provide distribution of cases (fail, ok) across particular categories - intervals of debt. Example of such table is provided on table 1.

**Tab. 1 Cross table – result provided by KXEN**

| Interval of debt | Frequency | fail - Crossed Frequency | ok - Crossed Frequency |
|------------------|-----------|--------------------------|------------------------|
| [0.4 ; 4]        | 17.99%    | 6.17%                    | 93.83%                 |
| ]4 ; 12]         | 49.26%    | 14.41%                   | 85.59%                 |
| ]12 ; 14.6]      | 9.93%     | 41.67%                   | 58.33%                 |
| ]14.6 ; 16.4]    | 5.86%     | 62.96%                   | 37.04%                 |
| ]16.4 ; 41.3]    | 16.95%    | 57.14%                   | 42.86%                 |

From this table is evident that higher proportion of non-problematic applicants is in the intervals [0.4; 4] and in interval (4; 12]. KXEN provides classical graphs for evaluation of efficiency classification model too. For all instances we can mention lift graph, Lorenc curve, ROC curve which is for derived KXEN classification model provided on picture 5.



**Pic.5 ROC curve – result provide by KXEN**

The efficiency of the two mentioned classification approaches is evaluated on test data set. The results are presented in error table in table 2 together with results for training data. In the case of classical approach (algorithm CART) we reached classification efficiency of 55.41 % for test data. The classification efficiency for SRM approach (through KXEN) reached 77.92% for test data. For more details see table 2.

**Tab. 2 Error classification table for two approach**

| Truth                             | Prediction   |   |
|-----------------------------------|--|---|
|                                   | Applicant is not problematic (ok)  | Applicant is problematic (fail)   |
| Applicant is not problematic (ok) | Training data set: <b>66<sup>a</sup></b> ; <b>91<sup>b</sup></b><br>Test data set: <b>116<sup>a</sup></b> ; <b>144<sup>b</sup></b> | Training data set: <b>53<sup>a</sup></b> ; <b>14<sup>b</sup></b><br>Test data set: <b>52<sup>a</sup></b> ; <b>24<sup>b</sup></b>  |
| Applicant is problematic (fail)   | Training data set: <b>29<sup>a</sup></b> ; <b>14<sup>b</sup></b><br>Test data set: <b>51<sup>a</sup></b> ; <b>27<sup>b</sup></b>   | Training data set: <b>314<sup>a</sup></b> ; <b>17<sup>b</sup></b><br>Test data set: <b>12<sup>a</sup></b> ; <b>36<sup>b</sup></b> |

<sup>a</sup>Results for R –classical CRISP approach through algorithm CART; <sup>b</sup>Results for KXEN - SRM approach (KXEN – do not use entire 231 observation, but divide the training matrix into several parts and error matrix provide after building phase only for validation part of data. In this case this validation part consist only 136 cases. Validation part is randomly chosen subset of training data).

From this error classification table is clear that SRM approach leads to lower misclassification error on both training and test data sets. We can say that ratio of correctly classified applicant is statistically higher in case of SRM approach ( $p\text{-value} = 2.41 \cdot 10^{-7}$ ).

## Conclusions:

We saw that modern classification approach based on SRM methodology resulted in significantly better classification efficiency on both data sets. In addition software tool KXEN provides deeper insight into classification process through various diagnostic graphs. On the other side if we use modern algorithm or method for classification like conditional inference trees or some ensemble methods, for example random forests or their modification based on arcing or bagging which are all attainable in R we probably obtain better classification results and the advantage of KXEN will not be so high.

## Acknowledgements:

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## Literature:

- [1] Breiman, L., Friedman, J.H., Olshen, R. A., Stone, Ch. J. (1998). Classification and Regression trees, Chapman & Hall/CRC, Boca Raton, 359.p., ISBN: 0-412-04841-8
- [2] Hastie T., Tibshirani, R., Friedman, J. (2001). The Elements of Statistical Learning, Data Mining, Inference and Precision. Springer, New York, ISBN 0-387-95284-5
- [3] Vapnik, V. N., Chervonenkis, A. (1971). "On the uniform convergence of relative frequencies of events to their probabilities." *Theory of Probability and its Applications*, 16(2):264–280, 1971.
- [4] R package, version 3.1-50. Retrieved October 20, 2011, from <http://CRAN.R-project.org/package=rpart>
- [5] Sewell, M. (2008). Structural Risk Minimization, Department of Computer Science University College London, London 2008. Retrieved April 3, 2013, from <http://www.svms.org/srm/srm.pdf>
- [6] Therneau, T. M., Atkinson, B, R port by Brian Ripley (2011). rpart: Recursive Partitioning.
- [7] Vapnik, V. N. (2000). The Nature of Statistical Learning Theory. Information Science and Statistics. Springer-Verlag. ISBN 978-0-387-98780-4.

# **Restoring African Ethnic Identity Using Bead work. Study conducted at Qunu Village, Mthatha, South Africa**

**Carina Nomfuzo Rozani<sup>1</sup>**

## **Abstract:**

The purpose of this paper is to report the findings of a study which was carried out at Qunu village. I was examining perceptions of learners, parents and teachers on the use of beadwork to restore ethnic identity. Eziko Sipheka Sisophula Theoretical Framework (Eziko, for short) was used to undergird the study because of its cultural orientation. That Eziko is rooted in African worldviews, cultural values and indigenous languages means that it is for deconstruction of identities that were imposed on indigenous communities by the previous western regimes. Because of this emancipating theoretical framework, I am proud to introduce myself as Maduna, Nokhala, Jiyana, Msuthu, Sjekula, Macala-cala, Sala kulandelwa, Lobola ngengqukuva zodwa kusal' ezinempondo zodwa kub' ezinempondo zoxing' ehlathini, Mathol' amnyam' awel' iThukela, Nozigadala, Tiba, Madun' edakeni owadunusel' idaka laqhekeka! I am an African belonging to aba-Thembu tribe.

Inkaba Yam (my umbilical cord is at) Xhongorha, eMthatha. I came to this earth through the bridge yama Zizi, Dlamini, Tshetshengwane, Jama kaSijadu, aMaziz'amnyama neenkomu zawo, oMbhlashe awuwelwa uwelwa ziinkonjane kuhela zona zinamaphiko. AmaZizi originate from Gxwalibomvu at the beautiful landscapes of Mbhashe River. I am a great grandchild of Gxwali. I am a grandchild of abeSuthu, oBhayi kaKhetshe, amaVundle as my maternal family. On the paternal side I am a grandchild of oGcwanini Miya, Sibewu, Mamali Mancoba. I am not exaggerating when reporting about the generosity with which I was raised by amaSukwinini. oLawu, Chwama, Pokoth' ibhencekile, itiki ayivumanu nepokothi, Njabomvu, Dibashe. La maLawu athi, imvaba yiketile, intolongo yihovisi. This is the story of my cultural roots. During the previous eras it was taboo to display this cultural pride.

## **Key words:**

Beadwork, Entrepreneurship, IK, Eziko Sipheka Sisophula, Qunu village, curricula redesign

## **Introduction**

This study examined perceptions of learners, educators and parents on the use of bead work to restore African ethnic identity. It targeted ama-Xhosa participants possessing Indigenous Knowledge (IK) on aba-Thembu beadwork in particular. It focused on the erosion of ama-Xhosa ethnic identity during colonization and apartheid eras. It sought ways of reconstructing and restoring the African identity and pride according to the philosophical foundations of Eziko Sipheka Sisophula theoretical framework. Questionnaires were translated into isi-Xhosa and interviews were conducted in isi-Xhosa as well. A questionnaire was designed and one hundred and ninety six learners from three schools were sampled. The study also conducted in-depth interviews with six learners and six educators from each school. Six parents from the village were also interviewed. The sample comprised mixed

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sexes. Learners' level of education ranged from Grade 4 to Grade 11. Photographic documentation of beadwork was also done. Quantitative data was analyzed using SPSS IBM Version 20 and qualitative data was analyzed manually. Eziko Sipheka Sisophula Theoretical Framework, Eziko for short was used to undergird this study. It was strengthened and deepened by Kaupapa Maori theory. Findings indicate potential for entrepreneurship and curricula redesign for sustainable livelihoods and the ultimate goal of restoration of cultural values and ethnic identity. The study therefore, looked at the contribution of beadwork in rediscovering African ethnic identity.

Findings are presented in detail followed by recommendations. A report will be given to the participants and the Department of Education in the near future as was agreed upon with the Ethics Committee.

### **What is Indigenous Knowledge (IK)?**

In order to understand this study, we need to understand the meaning of IK, and how it was eroded before seeking perceptions of ama-Xhosa on the use of beadwork to restore ethnic identity.

Contemporary writers of IK epistems can only be perceived by traditional pedagogy used by IK custodians themselves. Indigenous knowledge comprises all knowledge "pertaining to a particular people and its territory, the nature or use of which has been transmitted from generation to generation" (Daes, 1993 cited in Battiste, 2008). IK is systemic and dynamic as it allows room for contamination by other cultures. It is often oral and is imparted to the progeny by modelling good morals. It is conveyed in indigenous languages as it is carried in IK holders' minds. It covers both observations and thoughts and is considered as an extensive and valuable knowledge system with its own concepts of epistemology, scientific and logical legitimacy. Grenier, 1998 cited in Chilisa 2012, argues that the quality and quantity of IK possessed by individuals at home and in the community varies according to "age, gender, socioeconomic status, daily experiences, roles and responsibilities."

From the Afrocentric perspective, IK has existed from time immemorial. In IK, skills and practices are "performed within a cultural context and surroundings of ritual, some of which include songs, dance and fashion" (A-Magid 2011, p.137). Those who have the knowledge use it routinely, perhaps daily, and because of this, it becomes something that is part of them. Examples are iintsimbi (beads) in their indigenous form and the present dynamic form through contamination by other cultures. Some use the original indigenous bead work while some use the modern form of beads.

Mostly IK was practiced in networks which have translated into amaziko (hearths) in the present dispensation. It is also illustrated through family panegyric legends/patronymic names, such as oNyawuza (those who hold kingdom among ama-Mpondo ethnic group), oMadiba (those who hold kingdom among aba-Thembu). These include individuals who have been specially taught or initiated to be IK custodians. Those individuals must be cognizant with IK laws and practices (A-Magid 2011). Hence they are the right conveyors of ama-Xhosa cultural values and way of dress including bead work. After their deaths, these legends are usually transformed into ancestors through numerous mortuary rituals. Such transformation is in accordance with customary prescriptions.

### **Problem statement**

During the previous dispensations Ama-Xhosa were alienated from their cultural values including dress code. Qunu indigenous people were proud of their cultural heritage. They practiced good ancestral values and had a flair for beauty. Women especially, were thus referred to as oonohombile, those who have flair for beauty. All their regalia were accessorized by colourful beadwork. Beads were the pride of the African people, a form of identity. They were used to denote age, gender, position in society. Solomon, (2012:02) quotes MaMbeki stating that in the '40s, people were still using beadwork and using the

cultural way of dressing. She wants to “reinvigorate a sense of pride in South African indigenous culture.” When they lost their pride, ama-Xhosa therefore, practiced western culture which was imposed on them. The rich world views and ancestral knowingness were denigrated by the previous dispensations.

### **Main research question**

Do learners, educators and parents of Qunu village perceive the use of indigenous amaXhosa beadwork as a means to restore African ethnic identity (AEI)?

### **Sub research questions**

- What are the factors which could motivate learners, educators and parents to consider using beadwork in restoring their AEI?
- What are the views of learners, educators and parents on how indigenous beadwork can be used for restoring their AEI?
- What are the perceptions of learners, parents and educators regarding inclusion of beadwork in school curricula?

### **Significance of the study**

Ama-Xhosa had natural instinct for arts and crafts which saw them produce beadwork of a very high degree. Ethnomathematics were the order of the day (Mtetwa 2006:480). Restoration of ethnic identity therefore, would mean regaining of the dignity and pride ama-Xhosa lost through colonization and apartheid eras. Children would gain technological beading and mathematical skills, and curricula redesign as the Beading Learning Area (BLA) might be interfaced.

### **Research design and methodology**

Quantitative approach aligned to positivism where questionnaires were administered was utilized. Qualitative approach aligned to constructivism where in-depth-interviews were used helped the researcher in probing (Henning, 2004).

### **Population of the study and sampling techniques**

As the researcher was targeting learners mostly, she decided to involve three schools at Qunu village where there are six schools. Social scientists like McMillan and Schumacher, (2006) refer to population as a group of cases or elements, objects or events that match specific criteria to which researchers intend to generalize results of their studies.

The population was composed of learners, educators and parents. The research site is Qunu village. Purposive sampling was employed for selecting the schools and the key informants. Schools in the rural areas of Eastern Cape (E.C.) Province are located within long distances from each other. This is the case in the rural setting where the research was conducted. Thus the researcher conveniently engaged purposive sampling as she deliberately wanted to work with schools that were easily accessible to her in terms of distance. She purposively drew her sample from Qunu village. Researchers posit that it is appropriate for a researcher to choose a sample on the basis of their knowledge of the population.

There are six schools at Qunu village, one high school and five primary schools. The schools are in close proximity with each other. They have enrolments of about six hundred learners, on the average. Three schools participated, one class from each. Sixty Grade 11 learners were randomly selected from the high school which is coded as School A. Sixty four learners were randomly sampled from School B while sixty one learners were equally randomly sampled from School C. Among these were a combination of learners from grades 4, 5, 6 and 7. Six learners were approached for qualitative research from each school for in-

depth-study. Sixteen educators ended up being involved in the in-depth-interviews. Both males and females participated . The study was supported by an innovative, indigenous theoretical framework, Eziko Sipheka Sisophula so that it should be anchored in African world views.

### **Eziko Sipheka Sisophula used as a theoretical framework coupled with Kaupapa Maori theory**

The study was undergird by Eziko Sipheka Sisophula Theoretical Framework, Eziko for short. This theoretical framework was found to be appropriate because of its cultural connotations. It takes culturally relevant and contextually appropriate issues that are rooted in Nguni/Sotho languages into account. Eziko is anchored by seven philosophical foundations/pillars. These are: African/relational ontology; epistemology; axiology; cosmology; ideology; teleology and logic. Eziko delves deep into worldview often referred to as African Indigenous Knowledge Systems (AIKSs). AIKSs are characterized by spiritual, social, economic and cultural interconnectedness, interdependence bound together by ubuntu Goduka, (2005).

Eziko is founded on the Kaupapa Maori Theory which “emphasizes the critical theory intervention potential within the logic of ‘organic’ Kaupapa Maori practice Smith, (1999, p.97). Thus, Kaupapa Maori theory always critiques the way people identify themselves and are constrained to behave. The language of the aborigines, their culture and ancestral knowledge are legitimate and valid. According to Glover, 1997 cited in Chilisa 2010, p.3 it aspires to “recover and reinstate *mantaranga Maori*” culture and languages. Eziko adopted some of those features. Both are rooted in indigenous world views, cultural values and languages. That is one of the reasons why the questionnaires were presented in isi-Xhosa and in-depth-interviews were also conducted in participants indigenous language. Eziko emerges from ethuthwini (ashes) of South African soil, kwaManxeba in Herschel. The African/relational axiological and cosmological pillars of Eziko come alive in this study as the community introduce beading knowledge to the progeny in networks. Here material and spiritual being of the participants are taken into consideration. Here at Eziko, we kill the theme of separatism and feel the pillar of African relational ontology. In the figurative sense the hearth, Eziko Sipheka Sisophula means opening spaces for discourses. *Iziko* (hearth) is used metaphorically to mean) where dialogues take place; (Goduka, 2012). This translates into training of children/youths so that they in turn train and develop communities, creating awareness about indigenous languages and cultures. In this process identities imposed by colonizers where they emphasized western superiority over indigenous culture are deconstructed. New meaningful identities are thus constructed. This must take place at local, provincial, national and international level. This should meet the physical, emotional, economic, social, educational and spiritual development of the communities/societies as portrayed in the pillars/philosophical foundations of Eziko. In a nutshell, a holistic approach to development of communities is envisaged. That ama-Xhosa were interconnected, interdependent and lived by communal values was just one among many aspects/elements of ancestral knowingness. This is in line with the African/relational ontological pillar of Eziko. Africans believed in pluralism before they were colonized and had good interpersonal relations. Hence, I was also welcome with warm hearts when I approached the chief, learners, teachers and parents to conduct the study. We became researchers together. Participants were also regarded as partners in the research. Thus the distance between the researcher and the community was closed. This depicts the African/relational epistemological pillar of Eziko. (Smith, 1992 in Bishop 1999, p.2) is concerned about who has control over distribution of “newly defined knowledge.” Hence the indigenous theories supporting this study. Postcolonial researchers have diligently committed themselves to fighting discrimination of indigenous processes and practices.

Thus, by Eziko, we want ama-Xhosa to reclaim, restore and reconstruct new and meaningful identities. That is what we aspired for by conducting this study and underpinning it with an indigenous theoretical framework.

## Data Presentation and discussion

SPSS Programme was used to analyze quantitative data while qualitative data was analyzed manually. 217 Questionnaires were distributed to three out of six schools at Qunu. 201 were returned which meant a 95,5 percent return rate. 31.3 percent participants took part from School A, 37.8 percent from School B and 30,8 percent from School C. They were from Grade 4 to beyond Matriculation. Their ages ranged from 11 to over 41 as they were a combination of learners and teachers. Parents were intended for qualitative research only. But, one questionnaire by a parent cropped into the batch and formed the other 0,05 missing percent.

## Findings

Aba-Thembu at Qunu village possess a wealth of knowledge as far as aba-Thembu bead work is concerned. Arguments raised in the study indicated that Qunu villagers would appreciate going back to their roots *via* beadwork. They would appreciate interfacing of a beading LA in the curricula and teaching of values including beadwork by IK holders. They said they think this would lower the high unemployment rate, shift the frontiers of poverty and curb the high crime rate. They said there is connection between crime, abject poverty and lack of employment. Then the high moral standards ama-Xhosa used to have would be restored. They articulated that inclusion of BLA in curricula would provide a solution. How? If children drop-out-of-school before attaining matriculation they could do beading in cooperatives. That would mean they are endowed with entrepreneurial skills and become job creators instead of job seekers and criminals. Those who would continue beyond matriculation would flourish and continue to shift the frontiers of poverty at a higher level. Findings also showed that learners, parents and teachers wished that IK holders teach what they know themselves since teachers possess knowledge from books. Most of the learners, 53.19% of them stated a need for interfacing beadwork within curricula. When I revisited Qunu community to do qualitative research more interesting information emerged. In-depth-interviews with learners revealed that they would understand better if parents would teach the BLA themselves. They expressed the view that the syllabi are loaded with biases and that is what the teachers impart. These arguments indicate the African relational/teleological and logical pillars of Eziko as there is sense of directness and logic in the views are expressed. African relational ideology was also characterized in the way Qunu villagers believed that participants would communally drive the programme and benefit together with their offspring towards betterment of their future. There is also an indication that they would welcome after-care (after-school) centres where arts and crafts would be taught so that they, together with their offspring could become entrepreneurs. The idea was cherished by both those who have the IK and those who lack it. It was encouraging to note that there are males who are interested in bead work.

It was both surprising and pleasing to find that learners and teachers answering in the affirmative that parents must teach values and beadwork at school.

Key informants drawn from learners and teachers had this to say, to emphasise the importance of having parents teach IK despite being without formal education:

- “*Kungangcono. Ezi zinto azifundiswa esikolweni, zilapha emakhaya. Ititsala ayinalwazi luninzi.*” (It would be better. These things are not taught at schools, they are based here at homes. The teacher does not have much knowledge).

In a similar line of argument another key informant, being an educator further supported the experience of parents and how valuable it can be if tapped, when she noted:

- “*Ukuba uyaqwelaselisa, kukho abazali abaziinkcuba-buchopho, abanamava kunathi zifundiswa.*” (If you take a closer look, there are parents who are intelligent, who have wonderful experiences than we have, we the educated).

Of importance also is the fact that some key informants noted that AmaXhosa customary ways are crucial for communication and connection as well as showing off on one's identity. Some responses were:

- “*Xa sifuna ukuqhayisa ngobuntu bethu. Yenye yeendlela zokuqhakamshelana omnye nomnye le. Yaye, njengokuba ndingumAfrika, umXhosa, ngoko ndobukeka kakuhle.*” (When we want to show off our identity. This is one of the ways we communicate or connect with one another. And because I am an African (umXhosa), then I would be presentable).

Educators also weighed in by indicating the significance of AmaXhosa dress and one informant had this to say:

- “*Ndiyayithanda indlela anxiba ngayo amaXhosa. Ndide ndiyinxibe nasedolophini. Ndiyayindulukela nje, uve abaqhube beemoto bekuhutarishela, bebuka esi sinxibo sakwaNtu. Indenza ndibe nebhongo. Ukuqwela ndiyigcina apha esikolweni. Ndakukubonisa nge-break*”. (I like the way amaXhosa dress up. I even wear it in town. I just wear it. You hear sounds of sirens, motorists appreciating the traditional attire. It makes me proud. I even keep my traditional attire here at school, I'll show you during break).
- “*Bungabuya ubuntu bethu. Singazi banzi ngamasiko ethu. Nesinxibo sethu singatshintsha, siyeke ukulandela iindlela zaseNtshona*”. (Our identity can be restored. We would know extensively about our customs. Even our attire can change such that we stop following western ways).

Literature reviewed had also indicated that mathematics would be fun if taught in the medium of beads. This, again, would be done with the assistance of the parents.

Notwithstanding the importance of Indigenous Knowledge (IK), particularly bead work, which has a potential to contribute African ethnic identity and cognitive skills that have mathematical orientation, IK was excluded from the curricula. Asante, (2011) states that “Imhotep builds the first pyramid around 2900 BCE.” This is part of Ethnomathematics as Imhotep was self-taught the skill of arithmetic, geometry and trigonometry which is applied in architecture. Kamalu (1990, p.77) gives evidence to this argument when he argues that “the dimensions of the Great Pyramid appear to be loaded with highly advanced mathematical and astronomical information.” The Great Pyramid existed in Egypt before the 18<sup>th</sup> century’. Other key informants also indicated that it is important to ensure that beadwork is part of the school curricula as it presents some learners who may be talented on practical aspects with a chance of broadening their skills. When Nokusebenza (pseudonym) my IK informant exhibited her designs, I noticed that they consisted of geometric shapes. For instance, the bangle (*isiqweqwe*) was made of ten equal lines. It is rectangular in shape. This represents the African relational/logical philosophical assumption of Eziko. While learners would gain the technological beading skill, they would gain the mathematical language as well. They therefore, expressed a view that they would perform better at the Maths LA, LA perceived to be difficult by learners. (Seepe in Higgs et. al., 2000, 127) “Egypt was the cradle of mathematics,” Seepe states. The pyramids of Egypt are built in precisions of geometry and trigonometry.

The learners were excited at the prospect of being taught mathematics in the medium of bead work as there is serious lack of learning and teaching resources in the rural areas. Parents and teachers supported this thought. They all felt that not only would beads carry aesthetic value but mathematical value as well. Moreover, parents would gain respect from learners and teachers. In turn, learners and teachers would gain mathematical skills from the parents. There would therefore be reciprocity as espoused in *Eziko* philosophical foundations and Flick's thoughts (Goduka 2012 and Flick 2009).

I also utilized the photo documentation technique to capture beads in photography (Buchanan 2001). (See photos presented as Appendices). The presented iintsimbi (beads) that can be revived for restoration of AEI and pride carry high aesthetic value. Examples are but not limited to:

- *Ithumbu* (necklace);
- *umgangxo* (traditional vest);
- and *ipasi/ithambeka* (headband).

### Rationale for choosing ezi ntsimbi (these items of beadwork) for discussion

The reason was that reviewed literature postulates that African pride was eroded during the colonial and apartheid eras. In the olden days beadwork played a significant role in providing people with a sense of belonging and pride. In the late nineties, post democracy, it was revived gradually. The vest therefore is the epitome of the beauty of the African woman. The flag is the pride of South African By picking on these items, we think that African pride can be restored quickly as love of one's nation - patriotism is ideologically depicted in the country's flag. Again, ancestral knowingness is partly portrayed in the belief conveyed in *ithambeka* (headband) where *amagqirha* (divine healers) *neenkosi* and (traditional leaders) are concerned.

- (a) *Umgangxo* (vest): The vest is made of many strings of beads, like ropes worked up to the waist. They are held together by a band at the neck and at the waist. It seems quite a daunting job to produce this piece of aesthetic value. When aba-Thembu attend traditional occasions, they put on traditional attire. The vest shows off breasts and *imivambo* (tattoos) on the chestline which also portray African pride. The beads are our gems and, worn together with the traditional skirt (*umbhaco*), revive Ama-Xhosa cultural identity.
- (b) *Ithumbu* (necklace): It is a big necklace flared on the chest. It can be presented in one colour or in a combination of colours to bring out aesthetics. It is worn on different occasions. The necklace is from School C. It shares colours of the South African flag. The flag is one of the national symbols. It is a symbol of a nation's pride. The colours of the national flag are black, green, yellow, white, ochre and blue. This speaks to the element/theme of ancestral ways of knowing and national practices. In the pre-colonial era beads were used for stratification among ethnic groups. Beads were worn by royalty only but later, anyone was allowed as long as they could afford it (Broster 1976 and Stevenson & Graham-Stewart 2001). Taking the issue of color a little further, among other writers, Stewart and Stevenson, (2001) posit that bead colors are used symbolically. For instance, among aba-Thembu GREEN denotes new life, YELLOW denotes fertility. BLUE is the color of youth. It is often combined with WHITE, NAVY and RED. PINK denotes age.
- (c) *ipasi/ithambeka* (head band): It is for both men and women. It is differentiated by colour where different ethnic groups are concerned. For instance blue is preferred by aba-Thembu. It is worked up in geometric shapes. It is formation of a number of short equal lines. At the other end there is a button hole, on the other, a button. When worn by the divine healer, the headband should be white. In Xhosa traditional culture, white symbolizes purity. The divine healers believe that they see *umhlola* (diagnose correctly), when wearing that white head band. This information should be taught to the youths to instill a sense of pride in generations to come. The headband was also crafted at School C. It was noted that out of three schools investigated, only one is concerned with beadwork. It is offered as an extra-mural activity.

## **Key elements/themes that emerged from the study**

Very significant themes emerged from the research. This was the most exciting discovery from the study. The key themes discussed below represent *amaziko ngamaziko* (different hearths) in different ways:

- **Know your roots** - Participants want to have their identity restored and to go back to their roots. They expressed a view that no sober-minded Africans do not yearn to be anchored to their roots unless their insobriety is questionable. They have even started wearing indigenous beadwork at different occasions such as opening of parliament, weddings and many others.
- **Pride** - Some of the elderly people said no nation displayed much pride than Nguni nations, in history. They absolutely want their pride back. The youth also shared those sentiments. They articulated that wearing their traditional regalia accessorized by *iintsimbi* (beads) would lead them back to their cultural practices.
- **Restoration of AEI and pride** - Participants longed for restoration of their EI by all means, from values, through dress code to all ama-Xhosa ways of doing things. This includes their spirituality; arts and crafts; economics; education; health and so on, denoting wholeness. This encompasses ontological and axiological assumptions.
- **Cultural days** - Participants want cultural days like the heritage day to be given more meaning and respect so that ama-Xhosa can recapture their cultural values. They would do this by observing some cultural rituals wearing cultural attire accessorized with beads. They emphasized this point.
- **IK is found at home** - IK is found in food; in daily activities; in the field; in the veld; around the hearth; in the kraal; in the mountains e.g. praying for rain during drought; *ephupheni* (in dream), *endlwini enkulu* (in the big respected rondavel). They said that even the beadwork knowledge is found at home mostly, and the results confirmed that.
- **Identity** - Participants said this meant finding sense of belonging as they longed to belong to their cultural roots at this point in time. During the pre-colonial era, indigenous people had their own form of education which the modernists refer to as informal education now. Mosha (2000) refers to the indigenous education as *ipvunda* process. The colonialists rubbed off the indigenous curricula and wrote theirs in the minds of the colonized under the guise that they were *tabulae rasae* and needed to be civilized. The study seeks to reconstruct indigenous knowledge, hence decolonization of curricula to include IK. Thus their sense of belonging was obliterated. They adamantly want to go back to those non formal ancestral teaching. One male teacher even keeps his traditional attire and bead accessories at school. He said whenever he feels like wearing it, he just puts it on and goes to town, and people appreciate him a lot, he said proudly.
- **Traditional dance and agriculture** - Participants stated that traditional dance is embedded in IK. They suggested that it should form part of school curricula as part of the arts. They said this would provide job opportunities and income generation which would *gxotha ikati eziko* (shift the frontiers of poverty). Key informants articulated that different forms of agriculture are also part of IK. They said, at school, it should be made as practical as possible. Agriculture also represents another hearth.
- **Teach values** - By this element/theme, participants meant concepts of respect as was espoused in traditional curricula and said they ought to be taught alongside ubuntu; caring; sharing; tolerance; cooperation; collaboration; indigenous management leadership styles; conflict resolution strategies and many other values. They stated that these values were transferred to IK holders from their forefathers. They needed to be transferred, in turn, to the progeny. Older participants postulated that bead adorning was one of the greatest ama-Xhosa values. It was the most

dignified, unique and aesthetic way of dress, they articulated. Even ukuyihlohlha (beadmaking) in networks was one of ama-Xhosa's greatest values, that information was shared. They said lessons were imparted during those exercises.

- **Ancestral knowledge** - Participants articulated that parents (IK holders) have original knowledge passed on from generations to generations. (O'Donogue in Mearns et. al 2012) posit that "indigenous ways of knowing have been seen as outdated and even primitive in the modern world." It was pleasing to the researcher to note that learners, educators and parents of today still believe in ancestral knowledge. Participants thought parents would also teach handwork encompassing ethnomathematics, ethnoscience, ethnoagriculture etc. They said teachers have knowledge from books which is loaded with biases of the modern era. They articulated that traditional dance is also embedded in ancestral knowledge.

These elements added value to the research that is informed by an indigenous theoretical framework as traditional dance represents another *iziko* (hearth) in ama-Xhosa cultural heritage. For ama-Xhosa dance is another form of religion. Even beads worn during dancing, *isidanga no vulakabini* (beadwork that is worn down the chest bone and the one that is separated in two ways down the chest bone) follow a certain pattern during performance. When ama-Xhosa dance, they do not dance for the sake of dancing, they tell a story. That is African ethnic identity. They communicate some teaching including physical exercise. It is part of ama-Xhosa religious belief. Those are some of the greatest values upheld by ama-Xhosa. These ancestral practices are encompassed in *Eziko* theoretical framework.

## **Conclusions and Recommendations:**

In the light of the above discussion, I recommend recommended therefore, that policymakers and the government at large should collaborate towards curricula transformation for crafting of a future with entrepreneurial skills for sustainable livelihoods. I urge the intelligentsia and HEIs not to exclude rural and peri-urban communities. When not left behind, rural community will contribute ancestral knowingness. As IK custodians of bead work, they might be instrumental in setting up of small businesses which might help control influx to urban areas so that urban dwellers too enjoy optimal benefits from their space. This way, African ethnic identity might be restored.

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## **Literature:**

- A-Magid, A., 2011. African Indigenous Knowledge Systems: Challenges and Opportunities. *AFRICA INSIGHT*, March 2011. Vol.40(4).
- Asante, M.K., 2011. *De-Westernizing Communication: Strategies for Neutralizing Myths*. Article Published 22.05.2011 Accessed from Internet <http://www.asante.net> on 12 October 2012.
- Battiste, M. 2008. Indigenous Knowledge: Foundations for First Nations: *INDILINGA AFRICAN JOURNAL OF IKS*. Accessed from Internet 2012 November.
- Battiste, M. and Henderson, J. Y., 2000. *Protecting Indigenous Knowledge and Heritage: A Global Challenge*. Saskatoon: Purich Publication.
- Bishop, R., 1999. Kaupapa Maori Research: An indigenous approach to creating knowledge. Maori and Psychology: research and practice – The proceedings of a symposium sponsored by the Maori Psychology Research Unit. Hamilton: *Maori & Psychology Research Unit*.

- Broster, J., 1976. *The Tembu, their bead work, songs and dance; with Introduction by the Honourable Kaiser Matanzima, Chief Minister of Transkei*. Cape Town: Purnell.
- Buchanan, M., 2001. *The role of Photography on Organization Research. A re-engineering case illustration*. *Journal of Management Inq.* Vol. 10 No.(2), p. 151 – 164.
- Chilisa, B., 2012. *Indigenous Research Methodologies*. Los Angeles: SAGE Publications Ltd.
- Flick, U., 2009. *An Introduction to Qualitative Research*. London: SAGE Publications Inc.
- Goduka, N., 2005. EZIKO: Sipheka Sisophula: Nguni Foundations for Educating/ Researching for Sustainable Development: A Theoretical Paper, Published in *SAJHE*, Vol. 19, 467 – 481.
- Goduka, N., 2012. From Positivism to Indigenous Science: A Reflection on World Views, Paradigms and Philosophical Assumptions in Social Science. *Africa Institute of South Africa (AISA)*. Vol. 41 (4) – March 2012.
- Higgs, P., et. al. eds., 2000. *African Voices in Education*. Lansdowne: Juta & Co. Ltd.
- Kamalu, C., 1990. *Foundations of African Thought: A worldview grounded in the African Heritage of religion, philosophy, science and art*. London: Martins the Printers Ltd.
- McMillan, J.H. and Schumacher, S., 2006. *Research in Education: Evidence-Based-Enquiry*. 6<sup>th</sup>ed. USA : Pearson Education, Inc.
- Mearns, M. et. al., 2012. *Conservation of IK at Cultural Villages: An Exploratory Study*. Mousan pdf. [Accessed 02.09.2012]
- Mosha, R. S., 2000. *The heartbeat of indigenous Africa: A study of the Chagga Educational System*. New York & London: Garland Publishing, Inc.
- Nokusebenza, 2011. (pseudonym) before Eziko Sipheka Sisophula Theoretical Framework, Mamqoma after Eziko., 2011. Source: Aba-Thembu beadwork. Mthatha, Eastern Cape, South Africa. Researched by C.N. Rozani, October 2011.
- Smit, J.A., 2012. *AFRICAN Indigenous Knowledge Systems and Sustainable Development*. South Africa: People's Publishers.
- Smith, L. T., (1999). *Decolonizing Methodologies: Research and Indigenous Peoples*. London & New York: Zed Books Ltd.
- Stevenson, M. and Graham-Stewart M., 2001. *South-East African beadwork 1850-1910: from adornment to artifact to art (with an essay by Sandra Klopper: book review*. Authors: Nettleton, Anita. Published from De Arte, Issue 64 September 2001. pp. 84-88.
- Solomon, M., 2011. MaMbeki steals show at ceremony: Lively 96-year-old urges preservation of culture. *Daily Dispatch*. 17 Apr 2012.p. 02.

**Attachments:**



**Pic. 1 Presents a traditional vest designed by an IK holder, Nokusebenza. Next to it is the traditional skirt. (Ubonisa umgangxo owakhiwe nguNokusebenza, onolwazi lwemveli.Ecaleni lawo ngumbhaco.)**



**Pic. 2 AbaThembu beadwork,ithumbu (necklace) from School C (Ithumbu labaThembu elenziwe kwisikolo C) and South African Flag next to it**

A big necklace flared on the chest. It can be presented in one colour or in a combination of colours to bring out aesthetics. It is worn on different occasions.



**Pic. 3 Ipasi/ithambeka – photo from School C. Next to it is a traditional healer  
(Ipasi/ithambeka – ifoto evela kwiSikolo C. Ecaleni kwalo ligqirha)**

# Self-concept and marketing strategies

Gabriela Rozvadský Gugová<sup>1</sup>

## Abstract:

**Introduction:** Our contribution is devoted to the research results in the field of self-expression and self-image of the individual in the world of information processing and cognition. Marketing strategies help make decisions that will help us to bring the subject to market activities. The current trend is a knowledge-based society, skills, abilities, information, storage, transmission. Our marketing strategy focuses on four key issues: production, respectively service, price, distribution channels and advertising. It is important to know, how to develop an individual's current self-image. Implementation strategies are then engaged in transforming decisions into concrete action, meaning, that the decision has to be taken with regard to flexibility and acceptance.

**Methodology:** The sample consists of 4,420 respondents, men and women in three age groups 0-15 years, 16-40 years and 41-60 years. All responded to one question, "Where is your center." Respondents had to show on their body. The question was chosen very sensitive, not to predict the answer. Terms soul, psyche, personality would be very manipulative, and therefore were excluded. In line with expectations, the majority of respondents have shown to their head, chest and abdomen, but were also unconventional answers, but in accordance with the preferred self-image and values of the individual.

**Results:** Lessons from research outputs were analyzed by the following processes: general description, item-total correlation, exploratory factor analysis of individual areas and correlation analysis of individual items. We found medium correlations between area of body abdomen and age to 15 years were significant. Mean Item-total correlation for Areas of body were: head was .35 and chest .43 and abdomen .22. In the descriptive statistics we found, that most respondents preferred the chest, followed by the head and abdomen.

**Discussion and conclusions:** As for the distribution of respondents into three age groups, we found differences between men and women. Next, we analyzed the relationship between the areas of the body and gender. Statistically significant differences were found on the chest, where women scored more than men, and we also found significant differences in the abdominal area, where men scored more than women. Individuals in the category up to 15 years preferred orientation of the abdomen and their self-concept is actually structured in through concrete experience, where the primary needs and food play a dominant role. Group working people in age from 16 to 40 years confirmed the distribution and their self-concept is primarily structured in the fulfillment of social needs. In the last group with the longest life experiences, people in age from 41 to 60 years has seen a shift away from a transcendent values rather specific to the mental. Customer behavior is determined by our self-image, the individual who created it. Consciously and unconsciously self-image controls the behavior of the customer.

**Keywords:** self-image, self-concept, self-expression, somatization, cognitive science, values , marketig strategy, customer behavior

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## 1 Introduction

Mind of human is a function of the brain, the unity of objective and subjective, active reflection of objective reality, is a dynamic and solid, socially and developmentally determined. Mental phenomena are dynamic. Process is all mental, plot character, done in time and space. It is a flow of thoughts and feelings, something else is always momentary their content. Constantly changing and human mental states. Determines the dynamics of the psyche and dynamics of an objective reality that is reflected in the psyche, still other new initiatives. The dynamics of the psyche but also causes a factor of development, human growth. Psyche of each individual is therefore constantly changing. Human psyche is whole. Individual parts of the psyche there and not work in isolation in humans. For example, thinking depends on perception, vision, speech, mental status, concentration, fatigue, as well as the personality traits, the temperament, patience, interest, abilities. One part affects other makes, each dependent on each. Integrity organized by specific mental factor that psychologists call "I" (self), while the entire system of intellectual life is often referred to as a person. Integrity psyche but also applies to the development in the individual. Although the human psyche is constantly changing with age, its continuity is maintained. Human psyche are experiencing and behavior. Cognitive processes, emotional and volitional processes participate in the outcome of a team's survival, survival ensures the uniqueness of each individual in particular, the proportion of affective and volitional processes. Every one of us to another level of cognition and mental emotional involvement. If laymen and experts say the consciousness, they usually mean awareness, that is specifically human consciousness that we are conscious. Man is able to feel and experience, but is able to live and follow describe and talk about it with other people. For definitions of creating self-image, we can focus on a few recognized approaches.

The biological approach focuses on exploring the brain. Contemporary authors use new high-tech methods, such as positron emission tomography (PET) or functional magnetic resonance (fMRI). Bohemia is the major representative of this approach, Professor František Koukolík (born 1941), which summarized the latest findings on brain substrates of mental storylines in the book "The Human Brain". (Koukolík, 2000). Evolutionary development of the human mind and behavior and its genetic basis is being investigated in several studies. The famous American psychologist William James, who in his "Principles of Psychology" (1890) speculated that much of human behavior is controlled by instincts similar to the behavior of animals is one of the first representatives of a biological approach. Under this approach, an individual's self-image is determined by the biological nature of the individual and how it shapes the capacity of sensory organs and inherited temperament, diet composition, production of hormones in the endocrine glands as well as the individual brain's ability to learn, and many other factors.

According to the behavioral approach is structured in self-image experience, that are not transmitted. Psychodynamic approach of Sigmund Freud (1856 - 1939) said that self-image is created by consciousness and unconsciousness. He was convinced, that all mental experiences and behaviors have a reason. For basic dynamic forces regarded the unconscious psychic happenings instinctive impulses, which often function for defense. Self-concept as an individual can consciously and unconsciously modified. In terms of phenomenology, which deals with issues of human life and its meaning, issues of human conscience, responsibility, loneliness and intimacy is loaded with self-image created by individuals subjective perception of the passage of time during the life of the individual. The Gestalt approach is typical holistic examination of psychic phenomena in nature and utilizing the method of introspection. Individual's self-image is largely structured in just introspection. This happens in the psyche act as a whole, which is the most important in self-perception. Mental events is the process of structuring, formation units. Experiences appear to be structured in some formulas, that were built on the basis of experiences.

In cognitive psychology understands human psyche as a system of information processing. The current dominant trend in science is, not only in psychology, knowledge society, skills, abilities, information, storage, storage, transmission. Jean Piaget formed his theory of

cognitive development. Piaget it just comes with the patterns of cognitive aging process, such as a feeling, thinking, language, memory and attention. George Miller published his studies of human memory. If we want to understand behavior, we must examine internal mental events, the process of creating, processing, storage and reuse of mental events. The priority is to learn how to learn, how to remember the past and how to plan for the future and how to think, to decide and how to use language.

## 2 Field of marketing strategies

To be able to penetrate further and deeper into the problems of marketing strategy, we must first define the term. Each author assessed the concept in their own right, so there are a lot of definitions. Although the concepts of different authors, the main essence of marketing strategy is almost identical. Kotler (1998) and Tomek (1992) describe how the logic of marketing strategy, decide on all components of marketing. Horáková (1992) provides marketing strategy as a long-term concept of operations so that they can be best met two basic objectives, customer satisfaction, and achieve competitive advantage in the fight. Jedlicka (2006) has a similar notion as Horáková.

Marketing strategies help make decisions that will help us to align business activities to the market. Very simply, we could characterize the marketing strategy as a process by which an entity translates its objectives and its strategy to market activities.

Creating the ideal and optimal strategy is not a one-off activity, but it is an ongoing process. The strategy that has been successful in its time, must constantly adapt to changing market conditions. Creating a marketing strategy is a continuous process, very important for companies and companies preparing substantial changes in the production and the market orientation, as well as for companies that are consolidated, but the relative success must defend every day of the competition.

The strategy generally refers to the way the selection or combination of resources to ensure achievement of objectives. The same objective can be achieved by various means. E.g. market share can be increased by increasing product quality, reducing prices or increasing the intensity of support activities.

Our marketing strategy focuses on four key issues: production, respectively service, price, distribution channels and advertising. Questions of enforcement in different markets with different products with different quality and price, with different levels of marketing support is to be assessed in relation to other functional areas and within the overall strategy of the business unit. Deciding whether strategic or tactical is part of a broader problem-solving process. Processing strategy consists of three main steps: analysis, selection, and implementation strategies.

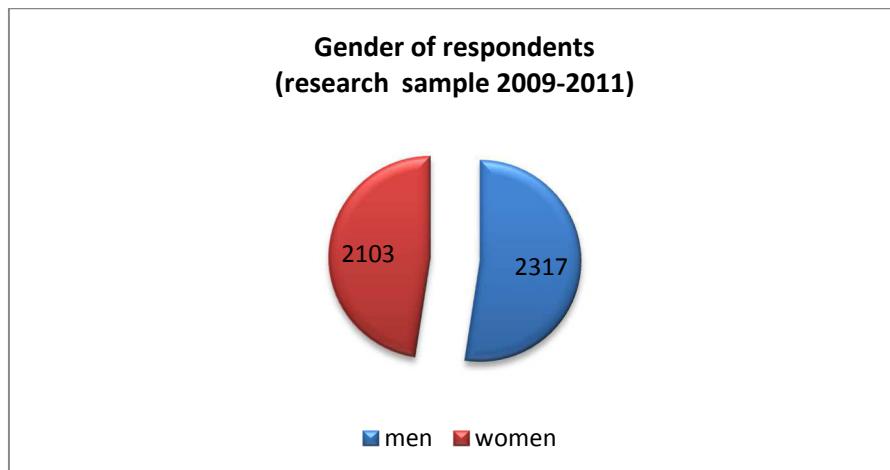
Strategic analysis focuses on understanding the strategic position of the body, which requires finding answers to various questions: What do different people want? What are the needs of the individual? It is important to know how to develop an individual's current self-image. Implementation strategies are then engaged in transforming decisions into concrete action, meaning that the decision has to be taken with regard to flexibility and acceptance.

## 4 Methodology

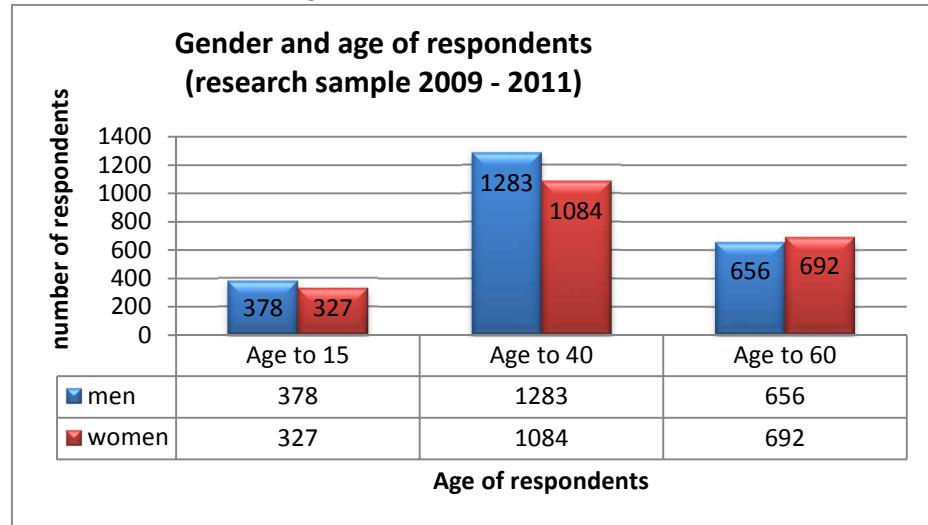
In accordance with the above, we decided to find out what is in the image of individual self-expression and self-concept today, in the world of information processing and cognition. The sample consists of 4,420 respondents, men and women in three age groups 0-15 years, 16-40 years and 41-60 years. All responded to one question, "Where is your center."

Respondents had to show on their body. The question was chosen very sensitive, not to predict the answer. Terms soul, psyche, personality would be very manipulative, and therefore were excluded. In terms of time, we collected responses from respondents directly (face to face) almost three years 2009-2011. Responses were short line method captures up sheet. The age of the respondents preferred anonymity was divided into three age groups 0-15 years, respondents with no experience of the totalitarian system, 15 to 40 years, respondents with a child or a close experience with the socialism and from 40 years up to life experiences, respondents formed longer period of time under the influence of socialist Czechoslovakia (Graph2). Gender distribution of the sample was as follows (Graph1).

Graph1 Gender of respondents (research sample 2009-2011)



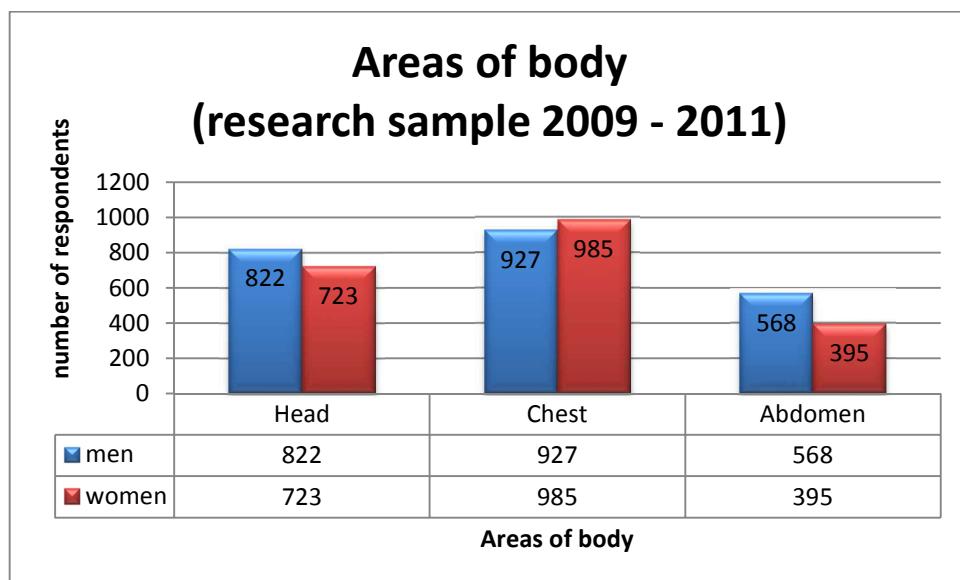
Graph 2 Gender and age of respondents (research sample 2009-2011)



## 5 Results and discussion

Lessons from research outputs were analyzed by the following processes: general description, item-total correlation, exploratory factor analysis of individual areas and correlation analysis of individual items. Our results and findings are presented in the following tables and charts. In the descriptive statistics we found, that most respondents preferred the chest, followed by the head and abdomen. (Graph 3)

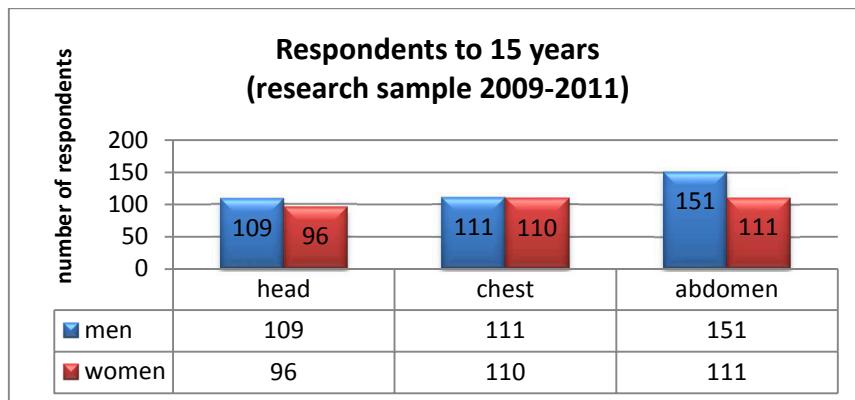
Graph 3 Areas of body (research sample 2009-2011)



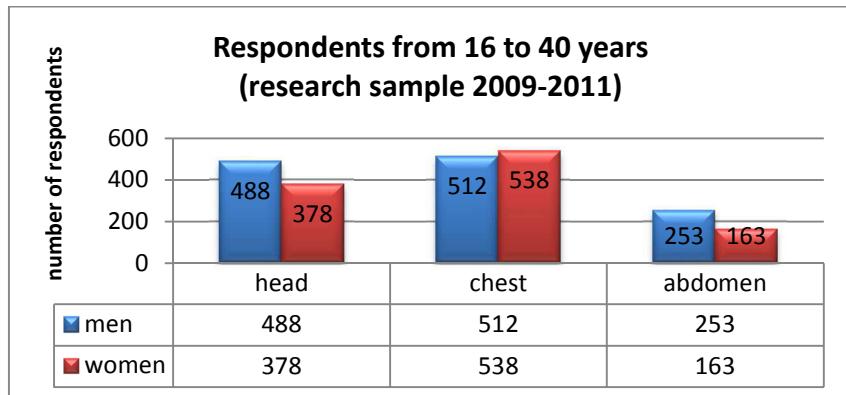
As for the distribution of respondents into three age groups, we found the following differences between men and women. In the group under 15 years (Graph4) respondents favored abdomen, as expected, this group is determined by the particular experience and these individuals will not interest of the transcendent sphere. Head scored less than chest, we speculated that the impact of family education patterns associated with issues of faith and

religion. In the group of 16 to 40 years (Graph5) most scored against the head and chest at least abdomen, outputs are in line with the preferences of this age group as they stand in many studies in this area. Respondents of working age appreciate the importance of cognition, brain and spiritual formulas in accordance with the accepted religion. The third group of respondents (Graph6) the results were similar, but are more preferred by respondents before the head and chest, abdomen, and were significant differences between men and women, more women than men are selected chest.

Graph4 Respondents to 15 years (research sample 2009-2011)



Graph5 Respondents from 16 to 40 years (research sample 2009-2011)



Graph6 Respondents from 41 to 60 years (research sample 2009-2011)

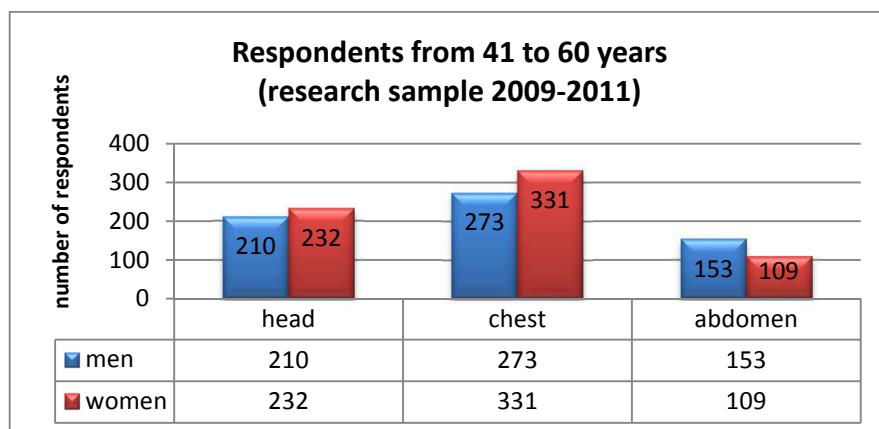


Table1 Descriptive statistics (research sample 2009-2011)

|                      | N    | Minimum | Maximum | Sum  | Mean |
|----------------------|------|---------|---------|------|------|
| men                  | 4420 | 0       | 1       | 2307 | ,52  |
| women                | 4420 | 0       | 1       | 2103 | ,48  |
| age to 15            | 4420 | 0       | 1       | 694  | ,16  |
| age from 16 to 40    | 4420 | 0       | 1       | 2353 | ,53  |
| age from 41 to 60    | 4420 | 0       | 1       | 1348 | ,30  |
| area of body head    | 4420 | 0       | 1       | 1535 | ,35  |
| area of body chest   | 4420 | 0       | 1       | 1906 | ,43  |
| area of body abdomen | 4420 | 0       | 1       | 966  | ,22  |
| Valid N (listwise)   | 4420 |         |         |      |      |

### ***Correlations between age and areas of body***

Correlations between area of body-head and area of body chest and age to 15 years were significant but low(  $r < .100$ ), only we found medium correlations between area of body abdomen and age to 15 years were significant ( $r = .168$ ,  $p < .001$ ).

Correlations between area of body-head, chest, abdomen and age from 16 to 40 years were low significant (  $r < .100$ ). Correlations between area of body-head, chest, abdomen and age from 41 to 60 years were low significant too (  $r < .100$ ).

Mean Item-total correlation for Areas of body were: head was .35 and chest .43 and abdomen .22. We analyzed correlations between areas of body, look at Tab.6, we found correlations between area of body chest and area of body head .622

Table2 Descriptive statistics and correlations (research sample 2009-2011)

|  | area of body abdomen | area of body head | area of body chest |
|--|----------------------|-------------------|--------------------|
|  |                      |                   |                    |

|                      |                     |         |         |         |
|----------------------|---------------------|---------|---------|---------|
| area of body abdomen | Pearson Correlation | 1       | -,379** | -,453** |
|                      | Sig. (2-tailed)     | ,000    | ,000    | ,000    |
|                      | N                   | 4421    | 4421    | 4421    |
| area of body head    | Pearson Correlation | -,379** | 1       | -,622** |
|                      | Sig. (2-tailed)     | ,000    | ,000    | ,000    |
|                      | N                   | 4421    | 4421    | 4421    |
| area of body chest   | Pearson Correlation | -,453** | -,622** | 1       |
|                      | Sig. (2-tailed)     | ,000    | ,000    | ,000    |
|                      | N                   | 4421    | 4421    | 4421    |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

### ***Correlations and differences between gender and areas of body***

We analyzed gender differences with point-biserial correlation. Items head, chest, abdomen showed some differences between males and females. Correlations between area of body-head, chest, abdomen and gender men, women were low significant ( $r < .100$ ). Next we analyzed the relationship between areas of body and gender. Statistically significant differences were found for the area of chest, where women respondents scored higher than men, and we found significant differences for the area of abdomen, where men respondents scored higher than women.

## **6 Conclusions**

Finally, we can conclude that presented outcomes confirmed our expectations, individual age groups are selected body parts in accordance with the published theories in developmental psychology. Individuals in the category up to 15 years preferred orientation of the abdomen and their self-concept is actually structured in through concrete experience, where the primary needs and food play a dominant role. Group working people in age from 16 to 40 years confirmed the distribution and their self-concept is primarily structured in the fulfillment of social needs. In the last group with the longest life experiences, people in age from 41 to 60 years has seen a shift away from a transcendent values rather specific to the mental. Customer behavior is determined by our self-image, the individual who created it. Consciously and unconsciously self-image controls the behavior of the customer. According to our findings, children will be influenced in the choice of primary needs. Children simply prefer a good meal before the book. Adult customers according to our results, prefer mental balance. Women and men reach for a book, cognition and well-being. The oldest customers prefer peace and quiet before the new knowledge, more women than men. Since at this age are more women, marketing strategies should focus on these values.

## **References**

- BENJAFIELD, J. G. 1997. *Cognition*. New Jersey: Prentice-Hall,
- BLATNÝ, M. 2003a: *Moderní teorie temperamentu*. In: Blatný, M., Plháková, A.: *Temperament, inteligence, sebepojetí*. Tišnov: Sdružení SCAN, s.11-46.
- BLATNÝ, M. 2003b.: *Sebepojetí z pohledu sociálně-kognitivní psychologie..* In: Blatný, M., Plháková, A.: *Temperament, inteligence, sebepojetí*. Tišnov: Sdružení SCAN, s.87-141.

CARR-GREGG, M. – SHALE, E. 2010. *Puberťáci a adolescenti*. Praha: Portál, 2010. ISBN 978-80-7367-662-9

HAMER, D.; COPELAND, P. 2003: *Gény a osobnosť*, Praha Portal, , str. 77-80, 82, 146-147, ISBN 80-7178-779-5

HAMAROVÁ, J. – HOLKOVIČ, L. 1986. *Výchova v rodine*. Bratislava: Smena SÚV SZM, 1986. ISBN 73-068-86

HAYESOVÁ, N. 2007. *Základy sociální psychologie*. Praha: Portál, 2007. ISBN 978-80-7367-283-6

HORT, VI. – HRDLIČKA, M. a kol. 2008. *Dětská a adolescentní psychiatrie*. Praha: Portál, 2008. ISBN 978-80-7367-404-5

HORÁKOVÁ, I. 1992: *Marketing v současné světové praxi*. Grada: Praha., ISBN 80-85424-83-5, s. 365.

JEDLIČKA M. 2006: *Marketingové strategie*. Univerzita sv. Cyrila a Metoda v Trnave: Trnava. ISBN 80-89034-71-3, 211 s.

KAČÁNI, V. – MIKOŠ, J. 1975. *Rodina, výchova, delikvencia*. Bratislava: Smena, 1975. ISBN 73-003-75

KON, I. 1979. *Utváranie ja*. Bratislava: Pravda, 1980. ISBN 75-025-80

KOUKOLÍK, F. 2002: *Lidský mozek*. Praha: Portál, ISBN 80-7178-632-2

KOTLER, P. 1998: *Marketing Management*, Grada: Praha. ISBN 80-7169-600-5, s. 719.

LEJTES, N. 1971. *Rozumové schopnosti a vek*. Bratislava: Slovenské pedagogické nakladatelstvo, 1971. ISBN 67-138-73

ROZVADSKÝ GUGOVÁ, G. 2012: *Komunikácia (nielen) pre manažérov*. Brno. Tribun EU, ISBN 978-80-263-0330-5

TOMEK, J a kol. 1992: *Marketingová stratégia podniku*, Mangement Press: Praha., ISBN 80-856-030-39

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# **Consumer Behaviour of Walter Sisulu University Students**

**Rulumeni-Ntlombeni<sup>1</sup>**

## **Abstract:**

The marketer has to understand how the stimuli are transformed into responses by consumers. The stimuli being product, price, place, and promotion in conjunction to these stimuli some other factors are intertwined in this web. Economic factor is the determining factor of what is affordable. Latest technology in goods also make consumers want to move with the times therefore changing to latest trend. Culture also has an impact on buying patterns of a consumer basic set of values perception and behaviours through a process of socialization influences buying guide of a consumer.

Consumer's purchases are strongly influenced also by psychological factors. Whereby a person buying choices will be done because the buyer is motivated by psychogenic need which is a need to be recognized, need for boosting ones esteem or belonging. A consumer will be tempted to buy a product because of the perception it has got about the product. Consumer is also driven beliefs and attitude.

Lifestyle also demand that consumers buy certain brands even if it does not appeal to individual but just to keep with trends of with certain group. Friends, family members, celebrities do also have influence on behavior patterns

Product branding always attract consumers. With various products placed on the shelves the one with attractive branding will receive attention from many consumers. Marketers like to change their branding after some time, this usually send different message to consumers they usually think that even the product that is inside is has improved or rather something new. The reaction is usually resistance towards the product. This might have a negative or positive affect to consumers which will be difficult to change.

## **Key words:**

Consumer, market, product, branding

## **Introduction**

Objective of the study was to determine what influences students on their buying patterns. Maslow's theory of need specify that once the needs at the bottom of the hierarchy which are physiological are satisfied first then the top needs in the hierarchy will become important. These basic needs are food, water, air, shelter, sex (Schiffman et al 1997).The marketers exert their influences on these issues by placing their respective advertisement of a lucrative burger or any delicious attractive meal on a strategic place that people will pass by on their way home. A hungry consumer is likely to be tempted by the meal and go to buy the advertised product.

The consumer has a psychological need to belong which is in the middle of hierarchy of need this influence the consumer to seek to identify himself with products and services that will make him feel accepted and feel loved. The consumer with this product that it has selected will also feel committed to it.

There are products that are appealing to consumer because they boost their ego, they make the consumer to have self acceptance. The brand the consumer uses, the car it drives, the area it resides at ,the shops he buys from, type of clothing he wears ,the furniture he

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buys even the grocery shop where the consumer buys from all these boost self esteem of the consumer. These are individual psychological requirement of acquiring impression about them; the consumer is trying to brand itself with the rest of prestigious consumers.

Consumers are surrounded by influencing variables. These are individual and environmental variable. When a consumer makes a decision it takes information from external environment or is influence by a stimulus then it is digested taking into cognisance of her or his needs, motives, perception, and attitudes.

## **Method**

Focus groups of unstructured interviews on influences of buying patterns were conducted on 50 university students doing from year level one to year level three. Ages were between 19 years and 25 years old.

## **Results**

First year students indicated that their spending pattern is being influenced by the senior students, and they start to buy their clothes from the same shop they are buying from so that they can be identify as their peers. On the contrary senior students indicated that their buying is influenced by reference groups which comprises of celebrities, lecturer, models, and any person with a prestigious name in the community. Though the shop displays is also lucrative in nature but they will hunt the product that will make them to feel they belong. All these groups were explicit on the feeling one gets when you are having a brand name on your wardrobe, especially when it comes to the sneakers and the jeans that have recognised brands..

When it comes to food buying they indicated that they collect lot of papers that advertise groceries from different shops and buy cheaper products. They indicated that they are aware of good brands but they will opt for the ones with special price. In this instance the consumer purchase decision is being rational, deliberate on economic calculation. They are taking into consideration personal taste and relative prices.

Some students indicated that they are opting of buying in town in restaurants that offer bottomless coffee, unlimited pizza, buy one get one free burger, endless ribs and chicken. They are aware of which days of the week these bonanzas are being offered and take advantage of these endless specials. This juggling of food eateries end up making them having eaten out the whole week but they have to hunt these specials and cannot take these items as to go food.

Décor on their rooms is also influence by the way the senior students are decorating their rooms who in contrary indicated that they are influenced by the way the market display its goods.

## **Discussion**

Students are having social influence which comes from peers and celebrities. Cultural influence also plays part as they learn the university culture and deem fit to imitate life style of those who have been their predecessors, and the current ones. Students from rural areas are most likely to be social influenced as the placed they are coming from it's not having civilization that is comparable to the university. Marketers are interested in social class because people within a given social class tend to exhibit similar behaviour patterns including buying patterns.(Kotler 1986)

Students as consumers have got their share in the markets they might not be salary earners albeit they have an influence on what to buy they exert a great influence on others on what to buy. They know what to buy because they are brand conscious and are aware of the latest trends due to the influences they get from the television. Students who become

brand loyal in their young adult hood years there is empirical evidence that proved that they will remain brand loyal through adulthood.

The marketers take advantage of this segment market by going to high school and university and offer their products at that tender age knowing fully well that they are building their niche market at a tender age. It is when the students consult with their reference group or families, friends, neighbours or peers for best options. The banks are targeting these places to have account holders who are future customers. Some of the decision that will be taken into cognisance by students will be influence by the advertisement that this institution. The slogans attach to each branding does have an impact when it comes to decision making.

Refence group's influences consumers in their buying patterns, life style, and aspirations hence new students imitate old students in their buying patterns because they aspire to be like them. This group provides consumers with means of comparing and evaluating their own brand attitudes and purchasing behaviour (Assael 1995)

It is clear from the results above that marketers are able influence their consumers through sales promotions, the marketers are able to target consumers that are likely to grow. Spur will start offering little children free meal on their birthdays until they are 12. They are sure that as children develop to adults they will even reciprocate the action of their parents and bring along their children.

Senior students are influenced by celebrities that they are aspired to belong to, the market use these celebrities to catch such market. According to Assael 1992 the consumer might partially or perhaps cease to search for information concerning brand alternative or to evaluate alternative brands because of satisfaction with a particular brand which might led over time to repeat purchase.

Asseal 1995 in his findings he suggested that marketers should promote the use of analgesics and toilet soap as means of social approval, advertise colognes and aftershaves as means of social conquest. In one of few studies relying on social theories of personality to explain purchase behaviour Cohen develop a compliance- aggressiveness-detachment scale based on Horney's work it found out those highly compliant students' preffered brand name products such as Bayer aspirin and lux toilet soap. And highly detach students drank more tea and less beer.

At the top of hierarchy of needs of Maslow is self actualization that the marketers exploit in selling their products. Individuals realise their potential and start to elevate their standard of living, and start to look for the best recommended products and for best qualities. Student when they have their refunds from their fees start to have these expensive taste and go for best brands. They do not go for these products because they think they are good quality but they want to live up to the standard of those who are labelled as moneyed.

People who the consumers will look up to by imitating the buying behaviours and patterns are people who are having money and are recognized as such by these consumers. These are psychological requirement that individuals desires to realize their potential for achievement.

## **Conclusions:**

In all the purchasing that a consumer undertakes whether it was mislead by bling of billboards or by influence of reference groups, one must be aware that as a consumer one has a right to receive compensation for misrepresentation of shoddy goods or unsatisfactory service.

## **Literature:**

- Assael, H. (1995) Consumer Behaviour and Marketing Action.5th ed. Cincinnati: South Western College Publishing.
- Kotler , P. (1986) Principles of Markerting 3rd Ed. Englewood Cliffs, New Jersey. Prentice Hill International.

- Du Plessis, P.J. Rousseau G.G. (2003) Buyer Behaviour a multi cultural approach Cape Town Oxford University Press.
- Howard, J (1994) Buyer Behaviour in Marketing Strategy 2nd ed. Englewood Cliffs, New Jersey. Prentice Hill International: 337-363.
- Maslow, A.H. (1954). Motivation and Personality. New York: Harper
- Rousseau, G.G. Venter D.J.L. (1999). The influence of Nostalgia on Consumer Preference. Journal of Industrial Psychology, vol 25 no 2:36-42
- Schifman, L.G. Kanuk L.L. (1997) Consumer behaviour 6th ed. Englewood Cliffs, N.J.: Prentice Hall.

# Production Efficiency among Rice Farmers in North-Eastern Nigeria

Shehu, Jacob Fintan<sup>1</sup>

## Abstract:

This paper investigated production efficiency in rice production in North-Eastern Nigeria. Purposive and Multi-stage random sampling techniques were used to select 285 rice farmers from three of the six states of northeastern Nigeria in a ratio proportional to the size of the population of farmers who cultivate rice on sole basis. However, only 270 were used for analyses. The remaining 15 were rejected due to inconsistencies in the responses. Descriptive statistics, stochastic frontier production and cost functions and two-limit tobit regression were used as analytical tools. The results of the study revealed that the farmers obtained mean yield of 2633.5 kilogram per hectare, used a seed rate of 60 kilogram per hectare and realised an average net farmers' income which were ₦17, 025.61 per hectare. Furthermore, while the average numbers of years spent in school by the farmers were about 8 years, the average number of extension visits was approximately 8 during the production season. Stochastic frontier production and cost functions which were used measure the production efficiency of the sampled farmers. The results of the stochastic frontier production and cost functions indicated that technical efficiencies of the farmers ranged from 0.11 (11%) to 0.99 (99%) with the mean technical efficiency of 0.691. The allocative efficiencies of the farmers ranged from 0.084 (8.4%) to 0.899 (89.9%) with a mean value of 0.661 (66.1%). The mean economic efficiency was 0.376 (37.6%) suggesting substantial inefficiencies among the farmers. Two-limit tobit regression was used to identify the determinants of production efficiency. The two-limit tobit regression revealed that family size, education, extension contact, access to credit and system of land ownership were significant ( $P < 0.05$ ); hence they were determinants of production efficiency. The study concluded that there is substantial levels of production inefficiencies among the sampled rice farmers. This study concluded that there is substantial difference in the levels of production inefficiencies among the sampled rice farmers. Government support in terms of revitalization and priority funding of the extension delivery activities of the States' Agricultural Development (ADPs) programs is required. Cross sectional data was employed in this research. Future research should make use of panel data in order to explore the trend of efficiency levels. This is crucial for increased productivity in the rice production in particular and food security in general.

## Key words:

Efficiency, Small-scale rice farmers, Stochastic Frontier, Tobit regression

## Introduction

Agriculture has always played a pivotal role in the history of Nigerian economic development by providing food security, employment, foreign exchange and poverty reduction. It is one of the most important sectors of the Nigerian economy because it contributes more than 40% of the total annual Gross Domestic Product (GDP), employs over 70% of the labour force, and accounts for 70% of the non-oil sector (Adegboye, 2004; Central Bank of Nigeria, CBN, 2007). Despite the enormous contributions of agriculture to the Nigerian economy over the years, the sector has slipped into a systematic decline in recent years. For instance, the average contribution of the Nigeria's agricultural sector to the GDP of 56% between 1960 and 1964 declined to 47% between 1965 and 1969 and down to about 42% in 2006 (Amaza and Olayemi, 2002; Amaza and Maurice, 2005, CBN, 2007). This

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changing share of the agricultural sector is a clear reflection of decline in agricultural productivity.

In response to the dismal performance of the agricultural sector in the country, successive governments embarked on various programs and schemes aimed increasing production and productivity in the sector which will ultimately result in self-sufficiency in food and fibre. It is however important to state that most of these programs were terminated without achieving the set objectives. The Nigeria's food sub sector parades a range of crops, but of all these, rice gained preeminence (Akande, 2001). Nigeria plays a vital role in rice production in West African Sub-region with increasing production over the years. The production of rice in Nigeria rose from 2.5 million metric tons (mmt) in 1990 to about 4.0 mmt in 2006 representing about 57% rise in domestic production (Table 1). However, despite the rise in domestic production demand/consumption of rice far exceeded local production, precipitating an increase in the rice importation bill to as high a level as US\$ 659 million in 2006 (Africa Rice Centre, ARC, 2007). The limited capacity of the Nigeria's rice sector to meet the domestic demand could be attributed to low resource productivity, inefficiency in the use of productive resources by farmers and disincentives induced by macroeconomic environment.

**Table 1: Nigeria's domestic rice output, 1990-2009**

| Year | Average area cultivated<br>(hectare) | Average<br>output (kg) | Average yield<br>(kg/ha) |
|------|--------------------------------------|------------------------|--------------------------|
| 1990 | 1,208,000                            | 2,500,000              | 2,069.54                 |
| 1991 | 1,652,000                            | 3,226,000              | 1,952.79                 |
| 1992 | 1,664,000                            | 3,260,000              | 1,959.14                 |
| 1993 | 1,564,000                            | 3,065,000              | 1,959.72                 |
| 1994 | 1,714,000                            | 2,427,000              | 1,415.99                 |
| 1995 | 1,796,000                            | 2,920,000              | 1,625.84                 |
| 1996 | 1,784,200                            | 3,122,000              | 1,749.80                 |
| 1997 | 2,048,000                            | 3,268,000              | 1,595.70                 |
| 1998 | 2,044,000                            | 3,275,000              | 1,602.25                 |
| 1999 | 2,191,000                            | 3,277,000              | 1,495.66                 |
| 2000 | 2,199,000                            | 3,298,000              | 1499.77                  |
| 2001 | 2,117,000                            | 2,752,000              | 1299.95                  |
| 2002 | 2,185,000                            | 2,928,000              | 1340.05                  |
| 2003 | 2,210,000                            | 3,116,000              | 1409.96                  |
| 2004 | 2,348,000                            | 3,334,000              | 1419.93                  |
| 2005 | 2,494,000                            | 3,567,000              | 1430.23                  |
| 2006 | 2,725,000                            | 3,924,000              | 1483.30                  |
| 2007 | 3,186,000                            | 2,451,000              | 1299.90                  |
| 2008 | 4,179,000                            | 2,382,000              | 1754.40                  |
| 2009 | 3,402,590                            | 1,788,200              | 1902.80                  |

Source: FAOSTAT (2011)

In a bid to address the countries rice demand-supply gap, the government has interfered in the rice sector over the past few decades. However, public policy in this respect has neither been consistent nor appropriate. It has included oscillating import tariffs and import restrictions. For instance, from 1986 to mid-1990s imports were illegal. In 1995, imports were allowed at 100% tariff. In 1996, the tariff was reduced to 50% but later increased to 85% in

2001 (Akande, 2001). Notwithstanding, the various policy measures, domestic rice production has not increased sufficiently to meet the increased demand. Even during the rice import ban period, Nigeria was still importing several hundred thousand tonnes of rice annually through illegal trade.

While there are a considerable number of studies dealing with efficiency of farmers in Nigeria (e.g., Ogar *et al.*, 2002; Ohajianya and Onyeawwu, 2003, Okoruwa *et al.*, 2006; Moses and Adebayo, 2007; Shehu and Mshelia, 2007), most of these studies has been concerned exclusively with the measurement of technical efficiency. This study, therefore, was designed to measure the level of technical, allocative and economic efficiencies of rice farmers from Northeastern Nigeria as well as identify the factors that influence efficiency of the farmers.

An investigation of farm level productive inefficiencies and the underlying causes associated with the use of improved agricultural technologies would greatly help policy makers to take the necessary corrective measures for enhancing agricultural production through better and efficient use of these technologies alongside the limited farm resources. Knowledge about the extent of production inefficiencies and the associated responsible factors will enormously help policy makers to explore untapped potentials of new technology and increase food production with existing resources by addressing the identified constraints. It will also enable the identification of those farmers who need the most support from the government and hence help for better targeting and priority setting.

## Literature Review

### Theoretical framework

The measurement of efficiency begins with Farrell (1957) who drew upon the work of Debreu (1951) and Koopmans (1951) to define a simple measure of firm efficiency which could account for multiple inputs. He proposed that the efficiency of a firm consists of two components: technical efficiency, which reflects the ability of a firm to obtain maximal output from a given set of inputs, and allocative efficiency, which reflects the ability of a firm to use the inputs in optimal proportions, given their respective price. These two measures are then combined to provide a measure of total economic efficiency.

### Analytical framework

The measurement of technical, allocative and economic efficiency can only be handled in a stochastic frontier framework, through the efficiency decomposition technique. The stochastic efficiency decomposition methodology was proposed by Bravo-Ureta and Rieger (1991), which was an extension of the model introduced by Kopp and Diewart (1982) to decompose cost efficiency into technical and allocative efficiency measures. Stochastic efficiency decomposition is generally based on the duality between production and cost functions.

Bravo-Ureta and Rieger (1991) utilize the level of output of each firm adjusted for statistical noise, observed input ratios, and the parameters of the stochastic frontier production function (SFPF) to decompose overall efficiency into technical and allocative efficiency. The parameters of the SFPF are actually used to derive the parameters of the dual cost function.

We begin by assuming that the farm frontier production function can be written as:

$$Y = f(X_a; \beta) \quad (1)$$

Where  $Y$  is the quantity of output,  $X_a$  is a vector of input quantities, and  $\beta$  is a vector of parameters. The technically efficient input vector  $X_t$ , for a given level of production  $Y^*$ , is

derived by solving simultaneously equation (1) and the input ratios  $X_1/X_i = k_i$  ( $i > 1$ ), where  $k_i$  is the ratio of observed inputs  $X_1$  and  $X_i$  at output  $Y^*$ .

If the functional form of the production frontier is self-dual, for example Cobb-Douglas, then the corresponding cost frontier can be derived analytically and written in general form as:

$$C = h(P, Y^*; \gamma) \quad (2)$$

Where  $C$  is the minimum cost associated with the production of  $Y^*$ ,  $P$  is a vector of input prices, and  $\gamma$  is a vector of parameters. By using Shephard's Lemma, we obtain:

$$\frac{\partial C}{\partial P_i} = X_i(P, Y^*; \Phi) \quad (3)$$

Which is a system of minimum cost input demand equations; where  $\Phi$  in the equation is a vector of parameters,  $i = 1, 2, \dots, n$  inputs. Substituting a firm's input prices and output quantity into the demand system equation (3) yields the economically efficient input vector  $X'_e$ . Given a farm's observed level of output, the corresponding technically and economically efficient costs of production are equal to  $X_t \times P$  and  $X'_e \times P$ , respectively, while the cost of the farm's actual operating input combination is  $X'_a \times P$ . These three cost measures are the basis for computing the following technical (TE) and economical (EE) efficiency indexes:

$$TE = (X_t \times P) / (X'_a \times P) \quad (4)$$

and

$$EE = (X'_e \times P) / (X'_a \times P) \quad (5)$$

Following Farrell (1957), equations (4) and (5) can be combined to obtain the allocative efficiency (AE) index:

$$AE = (EE) / (TE) = (X'_e \times P) / (X_t \times P) \quad (6)$$

### **Empirical Application of Production Frontiers in Efficiency Studies**

The stochastic efficiency decomposition technique has also been applied by a couple of authors to estimate the technical, allocative and economic efficiency of farmers. For example, Xu and Jeffrey (1998) obtained significantly lower technical, allocative, and economic efficiency indices for hybrid rice production in China as compared with conventional rice production across all the three regions studied. Singh *et al.* (2000) obtained lower technical, allocative and economic efficiency for newly established Indian dairy processing plants after liberalization of the dairy industry compared to the old plants as they needed time to reach full operation, the right choice of products and other managerial skills for higher performance.

Ali and Chaudhry (1990) estimated the mean technical, allocative and economic efficiency measures for crop production in Pakistan at 84, 61 and 51 percent, respectively, while the corresponding measures for dairy farms in the USA were 83, 85 and 70 percent (Bravo-Ureta and Rieger, 1991). Also, it was reported that the technical, allocative and economic efficiency measures for crop-livestock farmers in Brazil were 17, 74 and 13 percent, respectively (Taylor *et al.*, 1986), while the corresponding estimates for swine producers in Hawaii were 75.9, 80.3 and 60.3 percent, respectively (Sharma *et al.*, 1999). Bravo-Ureta and Evenson (1994) obtained the three measures for cotton and cassava production. The average technical, allocative and economic efficiency measures for cotton production were 58, 70 and 40 percent, respectively, while the corresponding figures for cassava were 59, 88 and 52 percent respectively. In their study in the Dominican Republic, Bravo-Ureta and Pinheiro (1997) reported average levels of technical, allocative and

technical efficiency equal to 70%, 44% and 31% respectively. These results according to them suggest that substantial gains in output and/or decrease in cost can be attained given existing technology. Singh *et al.* (2000) also obtained average technical, allocative and economic efficiency measures, respectively, of 86.7, 84.4 and 72 percent for Indian private dairy processing plants while the corresponding figures for the cooperative dairy processing plants were 87.4, 90.4 and 78.8 percent, showing that the new private dairy processing plants were less efficient than the old cooperative plants. All these studies indicated the existence of considerable potential within the farms to increase production through improved technical, allocative and economic efficiency. In a more recent study, Ogundari and Ojo (2006) obtained a mean TE, EE and AE of 0.90, 0.89 and 0.81 respectively among smallholder cassava farmers in Osun State of Nigeria.

## **Methodology**

The study area is North-Eastern Nigeria. It comprised of six (6) States namely: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe. Purposive and Multi-stage random sampling techniques were used to select 285 rice farmers from 3 states (Adamawa, Gombe and Taraba) in a ratio proportional to the size of the population of farmers who cultivate rice on sole basis. However, only 270 were used for analyses. The remaining 15 were rejected due to inconsistencies in the responses. Information on the population of the rice farmers was obtained from the various States' Agricultural Development Programs through agricultural extension agents working in the selected villages.

Primary data was collected from the selected paddy rice farmers on their household production activities during the 2010/2011 cropping season. The data was collected with the use of interview schedules. The interview schedule was designed to collect information on output of paddy rice and production inputs including their respective prices as well as socio-economic attributes of the sampled farmers. Data on inputs was collected on a fortnightly basis by asking farmers to recall their activities during the past two weeks. To facilitate the collection of the data, the services of the agricultural extension agents in the selected areas were engaged.

## **Empirical Stochastic Frontier Model**

The choice of functional form in an empirical study is of prime importance, since the functional form can significantly affect the results. A flexible functional form is generally preferred, since it does not impose general restrictions on the parameters nor on the technical relationships among inputs. In this study therefore, the production technology was assumed to be characterized by a Cobb-Douglas production function. The specification is admittedly restrictive in terms of the maintained properties of the underlying production technology. However, as interest rests on efficiency measurement and not on the analysis of the general structure of the production technology, the Cobb-Douglas production function is assumed to provide an adequate representation of the production technology. Further, self-dual nature of the Cobb-Douglas production function and its cost function provide a computational advantage in observing estimates of technical and allocative efficiency.

For the investigation of technical, allocative and economic efficiency, a stochastic frontier production function of the following form was estimated.

$$\ln Y_i = \beta_0 + \sum \beta_j \ln X_{ij} + \varepsilon_i \quad (7)$$

Where  $Y_i$ =paddy output in kilogram of the  $i$ th farmer,  $X_{ij}$  is the inputs used (land (ha), seed (kg), family labour (mandays), hired labour (mandays), fertilizer (kg) and herbicide (litres))  $\ln$ =natural logarithm,  $\varepsilon_i$  = error term,  $\beta_i$ = parameters to be estimated,  $\beta_0$ = constant. The error term  $\varepsilon_i$  is defined as:

$$\varepsilon_i = v_i + u_i \quad (8)$$

Where,  $v_i$  is the two-sided ‘noise’ component, and  $u_i$  is the non-negative technical inefficiency component of the error term. The noise component  $v_i$  is assumed to be independently and identically distributed (*iid*) as a normal random variable with mean zero and variance  $\sigma^2_{v_i}$ , [i.e.,  $v_i \sim N(0, \sigma^2_{v_i})$ ], and distributed independently of  $u_i$ ’s which is assumed to be non-negative truncations of the normal distribution with mean,  $\mu$ , and variance  $\sigma^2_{u_i}$ , [i.e.,  $u_i \sim N(0, \sigma^2_{u_i})$ ]. Now, let  $\sigma^2_u$  and  $\sigma^2_v$  be the variances of the parameters one sided ( $u_i$ ) and systematic ( $v_i$ ). Therefore,

$$\sigma^2 = \sigma^2_u + \sigma^2_v \quad (9)$$

and the ratio of the two standard errors as used by Jondrow *et al.* (1982),

$$\lambda = \sigma_u / \sigma_v \quad (10)$$

Or

$$\gamma = \sigma^2_u / \sigma^2 \quad (11)$$

is defined as the total variation of output from frontier which can be attributed to technical efficiency (Battese and Corra, 1977.). Furthermore, given a multiplicative production frontier for which Cobb-Douglas function equation (7) was specified, the farm-specific technical efficiency ( $TE_i$ ) of the  $i^{\text{th}}$  farmer was estimated by using the expectation of  $u_i$  conditional on the random variable  $\varepsilon_i$  as shown by Battese and Coelli (1988). That is,

$$TE_i = \exp(-u_i) \quad (12)$$

so that,  $0 \leq TE_i \leq 1$ .

Given functional and distributional assumptions, maximum-likelihood estimates (MLE) for all parameters of the stochastic frontier production defined by equations (7), the variance parameters defined by equations (9) and (10), and the technical efficiency defined by equation (12) were simultaneously estimated using the program, FRONTIER 4.1 (Coelli, 1996).

The dual cost frontier which was derived analytically from the stochastic production frontier is specified as follows:

$$\ln C_i = \beta_0 + \beta_R \ln L_R + \beta_S \ln P_S + \beta_{FL} \ln W_{FL} + \beta_{HL} \ln W_{HL} + \beta_F \ln P_F + \beta_H \ln P_H + \beta_Y \ln Y_k \quad (13)$$

where,  $C_i$  per farm cost of producing rice,  $L_R$  is the seasonal rent on land,  $P_S$  price of seed,  $W_{FL}$  is the wage rate of family labour used,  $W_{HL}$  is expenses on hired labour used,  $P_F$  is total amount of money spent on the purchase of fertilizer,  $P_H$  is total amount of money spent on the purchase of herbicide, and  $Y_k$  is total rice output in kilogram of the  $k^{\text{th}}$  farm.

However, it should be noted that the FRONTIER computer programme estimates the cost efficiencies (CE), which is computed originally as the inverse of equation (5). Hence, farm-level economic efficiency (EE) was obtained using the relationship

$$EE = 1 / \text{Cost efficiency (CE)} \quad (14)$$

i.e EE is the inverse of CE (Coelli *et al.*, 1998)

Following the estimation of technical, allocative and economic efficiency measures, a second stage analysis involved a regression of these measures on several hypothesized socio-economic and institutional factors affecting efficiency of farmers. It has become a standard practice in efficiency analysis to include only the conventional inputs (i.e. land, labour, seed, fertilizer and other variable inputs) in the frontier production function. It is argued that the non-conventional inputs such as education, credit, experience, etc., influence output indirectly by raising efficiency with which the conventional inputs especially land and

labour are used (Alene, 2003). Therefore, the non-conventional inputs were used in the second stage analysis of factors influencing production efficiency.

For policy purposes, the identification of factors influencing efficiency has also been an important exercise but the debate as to whether a single or two-stage method is appropriate is not yet settled. Although few authors (e.g. Kumbhakar, 1994; Battese and Coelli, 1995) challenge the approach by arguing that the farm-specific factors should instead be incorporated directly in the first stage estimation of the stochastic frontier, many justify the two-stage method in that the variables can only have a roundabout effect on efficiency (Bravo-Ureta and Rieger, 1991; Bravo-Ureta and Evenson, 1994; Sharma *et al.*, 1999; Alene, 2003).

To delve deeper into this matter, and based on the literature, the following models of investigating the relationship between farm/farmer characteristics and the predicted technical, allocative and economic efficiency indices were estimated.

$$Effic = f(AGE, PEO, EDU, EXT, ASSO, CREDIT, TEN) \quad (15)$$

where, *Effic* is alternatively, the farm-level of efficiency (technical, allocative and economic). The explanatory variables in equation (15) as explained in Table 2 were used as determinants of production efficiency of the farmers. The natural logarithms of the variables were used. These variables and many others were often hypothesized to influence efficiency in Nigerian context (Ajibefun and Aderinola, 2003; Shehu *et al.*, 2007).

The models for efficiency in equation (15) are estimated separately using the two-limit Tobit model procedure, given that the efficiency indices are bounded between 0 and 1(Binam *et al.*, 2005).

### The empirical Tobit model

The two-limit Tobit is written as follows:

$$Effic_i^* = \beta'X_i + u_i \quad (16)$$

Where  $Effic_i^*$  is the latent value of efficiency scores. If the observed value of efficiency score is denoted by *Effic*, then

$$\begin{aligned} Effic_i &= L_{1i}, \text{ if } Effic_i^* \leq L_{1i} \\ &= Effic_i^*, \text{ if } L_{1i} < Effic_i^* \leq L_{2i} \\ &= L_{2i}, \text{ if } Effic_i^* > L_{2i} \end{aligned} \quad (17)$$

Where  $L_{1i}$  and  $L_{2i}$  are, respectively, the lower and upper limits: that means 0 and 1. The  $X_i^s$  are the determinants of efficiency defined in equation (15), while  $u_i$  are identically and independently distributed random error  $N(0, \sigma^2)$ .

**Table 2: Determinants of production efficiency of farmers.**

| Variable                          | Variable code    | Description and unit  | a priori expectation |
|-----------------------------------|------------------|---|----------------------|
| Age of farmers                    | AGE ( $X_1$ )    | Age of household's decision maker (years)                           | +/-                  |
| Household size                    | PEO ( $X_2$ )    | Number of persons in the family (number)                            | +/-                  |
| Education                         | EDU ( $X_3$ )    | Level of formal education of household's decision maker (years)     | +                    |
| Extension contact                 | EXT ( $X_4$ )    | Visit by extension agent (number of visit)                          | +                    |
| Membership of cooperative society | ASSO( $X_5$ )    | Registered member of a co-operative society; (dummy, yes, 1, No, 0) | +                    |
| Access to credit                  | CREDIT ( $X_6$ ) | Obtained loan to finance rice farming (Yes, 1; No, 0)               | +/-                  |
| Land Tenureship                   | TEN ( $X_7$ )    | System of land ownership (dummy, owned = 1, 0 otherwise)            | +                    |

#### **A priori expectations of the factors that affects production efficiency**

The contribution of age in enhancing efficiency is somewhat controversial. The sign on the coefficient of age could be negative or positive. If older farmers were not willing to adopt better practices whereas younger farmers are motivated to embrace better agricultural production practices that reduce technical inefficiency effects, then the coefficient would be positive (greater technical efficiency). However, if older farmers have more experience and knowledge of the production activities and are more reliable in performing production tasks, then the coefficient would be negative.

The coefficient of household size could be negative and positive. The coefficient associated household size is expected to be positive if the ratio of adult members of a household is high. More adult members in a household mean more quality labour is available for carrying out farming activities in a timely fashion, therefore making the production process more efficient. However, if adults constitute low proportion in a household then the coefficient will be negative.

The coefficient of education is expected to have a positive sign because a higher level of educational attainment would result in lower inefficiency. The educational attainment of the farm manager is a proxy for human capital.

Extension contact is expected to have a positive coefficient. Access to extension service afford farmers the opportunity to have access to better production methods as well as receive training on how best to combine resources higher productivity and efficiency. Therefore, the more the contact times the better the tendency of increased efficiency.

Membership of association is expected to assist farmers to get easy access to credit facilities and other production inputs. It can also enhance access to technological information which invariably helps farmers improve their efficiency in production. The sign of the parameter of this variable is hypothesized to be positive.

Access to credit is expected to assist farmers purchase necessary inputs for crop production. Also, it gives farmers additional resources of investment in new ideas. However, credit could be accessed but not utilized judiciously. This could impact negatively on efficiency. Therefore, the sign could be positive or negative.

The coefficient of system of land ownership is expected to be positive or negative. If farmers own land which is sizeable enough they are likely to use part of it to try improved production techniques transferred to them. By so doing they become conversant with the new technologies which will in turn leads to specialization and thus increased inefficiency; otherwise the coefficient could be negative.

Before using the tobit model, multicollinearity was checked to exclude any highly correlated explanatory variables. With this particular study, there is no serious multicollinearity problem. There are various indicators of multicollinearity and no single diagnostic will completely capture collinearity problem. Accordingly, Variance Inflation Factor (VIF) and condition index were used for continuous variables. If there is larger value of VIF<sub>i</sub>, then, multicollinearity is more troublesome. As a rule of thumb, if the VIF of a variable exceeds 10 (this will happen if R<sup>2</sup><sub>i</sub> exceeds 0.90), that variable is said to be highly collinear (Gujarati and Porter, 2009). Following Gujarati and Porter (2009), the VIF<sub>j</sub> is given as:

$$VIF(X_j) = 1/(1 - R_j) \quad (18)$$

Where, R<sup>2</sup><sub>j</sub> is the coefficient of determination when the variable X<sub>j</sub> is regressed on the other explanatory variables. There may also be interaction between categorical (dummy) variables, which can lead to the problem of multicollinearity. To detect this problem, Phi ( $\phi$ ) coefficients were computed. The Phi ( $\phi$ ) coefficient was compounded as follows:

$$\phi = \sqrt{\chi^2 / n} \quad (19)$$

Where,  $\phi$  is Phi ( $\phi$ ) coefficient

$\chi^2$  is chi-square test and

n = total sample size.

If the value of the Phi coefficient is greater than 0.5, the variable is said to be collinear (Gravetter and Wallnau, 2008).

## Results and Discussion

### Descriptive statistics of the socioeconomic and production factors

The summary statistics of the variables of the production frontier estimation is presented in Table 3. The mean output was 2633.5 kg/ha which is low compared to what is obtainable in other countries in the sub region. The average seed rate was 59.55 kg which is far below the recommended seed rate of 80 kg/ha recommended by the Africa Rice Centre (ARC/FAO/SAA, 2008). The average number of years spent in school was 7.5 which was very low for a farmer to effectively comprehend any production recommendation. The number of visits by extension was about 8 times in a cropping season suggesting poor farmer-extension agent contact.

**Table 3: Summary Statistics of the output, inputs and socio-economic characteristics of the sampled rice farmers in northeastern Nigeria**

|                               | Mean     | Standard deviation |
|-------------------------------|----------|--------------------|
| Paddy output (kg)             | 2633.50  | 1537.22            |
| Farm size(Ha)                 | 1.18     | 0.58               |
| Seed (kg)                     | 59.55    | 35.62              |
| Family labour used (man-days) | 46.04    | 63.50              |
| Hired labour used (man-days)  | 56.96    | 64.69              |
| Fertilizer used (kg)          | 149.35   | 96.73              |
| Herbicide used (litres)       | 2.98     | 1.73               |
| Income (₦)                    | 17025.61 | 10451.61           |
| Age (years)                   | 34.62    | 6.62               |
| Household size (number)       | 7.65     | 6.17               |
| Education (years)             | 7.50     | 5.59               |
| Extension contact (number)    | 7.61     | 2.51               |
| Farming experience (years)    | 12.6     | 6.31               |
| Total number of observation   | 270      |                    |

Source: Field survey, 2011

### Maximum Likelihood Estimates, Elasticities and Return to Scale

The maximum likelihood estimates (MLE) of the Cobb-Douglas model of equation 7 is presented in Table 4. The MLE of the parameters of the stochastic frontier model were obtained using the program FRONTIER 4.1 which also estimates the variance parameters in terms of  $\sigma^2$  and  $\gamma$  (Coelli, 1996). The variance ratio ( $\gamma$ ), defined by equation 11, which was associated with the variance of technical inefficiency effects in the stochastic frontier was about 0.63, suggesting that 63 percent of the total variability of rice output for the farmers was due to differences in technical efficiency. In other words inefficiency effects as opposed to the random factors are significant in determining the level and variability of rice farmers' output in the study area. Furthermore, it can be said that variation in rice output level across farmers was mainly due to factors within their control and not due to random factors beyond their control like weather and diseases.

The coefficients of the Cobb-Douglas model are important in discussing the results. The land variable (Table 4) was positive and significant ( $P < 0.05$ ). The positive sign suggests that a unit increase in the variable, when other variables are held fixed would result in increased output of rice. The seed variable was positive and significant ( $P < 0.05$ ). The positive sign suggests that other things being equal, the higher the seed rate used the higher the crop population and subsequently high yield except where there is overcrowding leading to competition for available nutrients which will consequently lead to low yield. The variable fertilizer was positive, conform to *a priori* expectation and significant ( $P < 0.05$ ). The significance of the variable derives from the fact that fertilizer is a major land augmenting input in the sense that it improves the productivity of land thus increasing rice yield.

The coefficients of the variables of the Cobb-Douglas function represent direct elasticities of response to output for increase in the variables in the model. All the estimated coefficients had elasticities of less than unity implying that one percent increase in any of the variables holding others fixed will lead to less than one percent increase in output of rice. The return to scale (RTS) of production obtained as sum of the elasticities of production was 0.95 suggesting decreasing returns to scale. The RTS values indicate that rice farmers were operating in stages II of the production surfaces.

**Table 4: Maximum likelihood estimates of parameters of the Cobb-Douglas Stochastic Production Frontier of Rice Production in Northeastern Nigeria**

| <b>Production Factors</b>    | Para-meter | Coeffi-cient | <b>t-ratio</b> |
|------------------------------|------------|--------------|----------------|
| Constant                     | $\beta_0$  | 2.249        | 6.453*         |
| Farm size                    | $\beta_1$  | 0.101        | 2.999*         |
| Seed                         | $\beta_2$  | 0.474        | 2.973*         |
| Family Labour                | $\beta_3$  | 0.022        | 1.111          |
| Hired Labour                 | $\beta_4$  | 0.013        | 1.154          |
| Fertilizer                   | $\beta_5$  | 0.117        | 2.018*         |
| Herbicide                    | $\beta_6$  | 0.222        | 2.270*         |
| <b>Variance parameter</b>    |            |              |                |
| Sigma squared                | $\sigma^2$ | 0.826        | 3.406*         |
| Gamma                        | $\gamma$   | 0.625        | 2.855*         |
| Log likelihood function      |            | 87.316       |                |
| Generalized likelihood ratio |            | 16.621       |                |

\* Significant at 5%

Source: Field survey 2011

The maximum likelihood estimates of the parameters of stochastic cost frontier model are presented in Table 5. All parameters estimates except the rent on land were significant ( $P<0.05$ ) meaning that these factors were significantly different from zero and thus important in rice production. The scale effects among the rice farms in the study area was computed as the inverse coefficient of cost elasticities with respect to the rice output as the only output in the analysis that shows that scale effects among the sampled farmers. This is affirmed by the value of scale effects (SE) was 3.93 (i.e., 1/0.254). The computed value of the SE is greater than one, meaning that 1% increase in the total production costs increased the rice production by 3.9%. The result obtained is an indication that there are positive economies of scale which suggests that an average rice farmer in the sampled area experiences a decrease in total production cost in the course.

**Table 5: Maximum likelihood estimates of parameters of the Cobb-Douglas Stochastic Cost Frontier of Rice Production in Northeastern Nigeria**

| <b>cost factors</b>          | <b>Parameter</b> | <b>Coefficient</b> | <b>t-ratio</b> |
|------------------------------|------------------|--------------------|----------------|
| Constant                     | $\beta_0$        | 2.065              | 9.305*         |
| Rent on land                 | $\beta_1$        | 0.059              | 1.421          |
| Cost of seed                 | $\beta_2$        | 0.302              | 5.998*         |
| cost of family labour        | $\beta_3$        | 0.029              | 6.657*         |
| cost of hired labour         | $\beta_4$        | 0.022              | 5.039*         |
| cost of fertilizer           | $\beta_5$        | 0.298              | 6.213*         |
| cost of herbicide            | $\beta_6$        | 0.041              | 7.032*         |
| Paddy output                 | $\beta_7$        | 0.254              | 5.679*         |
| <b>Variance parameter</b>    |                  |                    |                |
| Sigma squared                | $\sigma^2$       | 0.441              | 5.081*         |
| Gamma                        | $\gamma$         | 0.889              | 15.466*        |
| Log likelihood function      |                  | 60.527             |                |
| Generalized likelihood ratio |                  | 34.364             |                |
| Number of observations       |                  | 270                |                |

\* Significant at 5%

Source: Field survey 2011

### Analysis of production efficiency

The predicted technical efficiencies (TE) of the farmers ranged from 11% to 99% while the mean TE was 69.1 (Table 6). This indicates that the average farmer produced about 69.1% of maximum attainable output for given input levels. Although the farmers were relatively efficient, there is still room to increase the efficiency in their rice farming activities. This means that if the average farmer was to achieve the TE level of his or her most efficient counterpart in northeastern Nigeria, he or she would realize 30.2% [i.e.  $(1 - 69.1/99) \times 100$ ] more productivity. In terms of the distribution of TEs, there appear to be a clustering of the TE levels above 50%, representing 84.4% of the respondents (Table 6). The predicted allocative efficiencies ranged from 8.4% and 89.9%, while the mean AE was 66.1%. This implies that if the average farmers in the sample were to achieve the AE levels of their most efficient counterparts, then the average farmers could realize cost savings of 26.6% [i.e.  $(1 - 66.1/89.9)$ ]. In terms of the distribution of AE level, only 21.1% of the respondents attained more than 70% AE. The predicted economic efficiencies (EE) estimated as the inverse of cost efficiencies differ substantially among the sampled farmers. The mean EE was 37.6%. The minimum and maximum values of EE were 4.8% and 84.2%.

From the foregoing, production efficiency could be improved substantially. The low production efficiency was as a result of low allocative efficiency. The implication of this is that technical efficiency appears to be more significant than allocative efficiency as a source of gain in production efficiency.

**Table 6: Decile range of Technical, Allocative and Economic efficiency levels for the sampled rice farmers in Northeastern Nigeria**

| Efficiency Level | Technical Efficiency |      | Allocative efficiency |      | Economic efficiency |      |
|------------------|----------------------|------|-----------------------|------|---------------------|------|
|                  | Freq.                | %    | Freq.                 | %    | Freq.               | %    |
| ≤ 10             | -                    | -    | 7                     | 2.6  | 31                  | 11.5 |
| 11 – 20          | 4                    | 1.5  | 23                    | 12.2 | 70                  | 25.9 |
| 21 – 30          | 5                    | 1.9  | 48                    | 17.8 | 64                  | 23.7 |
| 31 – 40          | 11                   | 4.1  | 66                    | 24.4 | 30                  | 11.1 |
| 41 – 50          | 22                   | 8.1  | 25                    | 9.3  | 30                  | 11.1 |
| 51 – 60          | 41                   | 15.2 | 14                    | 5.2  | 24                  | 8.9  |
| 61 – 70          | 56                   | 20.7 | 20                    | 7.4  | 15                  | 5.6  |
| 71 – 80          | 58                   | 21.5 | 29                    | 10.7 | 4                   | 1.5  |
| 81 – 90          | 36                   | 13.3 | 28                    | 10.4 | 2                   | 0.7  |
| ≥ 91             | 37                   | 13.7 | -                     | -    | -                   | -    |
| TOTAL            | 270                  | 100  | 270                   | 100  | 270                 | 100  |
| Minimum          | 11.0                 |      | 8.4                   |      | 4.8                 |      |
| Maximum          | 99.0                 |      | 89.9                  |      | 84.2                |      |
| Mean             | 69.1                 |      | 66.1                  |      | 37.6                |      |

Source: Field survey 2011

### Determinants of Production Efficiency

The parameters of the two-limit tobit model are presented in Table 7. A total of seven (7) variables were included in the model. Out of these, all except age and membership of association significantly affect production efficiency.

The variable, family size, defined by number of persons in a household was found to have a negative but significant relationship with efficiency (Table 7). This is consistent with the findings of Mbanasor and Kalu (2008). The implication of this result is that a relatively large household size enhances availability of labour. The negative coefficient could be that the household comprises mostly of children of school age.

Extension contact had positive and significant correlations with production efficiency ( $P<0.05$ ). This result is partly consistent with findings of Bravo-Ureta and Pinheiro (1997) and Mbanasor and Kalu (2008).

Education is an important determinant of farm-level efficiency. Well educated farmers tend to exhibit higher levels of efficiency. The variable was found to be positively related to efficiency. The implication of this finding is that with increased level of educational attainment, farmers' skills of decision making in the use of inputs for increased efficiency and productivity could be enhanced. The non-significance of the variable could be as a result of low levels of educational attainment of the farmer.

Credit was specified as a binary variable. It had a negative sign and is statistically significant ( $P<0.05$ ). The result is contrary to findings of Bravo-Ureta and Evenson (1994) who reported positive and significant relationship between credit and efficiency among peasant farmers in eastern Paraguay. The significance of the variable suggests its importance for good performance by affording the farmers the purchasing power to procure inputs needed for rice production. The negative sign could be as a result of little access to the incentive orchestrated by the cumbersome nature of the loan processing procedure and/or high transactional cost of borrowing, most especially from the formal sources.

The coefficients of systems of land ownership was statistically significant ( $P<0.05$ ) but negatively related with production efficiency. The negative coefficient may not be unconnected with the fact that only a few of the farmers owned their farmlands as opposed to the majority who obtained their land through rent. Ownership through the latter has negative effects on specialization and consequently leads to decreased efficiency.

**Table 7: Two-limit equation of factors that influence technical (TE), allocative (AE) and economic efficiency (EE) efficiency for the sampled rice farmers**

| Variable                  | Para-meter | Technical           |                | Allocative          |                | Economic            |                |
|---------------------------|------------|---------------------|----------------|---------------------|----------------|---------------------|----------------|
| <b>Production Factors</b> |            | <b>Coeffi-cient</b> | <b>t-ratio</b> | <b>Coeffi-cient</b> | <b>t-ratio</b> | <b>Coeffi-cient</b> | <b>t-ratio</b> |
| Constant                  | $\omega_0$ | 0.6301              | 3.56*          | 0.7074              | 3.76*          | 0.4813              | 3.18*          |
| AGE                       | $\omega_1$ | 0.0316              | 0.28           | -0.858              | -0.70          | -0.0658             | -0.67          |
| PEO                       | $\omega_2$ | -0.0444             | -1.17          | -0.1554             | -3.85*         | -0.1099             | -3.39*         |
| EDU                       | $\omega_3$ | -0.0040             | -0.62          | 0.0135              | 1.96*          | 0.0069              | 1.25           |
| EXT                       | $\omega_4$ | -0.0088             | -1.16          | 0.0369              | 4.56*          | 0.0222              | 3.42*          |
| ASSO                      | $\omega_5$ | 0.0014              | 0.15           | -0.0014             | -0.13          | -0.0040             | -0.47          |
| CREDIT                    | $\omega_6$ | -0.0245             | -2.87*         | -0.0164             | -1.81          | -0.0194             | -2.67*         |
| TEN                       | $\omega_7$ | -0.0137             | -1.54          | -0.0184             | -1.95          | -0.0160             | -2.11*         |
| Log likelihood function   |            | 64.16               |                | 47.70               |                | 106.63              |                |
| Chi-square                |            | 12.43*              |                | 79.88*              |                | 59.98*              |                |

\* Significant at 5%

Source: Source: Field survey 2011

## Conclusion and Recommendations

This study concluded that there is substantial difference in the levels of production inefficiencies among the sampled rice farmers. Household size, extension contact, access to credit and system of land Tenureship were determinants of efficiency. Therefore, efforts geared towards ensuring that loans and other credit facilities are made available to the smallholder farmers at minimum interest rates. Government support in terms of revitalization and priority funding of the extension delivery activities of the states' agricultural development programs is required. This will help to mobilize the extension workers to reach the farmers with relevant information on improved farm management practices.

## Suggestion for further research

Cross sectional data was employed in this research. Future research should make use of panel data in order to explore the trend of efficiency levels. This is crucial for increased productivity in the rice production in particular and food security in general.

## References

- Adegboye, R. O. (2004). Land, Agriculture and Food Security in Nigeria, 3<sup>rd</sup> Faculty Lecture, Faculty of Agriculture, University of Ilorin, 25<sup>th</sup> February.
- Africa Rice Centre, ARC (2007). 2007 *Africa Rice Trends*, 5<sup>th</sup> Edition, WARDA, Cotonou, Benin.

- Ajibefun, I. A. and Aderinola, E. (2003). Determinants of Technical Efficiency and Policy Implications in Traditional Agricultural Production: Empirical Study of Nigerian Food Crop Farmers, Work-in-process Report Presented at the Biennial Research Workshop of AERC, Nairobi Kenya, May 24<sup>th</sup>-29<sup>th</sup>.
- Akande, T. (2001). An Overview of the Nigerian Rice Economy, A Project Report, The Nigeria Rice Economy in a Competitive World: Constraints, Opportunities and Strategic Choices, WARDA, 11p.
- Alene, A. D. (2003). Improved Production Technology and Efficiency of Smallholder Farmers in Ethiopia: Extended Parametric and Non-Parametric Approaches to Production Efficiency Analysis, Unpublished Ph.D Thesis submitted to the Department of Agricultural Economics, Extension and Rural Development, University of Pretoria, South Africa.
- Amaza, P. S. and Maurice, D. C. (2005). Identification of Factors that influence Technical Efficiency in Rice-Based Production Systems in Nigeria, Paper Presented at Workshop on Policies and Strategies for Promoting Rice Production and Food security in Sub-Saharan Africa, Cotonou, Benin Republic, November 7<sup>th</sup> – 9<sup>th</sup>.
- Amaza, P. S. and Olayemi, J. K. (2002). Analysis of Technical Inefficiency in Food Crop Production in Gombe State, Nigeria. *Empirical Economic Letters*, 9:51-54.
- ARC/FAO/SAA (2008). NERICA: the New Rice for Africa – A Compendium. E. A. Somado, R. G. Guei and S. O. Keya (eds.). Cotonou, Benin: Africa Rice Center (WARDA); Rome, Italy: FAO; Tokyo, Japan: Sasakawa Africa Association. 210 pp.
- Battese, G. E. and Corra, G. S. (1977). Estimation of a Production Frontier Model: With Application to the Pastoral Zone of Eastern Australia. *Australian Journal of Agricultural Economics*, 21: 167-179.
- Battese, G. E. and Coelli, T. J. (1988). Prediction of Farm-Level Technical Efficiencies with a Generalized Frontier Production Function and Panel Data. *Journal of Econometrics*, 38: 387-399.
- Battese, G. E. and Coelli, T. J. (1995). A Model for Technical Inefficiency Effects in a Stochastic Frontier Function for Panel Data. *Empirical Economics*, 20: 325-332.
- Binam, J. N., Tonye, J. and Wandji, N. (2005). Sources of Technical Efficiency among Smallholder Maize and Peanut Farmers in the Slash and Burn Agriculture Zone of Cameroon. *Journal of Economic Cooperation*, 26(1): 193-210.
- Bravo-Ureta B. E. and Pinheiro, A. E. (1997). Technical, Economic and Allocative Efficiency in Peasant Farming: Evidence from The Dominican Republic. *The Developing Economies*, XXXV-1: 48-67.
- Bravo-Ureta B. E. and Rieger, L. (1991). Dairy Farm Efficiency Measurement using Stochastic Frontiers and Neoclassical Duality. *American Journal of Agricultural Economics*, 73: 421-428.
- Bravo-Ureta, B. E. and Evenson, R. E. (1994). Efficiency in Agricultural Production: The Case of Peasant Farmers in Eastern Paraguay. *Agricultural Economics*, 10: 27-37.

Central Bank of Nigeria, CBN (2007). 2006 Annual Report and Statement of Accounts, Central Bank of Nigeria, Abuja.

Coelli, T. J. (1996). *A Guide to FRONTIER Version 4.1: A Computer Program for Stochastic Frontier Production and Cost Function Estimation*, CEPA Working Paper 96/07, Department of Econometrics, University of New England, Armidale, Australia.

Coelli, T. J., Prasada, R. D. S. and Battese, G. E. (1998). An Introduction to Efficiency and Productivity Analysis, Kluwer Academic Publications, Boston

Debreu, G. (1951). The Coefficient of Resource Utilization. *Econometrica*, 19: 273-292.

FAOSTAT (2011) Online Database, Retrieved 9<sup>th</sup> January, 2011, <http://faostat.fao.org/>, Food and Agriculture Organization of the United Nations, Rome..

Farrel, M. J. (1957). The Measurement of Production Efficiency. *Journal of Royal Statistical Society Series A*, 120: 253-281.

Gravetter, F. J. and Wallnau, L. B. (2008). *Essentials of Statistics for the Behavioral Sciences*, 6<sup>th</sup> Edition, Wadsworth Cengage Learning, pp 492-493

Gujarati, D. N. and Porter, D. C. (2009). *Basic Econometrics*, McGraw-Hill Book Company, p 340

Jondrow, J., Lovell, C. A. K., Materov, K. I. S. and Schmidt, P. (1982). On the Estimation of Technical Inefficiency in the Stochastic Frontier Production Function Model. *Journal of Econometrics* 19: 233-238.

Koopmans, T. C. (1951). An Analysis of Production as an Efficient Combination of Activities, In, T. C. Koopmans (ed), *Activity Analysis of Production and Allocation*, Cowles Commission for Research in Economics, Monograph No. 13, John Wiley and Sons Inc, New York.

Kopp, R. J. and Diewert, W. E. (1982). The Decomposition of Frontier Cost Function Deviations into Measures of Technical and Allocative Efficiency, *Journal of Econometric*, 19: 319-331.

Kumbhakar, S. C. (1994). Efficiency Estimation in a profit Maximizing Model using Flexible Production Function. *Agricultural Economics*, 10:143-152.

Mbanasor, J. A. and Kalu, K. C. (2008). Economic Efficiency of Commercial Vegetable Production System in Akwa Ibom State, Nigeria: A Translog Stochastic Frontier Cost Function Approach. *Tropical and Subtropical Agroecosystems*, 8(3): 313-318

Moses J. and Adebayo, E. F. (2007). Efficiency Factors Determining Rain-fed Rice Production in Ganye Local Government Area. Adamawa State, *Journal of Sustainable Development in Agriculture and Environment*, 3: 20-30.

- Ogar, C. U., Idiong, I. C., Udom, D. S. and Abang, S. O. (2002). Allocative Efficiency of Labour Resource in Swamp Rice Production in Obudu Local Government Area, Cross River State, Nigeria. *Global Journal of Agricultural Sciences* 1(2): 143-148.
- Ogundari, K. and Ojo, S. O. (2006). An Examination of Technical, Economic and Allocative Efficiency of Small Farm: The Case Study of Cassava Farmers in Osun State of Nigeria. *Journal of Central European Agriculture*, 7 (3): 423-432.
- Ohajianya, D. O. and Onyenwaku, C. E. (2003). Analysis of Costs and Returns in Rice Farming by Farm Size in Ebonyi State, Nigeria. *Journal of Agriculture and Social Research*, 3(1): 29-39.
- Okoruwa, V. O., Ogundele, O. O. and Oyewusi, B. O. (2006). Efficiency and Productivity of Farmers in Nigeria: A Study of Rice Farmers in North Central Nigeria, Poster Paper Prepared for Presentation at the International Association of Agricultural Economists Conference, Gold Coast, Australia, 12<sup>th</sup>-18<sup>th</sup> August.
- Sharma, K. R., Leung, P. and Zalleski, H. M. (1999). Technical, Allocative and Economic Efficiencies in Swine Production in Hawaii: A Comparison of Parametric and Non-parametric Approaches. *Agricultural Economics*, 20(1): 23-35.
- Shehu, J. F. and Mshelia, S. I. (2007). Productivity and Technical Efficiency of Small-Scale Rice Farmers in Adamawa State, Nigeria. *Journal of Agriculture and Social Sciences*, 3(4): 117-120.
- Shehu, J. F., Mshelia, S. I. and Tashikalma, A. K. (2007). Analysis of Technical Efficiency of Small-Scale Rain-fed Upland Rice Farmers in North-West Agricultural Zone of Adamawa State, Nigeria. *Journal of Agriculture and Social Sciences*, 3(4): 133-136.
- Singh, S., Coelli, T. and Fleming, E. (2000). Measurement of Technical, Allocative and Economic Efficiency in Indian Dairy Processing Plants: An Input Distance Function Approach, CEPA Working Papers, Department of Econometrics, University of New England, Armidale, Australia.
- Taylor, T. G., Drummond, H. E. and Gomes, A. T. (1986). Agricultural Credit Programs and production Efficiency: An Analysis of Traditional Farming in Southeastern Minas Gerais, Brazil. *American Journal of Agricultural Economics*, 68: 110-119.
- Xu, X. and Jeffrey, S. R. (1998). Efficiency and Technical Progress in Traditional and Modern Agriculture: Evidence from Rice Production in China. *Agricultural Economics*, 18: 117-165.

# **From Micro-Financing and Base of the Pyramid Concept to Private Social Business by CROWDINVESTING/CROWDFINANCING as a Modern Phenomenon and Chance for Economy**

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## **Abstract:**

The micro-credit movement has the noble goal - it is supposedly the largest - to resolve a lack: The lack of credit in developing countries. Is this the key to combat all other emergency? There are other requirements to avoid poverty and to let this capital crow into increasing welfare by creating employment and converting individual ideas into commercial chances. Besides the availability of capital, it is important to create clear property rights of individuals and set the focus on a sustainable education system. Additionally industrialized countries should strengthen their CSR policy towards developing and emerging countries.

But actually there is a big problem in the "rich" countries in the way of capital. To supply the economy with capital becomes more difficult as a result of the global finance crisis and the lasting Euro debt crisis. The capital markets fail more and more and the crisis in Europe could infect also other parts of the world. From necessity, since 2011 arose the CROWDINVESTING movement with its roots in the USA and there development in Western Europe and especially in Germany. By using the power of social networks and the wisdom of the CROWD of Internet user it is possible to finance enterprises by private placements of capital. For this purpose, each small amounts of money from the so called Crowdinvestors are accumulated via special online Crowdinvesting platforms to a considerable sum to finance enterprises by creating participations between these Crowdinvestors and each of the enterprises.

Team of experts at the Slovak University of Agriculture in Nitra is developing an ideal model of Crowdinvesting as a sustainable instrument of financing not only startups but also small and medium enterprises. A result of research work, it could be, that Crowdinvesting is also possible to use it as a kind of PSB<sup>2</sup> (Private Social Business) in for example developing or emerging countries. "Wealth is created through enterprise and entrepreneurship requires loans" (Joseph A. Schumpeter). Globalization was enforced by ICT<sup>3</sup> and Crowdinvesting is also possible by ICT. The Crowdinvesting movement is predicted for a dynamic movement in Europe. If Crowd Investing works sustainably, it can also be used internationally.

**Keywords:** Crowdinvesting, Micro Financing, developing countries, microcredit, Base of the Pyramid Concept, Private Social Business.

## **1. Introduction**

In this essay, we discuss the situation of the Poor people in developing bust also emerging countries and approaches for solutions to eradicate poverty and to enable affluence in these countries. One must be aware, that also in emerging countries for example like

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<sup>2</sup> Private Social Business is a neologism from Rainer Schenk

<sup>3</sup> Information and Communication Technique

India, South Africa or China most of the people of these countries are classified as poor, although the economies of these countries increased significant.

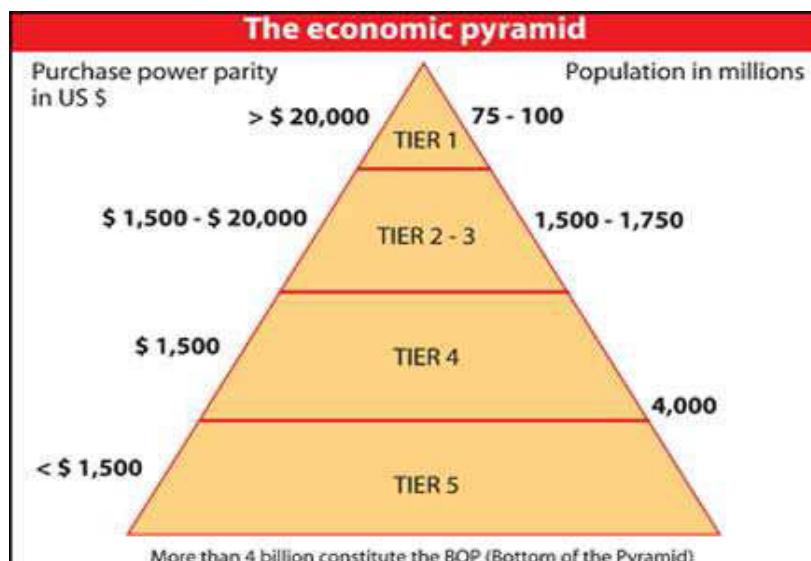
For about five decades governments and special worldwide acting organizations tried to eradicate poverty in the world, but without significant success. Today, about 4 Billions of people are poor and this is a part of more than 50 percent of world population. Often there was a failure in the efforts of reducing poverty because of a bad political environment in poor countries, of corruption and lack of poverty rights. Many economists designed concepts and models of reducing poverty in the world. One important concept is the Bottom of Pyramid (BOP)<sup>4</sup>.

We think that the basic idea of this concept is very good and gives the potential to modify the BoP and to combine it with special financial tools, to raise the effectiveness and to produce sustainability. In this essay we discuss the BoP but also the system of Microfinancing as a possible tool for combination. If Microfinancing in the present application is not useful, may be that the new phenomenon Crowdfunding or Crowdfinancing<sup>5</sup> is a substitute for Microfinancing. Considering all these thoughts after the following three chapters, we made conclusions and a recommendation.

## 2. The meaning of “Base of Pyramid”

In economics, the so called Base of the pyramid (BoP) is surely the largest, but also poorest socio-economic group. In the world there are about 4 billion people who live on less than US\$2.50 per day. The world population is comprised of the year 2012/13 of around 7.1 billion people<sup>6</sup>. The BoP Phenomenon generally considers the developing an emerging countries (for example Africa, South America, India). The 4 billion people at the BOP, all those with incomes below \$3,000 in local purchasing power, are living in relative poverty. Their incomes in current U.S. dollars are less than \$3.35 a day in Brazil, \$2.11 in China, \$1.89 in Ghana, and \$1.56 in India. Yet together they have substantial purchasing power: the BOP constitutes a \$5 trillion global consumer market.<sup>7</sup>

Figure 1: The economic pyramid



Source:[http://marketingbloggers.in/wp-content/uploads/2012/07/z\\_p-iv-Fortune.jpg](http://marketingbloggers.in/wp-content/uploads/2012/07/z_p-iv-Fortune.jpg) (3/31/2013 8:36:45 AM)

<sup>4</sup> Also called Base of Pyramid

<sup>5</sup> Sometimes it is also called Crowdinvesting

<sup>6</sup> See <http://www.weltbevoelkerung.de/oberes-menue/presse/presse/presseinformationen/newsansicht/display/weltbevoelkerung-zum-jahreswechsel-20122013.html>; called up by Internet on 29/03/2013.

<sup>7</sup> See “The Next Four Billion, Market Size and Business Strategy at the Base of the Pyramid”, Executive Summary, IFC and World Resources Institute, Washington, 2007, P.3<http://www.wri.org/publication/the-next-4-billion>, p. 3.

So, more than 50 percent of the world population concern to the bottom of the pyramid. The term "bottom of the pyramid" or "BoP" is used in particular by people developing new models of doing business that deliberately targets that demographic, often using new technology. Although different organizations and several national governments have been busy to solve the problem of poverty for more than 50 years, all the movements had no sweeping effect. Realizing this, C.K. Prahalad<sup>8</sup> pursued a new approach to eradicate poverty in the world<sup>9</sup>. His approach is that he sees the world's poor not as victims or global and social burden, but as potential value-producing consumers and entrepreneurs with multiplier effects.

The world's poor offer the opportunity of a new and far more open world economy than in the past. Prahalad believes that by the use of this part of the world population a new global growth trend in the world economy could erase. The poor are actually the engine of an unprecedented possible boom in the global economy. This is really obvious when you consider that more than half the world's population for the world economy is laying fallow. On the one hand it deals with huge potential of additional trade and secondly also with huge additional potential of sources of innovation-power.

Key issues to be discussed at the BoP concept are:

How can products, services and business models are being developed focused to the needs and living conditions of the poor to be payable and be coordinated and contribute to reduce poverty and solve social problems?

How can the entrepreneurial potential of poor people be encouraged to develop new business models at the base of the global income pyramid and to generate income for poor populations?

What is the contribution of business models of companies to reduce poverty, by including the poor on the supply side (added value side)?

Under what conditions can BoP models emerge and work? "Is it the business of business?" Experience has shown that even businesses in the BoP markets are characterized by uncertainty and informal structures and therefore partnerships, for example with civil society and development actors are success factors.<sup>10</sup>

The BoP market for companies in many respects is considerable relevant. First it is to note that the BoP market as a large, relatively underdeveloped market is generally interesting for companies. The market those annual income is from 3000 to 20,000 U.S. \$, already has been developed extensively. Market shares can only be achieved against tough competition. The markets of the poor, however, are less competitive. Who get started thee by innovations can generate significant revenues. Nearly three billion people have to live every day of up to U.S. \$ 2, a total of nearly four billion people have less than 8 U.S. \$ a day. Their aggregate annually purchasing power is however 5 trillion \$.<sup>11</sup> Although there are critics and doubt about the real size of the market and about who is classified to the

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<sup>8</sup> Coimbatore Krishnarao Prahalad; \* 8th August 1941 in Coimbatore, India; † 16th April 2010 in San Diego, USA) was an Indian-American economist. Most recently he worked as a professor of business strategy at the University of Michigan in Ann Arbor, Michigan, and a world-renowned management consultant and author. His scientific focus was set in the field of developing new management practices, corporate strategy and the role of management in multinational companies. Recently among others he worked together with Stuart Hart among concept of "Base of the Pyramid" (also called "Bottom of the Pyramid") with emerging markets and innovative business models for the elimination of global poverty.

<sup>9</sup> See Prahalad, C. K. (2005): The Fortune at the Bottom of the Pyramid, Upper Saddle River/NJ: Pearson International.

<sup>10</sup> See Deutsches Bundesministerium für wirtschaftliche Entwicklung und Zusammenarbeit BMZ,(2009): Geschäft für Entwicklung-Bewertung des BoP-Ansatzes aus entwicklungspolitischer Sicht, Typo Druck GmbH, Bonn, 2009, p. 3.

<sup>11</sup> See "The Next Four Billion, Market Size and Business Strategy at the Base of the Pyramid", p. 3.

BoP it seems still a non-negligible market.<sup>12</sup> It can be expected that in some decades many of the poor people will be included to more affluent sections. Today structured brands in the future will be the more paid.

The development of the BoP market is anything but simple. Key Challenges for the company are:

- The highly fragmented purchasing power of the BoP markets,
- Reducing transaction costs,
- Understanding the cultural context as well as the economy of the poor and
- Improving the conditions in which poor people live.

Companies that want to be busy in these markets need partners who know the local structures and who are working in these structures: Small and Medium Enterprises (SMEs), Non-Governmental Organizations (NGOs), governments and implementing organizations of development cooperation. Therefore it is very important for the Governments of the countries, in which companies are located, who decide to be active in the BoP, to do a purposeful developing policy.

What makes the BoP approach is that it attempts to understand the problem of poverty in developing countries from a business perspective, and with the help of innovative business models contribute to poverty reduction. Thus a high degree of congruence of private pursuit of profit and development policy is made. Assumption is that partnerships of political and economic development can use so called win-win opportunities at the "bottom of the pyramid" (BoP).<sup>13</sup>

How could a new orientation and BoP marketing look like? Since the millennium it was made increasingly aware that it requires adjustments to the marketing strategies and activities of multinational companies (MNC) to solve the problem of poverty in BoP countries and at the same time to develop growth markets of the future. This is intended to change the classical model in aid donations towards a demand-and market-based approach. Marketing concepts for BoP markets are working on the specific analysis of the needs of poor communities and the promotion of their transaction capability through integration of poorer in the value chain of companies. Indeed this requires a fundamental adjustment of marketing strategies and tools. Thus, value chains and sectors of the economy could be more focused on BoP business models or frameworks and policies are such designed, that they provide incentives for companies to invest in new BoP business models.

From the perspective of promoting the private sector, the BoP concept is so far mainly interesting because through innovative business models and by providing previously not being supplied "BoP market" goods and services consumption decisions are now made possible with the result to create more markets. The poor people are involved in the demand side of the BoP model. For example this leads to a reduction of previously overpriced goods, to an increasing net purchasing power and therefore it leads to a reduction of poverty. The poor people also are involved on the supply side of the BoP model; it increases their earning potential as producers, employees or entrepreneurs. It helps if necessary, also in increasing the productivity or the value of their business, which has a positive impact on their income. At the same time it offers the BoP business to new markets and thus revenue and profit improvement potential, which in turn provides job opportunities and higher incomes for the poor.

Finally the BoP perspective provides useful suggestions for the applied "Making Markets Work Better for the Poor" logic developed by UK Department for International Development (DFID). This principle considers the participation of poor people in markets

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<sup>12</sup> See Aneel, Karnani: *Mirage at the Bottom of the Pyramid – How the private sector can help alleviate poverty*. William Davidson Institute Working Paper Number 835, 2006.

<sup>13</sup> See Deutsches Bundesministerium für wirtschaftliche Entwicklung und Zusammenarbeit BMZ,(2009), p. 8.

as an essential tool to fight poverty and looking for solutions, which "let the markets work better for the poor."

### **3. The approach of „Microfinancing“ in the field of BoP**

On one side, "Microfinancing" relates to the strengthening of the BoP, concerning the international value chain. On the other side, Microfinancing aims to the development of potential markets at the BoP. Under this approach, different types of financial services are gathered and orientated to the BoP. The focus is on the concept of micro-credits. These are characterized by very small amounts at short maturities. The micro-credit concept as a part of financial services is a tool of development policy in developing countries and often cited as successful example in the BoP management concept. However micro-credits are not a new discovery. In Germany, 150 years ago the cooperative model<sup>14</sup> has been designed by Friedrich Wilhelm Raiffeisen. This was based on the self-help and solidarity. Many micro lenders in developing countries are working according to this principle. Back in 1976 there was such a program in Bangladesh, which was initiated by Muhammad Yunus.

From this program in the Grameen Bank<sup>15</sup> was founded in Bangladesh in the year 1983. In 2006, Yunus and the Grameen Bank received for these efforts to "economic and social development from below" the Nobel Peace Prize. Microcredit quickly became a popular tool for economic development, with hundreds of institutions emerging throughout the third world and the developing but also later emerging countries. Looking at - especially in regard to the various human rights-related categories - welfare and development issues, this particular model is the creation of fundamental transaction capabilities to the BoP.

Business interested people will be enabled to entry in business life by offering them micro-loans or micro-credits, specifically adapted to their circumstances (loan volumes and credit terms). In this case, the weight is on poor adapted lending interest rates. Furthermore it is about the creation of a functioning business environment and investment climate and bridgeability of insufficient loan securities.

Besides the Grameen Bank, which in March 2009 had a total of more than 1.7 million microcredits, meanwhile many other examples illustrate successful Microfinancing projects. Thus, the Peruvian Mibanco bank awarded microcredits with cumulative volume of about 1.6 billion U.S. \$ in the last decade. Australia's ANZ bank plans to lend adequate financial products to 140.000 of the 340,000 rural poverty people, living on the Fiji Islands (among other things by the use of "mobile banks").

In Uganda with the Remote Transaction System (RTS) (similar to the service of Vodafone and MPESA Safaricom in Kenya), an innovative solution for simplification and decentralization of banking services was provided. Within less than ten years "Edu-Loan" in South Africa helped 400,000 disadvantaged people with a loan amount of about 140 million U.S. \$ to finance their education and training.

However, even in areas of the BoP, where there are always opportunities for access to financial services, such access is often denied for the poorest because a phenomenon known as "poverty premium". Prahalad characterized Poverty premium with the almost paradoxical situation that these people have to pay a multiple of the normal price for most

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<sup>14</sup> German = „Genossenschaftsmodell“.

<sup>15</sup> The Grameen Bank, as the first modern microcredit institution, was founded in 1983 by Muhammad Yunus. Yunus began the first project in the small town Jobra, by using own money to deliver small loans at a low-interest rate to rural poor people. The Grameen Bank was followed by other organizations in several developing countries. The micro-credit movement reached Latin America with the establishment of PRODEM bank (later BancoSol) in Bolivia in 1986. Though the Grameen Bank was formed initially as a non-profit organization dependent upon government subsidies, later it became a corporate entity and was renamed into Grameen II.

necessary goods for daily life (compared to the immediate more affluent neighborhood). Therefore the already been disadvantaged group has been denied those goods<sup>16</sup>.

When evaluating the topic Micro loans for the poor it must not be ignored that current negative developments cast a shadow over the whole. It is doubtful whether these micro-loans in general are able to alleviate the problem of poverty, much less to reduce it on the long run. The example of India shows that the microcredit concept seems not work well. The placements of microcredits run via special micro-finance institutions, which are usually structured in the private sector. Their only aim is own profit but no reduction of poverty of the poor people.

The Spandana Bank as India's second largest microfinance institution has increased the volume from 50,000 micro-loans to around 5 million microcredits over four years (as of 2010). The Bank suggested that it is only about 10% of the demand for microcredits in India. It is expected to triple-digit growth rates. The Nobel Prize winner Muhammad Yunus says many abuses the idea of microcredits. Just the financial sector has turned the principle of micro-credit into maximum commercialization for own profits. The idea is being abused in order to earn as much money. Investors were and are attracted to and frequently, they want an IPO for the Microcredit Funds.<sup>17</sup> SKS Microfinance in India is an example. Already the limits and rules for microcredit organizations have been exceeded and abused.

When microcredits generally are placed, nobody cares on what the borrowers want to fund it all. At least there is no control, and therefore the system is unfortunately open. In many cases, microcredits don't finance small investments, enabling the poor to start as micro-entrepreneurs. Mostly only finance private consumption is funded, which have no lasting effect on the reduction of poverty. According to the rating agency MCRIL in Delhi<sup>18</sup>, the micro credit system is crashing into a formidable repayment crisis. Only about 30 to 40 percent of microcredit borrowers should be able to repay their loans on time. Often, a new micro-loan is taken out to pay off the overdue current microcredit.

#### **4. Crowdfunding – Crowdinvesting - Crowdfinancing – Social Banking**

Since 2011, the phenomenon of Crowdfunding and Crowdinvesting in the U.S. and Europe, especially in Germany developed dynamically. The Crowd as a lot of people, who are collectively, targeted, and sometimes intelligent, is found in the Internet today. But the crowd was there well before the Internet. The term "crowd" is now associated with ambivalent "ill-considered actions" up to the idea of a powerful community. What one don't create alone, creates the crowd.

According to this principle the German "Raiffeisenbank" was founded already in 1843, so it should make it easier for traders and small farmers financing investments. In 1885 by newspapers calling among the New York citizens, the base of the famous Statue of Liberty was financed by the crowd. These have been early forms of today conceptually influenced Crowdfunding or Crowdinvesting and that completely without Internet. Today, with the power that comes from the Internet and its users, it not only enables revolutions, but in perspective social media changes the whole financial.

There will new funding opportunities be created without typical and globally discredited relevant funding institutions. Since man basically is a communicative human being basically, the unlimited exchange of information is running via Facebook, twitter & Co in dimensions of millions and billions of people. Modern ICT, smartphone, tablet and

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<sup>16</sup> See Prahalad, C.K.; Hammond, A. (2008): Serving the world's poor, profitably. In: Crane, A.; Matten, D.; Spence, L.J. (Hrsg.): Corporate social responsibility. Routledge, London et al., S. 461–474.

<sup>17</sup> [www.zeit.de/2010/47/Indien-Nobelpreisträger-Yunus](http://www.zeit.de/2010/47/Indien-Nobelpreisträger-Yunus) download 02/04/2013

<sup>18</sup> [www.zeit.de/2010/47/Mikrokredite-Indien/seite-3](http://www.zeit.de/2010/47/Mikrokredite-Indien/seite-3) download 02/04/2013

notebook make it possible. In the future alternative financing possibilities via Crowdfunding, Crowdinvesting or Crowdfinancing additional to the personal communication in the Internet is the fact that many individual users make a small financial contribution to fund a specific project.

In future evolving alternative kinds of financing by Crowdfunding and Crowdinvesting is not only a result of personal communication via the Internet but also the fact that many individual users make a small financial contribution to fund a specific project. Although this movement is still in its infancy, the market opportunity and the market volume and the exorbitantly high. Against a background of increasingly difficult financing of companies by means of traditional bank loans As long as the financial sector continues to suffer from massive loss of confidence, these crowd-development will continue to develop dynamically. The financial crisis in 2007 and the euro crisis since 2010 have supported the right of the distrust of the banking system and creating alternative financing. In addition to the previously mentioned Crowdinvesting<sup>19</sup>, Crowdfinancing and Crowdfunding are the micro-loans and financial platforms such as unconventional "The democratic project bank" from Austria or the FIDOR Bank AG in Germany. The chances of the Crowd banking generally consist in the change of the banks, the financial sector, the economy, society and culture, as well as the entire people to live together. The trend is to rely not on individual institutions, but more to the society.

Although this movement is still in its infancy, the market opportunity and the market volume are exorbitantly high against a background of increasingly difficulties in financing companies by traditional bank loans. As long as the financial sector continues to suffer from massive loss of confidence, this crowd movement is developing dynamically. The financial crisis in 2007 and the euro crisis since 2010 have encouraged a distrust of the banking system and gave creative alternative financing the base of its own development. In addition to the previously mentioned Crowd Investing, Crowdfinancing and Crowdfunding there are the micro-loans and unconventional financial platforms such as "The democratic project bank" from Austria or FIDOR Bank AG in Germany.

The chances of the Crowd banking generally consist in the change of the banks, the financial sector, the economy, society and culture, as well as the generally the human coexistence. The trend is to rely not on individual institutions, but more to the society.

## **5. Conclusions and recommendation**

The problem to eliminate poverty in the world is very complicated and for many decades many people, institutions and governments tried to find solutions to solve this problems. In awareness that over 50 percent of the world population is per definition poor it should now be a master task for the rich countries of the world, to design and master plan, which is able to reduce poverty significant within the next ten years. Globalization was possible and accelerated by using the information and communication technique (IKT). In the last two years, the modern people and the Internet has made it possible to design new ways of financing without the infamous worldwide bank sector. The bank sector today is also responsible for failure of the microcredit concept. May bee, banks have lost their right to exist. May bee, the whole sector can be reformed deeply. But on the short run, it could be, to use unconventional ways to solve the problem of poverty in the world. Not to be underestimated is the negative environment in the countries where there is poverty. Political instability, Corruption and no property rights is a bad base for business. But business is necessary to enable income, to increase income. With income it is possible, to raise the level of education. Better education is the most important engine for innovation of an economy and the groundwork for more affluence in the poor countries. We argue that

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<sup>19</sup> Rainer Schenk and Elena Horska research together in the field of Crowdinvesting and alternative corporate financing. Their current research project has the topic „Opportunities and Threats of Crowdinvesting“.

all this is only possible by motivating private Companies and private institutions in the rich countries, to invest in human capital in the developing countries, to invest in plants and to use the micro-entrepreneurships of the former poor people to raise the value chain, to use comparative advantages. Modern interpretations of the BoP concept consider the BoP not only as a potential market at the end of a value chain, rather than its integrated supply with its own potential for value creation.<sup>20</sup> Particularly for increasing income and thus indirectly to create more sales opportunities - these approaches set the integrated involvement of BoP among several steps of the value chain in the focus of deliberations. It is expected among other things that by a limited view (for example the exclusive viewing of sales-markets) operational opportunities of BoP as a resource pool would be ignored. The focus of such integrative efforts is set on numerous, especially at the BoP represented small and medium enterprises (SMEs), where the integration into global value chains promises a connection to markets outside their original areas of business.<sup>21</sup> Combined with good concepts of "Corporate Social Responsibilities" (CSR) it could be possible to modify the Bottom of Pyramid Concept. Additional the Microfinancing system should be reformed extensive. On the other hand it could be possible to replace Microfinancing by Crowdfinancing or Crowdfunding. In commercial levels one option could be, to acquire a huge social community via Internet like the current European or German Crowdfunding (Crowdinvesting) online platforms for the goal, to collect money for special CSR projects of SME's that want to be active at the BoP. Crowdfunding or Crowdinvesting will not work directly at the poor people, because they don't have any IT and self management to handle Crowdfunding or Crowdinvesting with the Crowdinvestors. Interestingly, the cooperation with other actors in development work is increasingly coming into view of science and business practice.<sup>22</sup> It would also be conceivable, to found special private non profit organization as enterprises, with the function to coordinate the activities of the SME's at the BoP, to coordinate the developing work of national and international organizations and to moderate local policy structures for improving the law an social-political environment. Beside the money, coming from SME's for CSR, the idea is, to collect from the millions and billions of Internet users (Crowdinvestors) money and to take all the money for a controlled and intelligent eradication of poverty. The only profit that should be achieved is an interest for the Crowdinvestors on a normal level, not comparable with the high interest rates of current Microfinancing. All we can call "Private Social Business". Surely, all this ideas are very idealistic and may be also theoretical, but if nobody is thinking forward, nothing will change and furthermore a lot of money will be burned by non efficient work against poverty in the world done since past 50 years. As the ITC has supported globalization relevant, the Internet and social networks can change the economy in a sustainable way.

## References

- *Prahalad, C./ Hammond, A. (2008): Serving the World's Poor, Profitably, in: Crane, A./ Matten, D./ Spence, L. J. (Eds.): Corporate Social Responsibility, London, New York: Routledge, 461-474 (Reprint in: Harvard Business Review 2002, Vol. 80, No. 9, 48-57).*
- *Prahalad, C. K. (2005): The Fortune at the Bottom of the Pyramid, Upper Saddle River/NJ: Pearson International.*
- *Egal, Abdiqani (2012): The fortune at the bottom of the pyramid: Eradicating poverty through profits; the unfortunate at the bottom of the pyramid: eradicating*

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<sup>20</sup> See Hahn, R.: Multinationale Unternehmen und die 'Base of the Pyramid' - Neue Perspektiven von Corporate Citizenship und Nachhaltiger Entwicklung. Gabler, Wiesbaden. ISBN 978-3-8349-1643-3, p 29 ff

<sup>21</sup> See Hahn, R.: The ethical rational of business for the poor – Integrating the concepts Bottom of the Pyramid, Sustainable Development, and Corporate Citizenship. In: Journal of Business Ethics, Bd. 84, Nr. 3, S. 313–324

<sup>22</sup> Brugmann, J.; Prahalad, C.K.: Der gelungene Pakt zwischen Geld und Gewissen. In: Harvard Business Manager 2007, nr. 7, p 82–97

- poverty through increasing the real income. Grin-Verlag 2012, ISBN 978-3-656-26663-1.
- *Hahn, R./Wagner, G.R.,* (2009): Menschenwürde und Unternehmensverpflichtung an der Base oft the Pyramid, zfwu 10/1 (2009), 86-105.
  - *Deutsches Bundesministerium für wirtschaftliche Entwicklung und Zusammenarbeit BMZ,*(2009): Geschäft für Entwicklung-Bewertung des BoP-Ansatzes aus entwicklungspolitischer Sicht, Typo Druck GmbH, Bonn, 2009.
  - The Next Four Billion, Market Size and Business Strategy at the Base of the Pyramid, Executive Summary, IFC and World Recources Institute, Washington, 2007, P.3<http://www.wri.org/publication/the-next-4-billion>.
  - *Aneel, Karnani:* Mirage at the Bottom of the Pyramid – How the private sector can help alleviate poverty. William Davidson Institute Working Paper Number 835, 2006.
  - See Prahalad, C.K.; Hammond, A. (2008): Serving the world's poor, profitably. In: Crane, A.; Matten, D.; Spence, L.J. (Hrsg.): Corporate social responsibility. Routledge, London.
  - [www.zeit.de/2010/47/Indien-Nobelpressträger-Yunus](http://www.zeit.de/2010/47/Indien-Nobelpressträger-Yunus) download 02/04/2013.
  - [www.zeit.de/2010/47/Mikrokredite-Indien/seite-3](http://www.zeit.de/2010/47/Mikrokredite-Indien/seite-3) download 02/04/2013.
  - Hahn, R.: Multinationale Unternehmen und die 'Base of the Pyramid' - Neue Perspektiven von Corporate Citizenship und Nachhaltiger Entwicklung. Gabler, Wiesbaden. ISBN 978-3-8349-1643-3.
  - See Hahn, R.: The ethical rational of business for the poor – Integrating the concepts Bottom of the Pyramid, Sustainable Development, and Corporate Citizenship. In: Journal of Business Ethics, Bd. 84, Nr. 3.
  - Brugmann, J.; Prahalad, C.K.: Der gelungene Pakt zwischen Geld und Gewissen. In: Harvard Business Manager 2007, nr. 7.

# **Practical experiences with ecosystem evaluation of forest functions in the Czech and Slovak Republics**

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## **Abstract:**

Paper deals with the usage of the method Quantification and Evaluation of forest functions (Vyskot, I. et al., 2003) as the base for the state authorities' decision-making process on the example of many different practical purposes during the period 2003 – 2013. The method was elaborated at the Mendel University in Brno. It was used for example for evaluation of ecological damage on forest functions of the National Park High Tatras forests (Slovakia) caused by wind calamity or for evaluation of ecological damage on forest functions caused by illegal harvesting in the Czech Republic. It was also used for a definition of areas and zonation of recreational forests of big cities (model example Prague) or as a part of EIA.

The method is based on ecosystem principles; the basic premise claims that forest functions are human independent production of forest ecosystem. Determining criterions of forest functions are basic measured parameters of forest ecosystems – climatic, hydrologic, geologic, pedologic and biotic. Forest functions are evaluated by so called Real potentials (in forest ecosystem optimal status) and Real effects (in forest actual status). Social demands of forests (e.g. recreational forests, nature protection etc.) are expressed by Factor of topical forest interest. Economical extension of the method comes from legally stated average price of wood primarily.

The method was accepted by the jurisdiction of the Supreme Court of CR and is also used as an approved methodology of the Czech Inspection of Environment. At present; the method is tested as a base for frame management regulation construction of multi-functional forestry in Poland model of Promotional Forest Complexes (exp. PFC Lasy Beskidu Sadeckiego).

## **Key words:**

ecosystem services; forest function; ecological damage; recreational forest; illegal harvesting; Promotional Forest Complex

## **Introduction:**

A modern ecosystem conception states that forests are on the level of natural systems, i.e. subsistence life-giving resources even for the human society. Forest functions are potentials to produce effects resulting from its nature and ecosystem processes. They are produced by an every specific ecosystem of the forest.

The financial expression of forest functions value can be based (similarly as an approach to forest functions) on different conceptions: anthropocentric utilitarian conception - forest

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and its functions are an economic estate (instrument of production) fully controlled by man, and ecosystem life-preserving conception – forest and its functions are a life-giving source and irreplaceable component of the environment at the same time being the source of an essential renewable raw material. The ecosystem conception of forests and their functions does not consider forests as an exclusive economic estate but as a national wealth and irreplaceable component of the environment.

## Materials and Methods

Method of Quantification and Evaluation of Forest Functions (Vyskot I. et al. 1996-2003, 2006), is developed and still cultivated by team of univ. prof. Vyskot in Department of Landscape Management FFWT MUAF in Brno, Czech Republic. It's base for financial expression of forest functions with wide application, as examples of Czech Republic and Slovakia show. Detailed and exhaustive description of method is published in monograph Vyskot, I. et al., 2003.

Expression of values of forest functions through money is thus a comparable means of society to control and maintain life-giving sources and components of the environment.

A method used for the financial expression of values of forest functions is "a financial explicit comparison to a socially well-known economic event". The dominant product of a bioproduction function – wood and its financial relations – price is a socially well-known economic event from the field of forest functions. However, from the viewpoint of a known economic event, wood price is not a quite objective indicator. It is dependent on market relations and changing social demands. The generally used market principle of society, however, does not use permanent or absolute constant financial values. Value conditions, levels and scales are always topical conditions.

The long average price of a unit of the dominant product of a bioproduction function **1 m<sup>3</sup> wood** is a **financial value unit** for the financial expression of values of forest functions.

## Ecosystem method of quantification and evaluation of forest functions

All-society (i.e. of society as a whole) functions of forests are the realized production of natural ecosystem effects which are independent on man. The ecosystem method of quantification and evaluation of forest functions is, therefore, based on the quantification and evaluation of elements and parameters of forest ecosystems determining their functional effects.

To quantify a forest ecosystem it is necessary to define its condition entering the evaluation. The procedure is implemented in the following levels:

**Real potential of forest functions** – quantified functional potential of forests (values of produced functions) under optimum ecosystem conditions.

**Real topical effect of forest functions** – topical quantified functional effects of forests (values of produced functions) under topical ecosystem conditions.

Needs of society often require the specific use of forests limited exclusively by social urgency and not by their ecosystem effects. The functional effect is then evaluated by extra-ecosystem superstructure parameters:

**Topical social effect of forest functions** – topical, super structural, socially preferred functional effect specified by "usage" indicator of the weight of the topical social interest.

## Classification of effectiveness parameters and determination criteria of functions

Each of the forest functions (effectiveness functional group) is quantified through quantities of functions of determining parameters (determination criteria). The compatible (value) classification of parameters (criterion elements and segments) also expresses the extent of functional effectiveness of functional determination criteria through the hierarchy of value degrees (rate of quantity).

## Determination of stand types in functional target management groups of stands (MGS)

Determination of stand types in functional target MGS is the result of analyses of database sources of forest management plans (FMP) according to species composition in stand parts of forests of the CR. Examples of determination and coding particular stand types:

**D6** ..... mixed stand type with the "dominant" proportion of beech ST and "interspersed" species

**M1Z6P9x** ..... mixed stand type of spruce ST and beech ST and "admixed" ST of other broadleaves.

### Values of real potentials of forest functions

Values of real potentials of forest functions are processed for ecosystem units of the whole territory of forests of the Czech Republic.

- Functions of forests are determined by function criteria. Their values are expressed by value degrees in classification levels (0 – 6).
- The function value is (from the aspect of effectiveness) the weighed average of values (value degrees) of its function criteria. It is expressed by an analogical value as well as practical verbal classification.
- The total real potential of functions is the sum of potentials of particular functions (BP - bioproduction function, ES - ecological-stabilization function, HV- hydric – water-management function, EP- edaphic – soil-conservation function, SR - social-recreation function, ZH - sanitary-hygienic function)

$$RP_{FL} = RP_{BP} + RP_{ES} + RP_{HV} + RP_{EP} + RP_{SR} + RP_{ZH}$$

The value of the total real potential of functions is the sum of values of potentials of particular functions (0–36) being classified in classes RP<sub>FL</sub> I –VI.

### Real effects - topical condition of forest functions

The real effect represents the topical function effectiveness of a forest ecosystem, i.e. function effects resulting from its topical condition. It expresses the rate of a produced function with respect to its potential capacities in percentage values.

On the basis of the exception of a broad spectrum of scientific findings and the study of linkages of function effects of forest stands and their structures, three virtually available dominant criteria were used characterizing conditions of stands, their function dynamics and effectiveness, viz. age, stocking and health condition. The criteria are of a functionally "reduction" character because under optimum values only they represent full (potential) function capabilities of the forest. With the increasing difference from optimum values function effectiveness also decreases. Therefore, they are further named as "function-reducing" criteria.

### Calculation of real effects of particular functions

Resultant (synergic) real effect is the weighed arithmetical average of values of real effects determined by particular function-reducing criteria:

Bioproduction function

$$RE_{BP} = vT_1 \cdot T_1 + vZ_1 \cdot Z_1 + vZS_1 \cdot ZS_1 (\%)$$

Ecological-stabilization function

$$RE_{ES} = vT_2 \cdot T_2 + vZ_2 \cdot Z_2 + vZS_2 \cdot ZS_2 (\%)$$

|                                      |   |
|--------------------------------------|---|
| Hydric– water-management function    | $RE_{HV} = vT_3 \cdot T_3 + vZ_3 \cdot Z_3 + vZS_3 \cdot ZS_3 (\%)$ |
| Edaphic – soil-conservation function | $RE_{EP} = vT_4 \cdot T_4 + vZ_4 \cdot Z_4 + vZS_4 \cdot ZS_4 (\%)$ |
| Social-recreation function           | $RE_{SR} = vT_5 \cdot T_5 + vZ_5 \cdot Z_5 + vZS_5 \cdot ZS_5 (\%)$ |
| Sanitary-hygienic function           | $RE_{ZH} = vT_6 \cdot T_6 + vZ_6 \cdot Z_6 + vZS_6 \cdot ZS_6 (\%)$ |

Where

$T_{1-6}$  ..... value of the partial real effect of a given function in relation to *age* (stand development stage)

$Z_{1-6}$  ..... value of the partial real effect of a given function in relation to *stocking* (stand development stage)

$ZS_{1-6}$ ..... value of the partial real effect of a given function in relation to *health condition* (stand development stage)

$vT_{1-6}$  . .... weight of *age* for a given function in the stand development stage

$vZ_{1-6}$  ... ... weight of *stocking* for a given function in the stand development stage

$vZS_{1-6}$  ... weight of *health condition* for a given function in the stand development stage

Calculation of the value of real topical effects of functions and quantitative evaluation of forest functions on the basis of ecosystem, parametric and data objectification on the level of possibilities of the present knowledge and applications.

### **Structure of financial expression procedure steps**

- Financial expression of the value of real potentials of forest functions
- Financial expression of the value of real effects of forest functions
- Financial expression of the value of topical social effects of forest functions
- Financial expression of damage to forest functions

### **Calculation of the financial expression of the value of real potentials of forest functions**

The financial expression of real potentials of particular functions (RPFL) is determined according to a general formula:

$$FRP_{FL} = \frac{CD.PP.U}{3} \cdot RP_{FL} \cdot P$$

### **Calculation of the financial expression of the value of real effects of forest functions**

The financial expression of real effects of particular functions (REFL) is determined according to a general formula

$$FRE_{FL} = \frac{CD.PP.U}{3} \cdot RP_{FL} \cdot \frac{RE_{FL}}{100} \cdot P$$

Then:

$$FRE_{FL} = FRP_{FL} \cdot \frac{RE_{FL}}{100}$$

#### **Financial expression of a value of the topical social effects of forest functions**

Financial expression of topical social effects of particular functions (SEFL) is determined according to a formula

$$FSE_{FL} = \frac{CD.PP.U}{3} \cdot RP_{FL} \cdot \frac{RE_{FL}}{100} \cdot FAZ_{FL} \cdot P$$

Then:

$$FSE_{FL} = .FRE_{FL}.FAZ_{FL}$$

$FSE_{FL}$  = financial expression of a value of the topical social effect of a function

$FRE_{FL}$  = financial expression of a value of the real effect of a function

$RP_{FL}$  = value (value degree) of the real potential of a function (see  $RP_{FL}$ )

$RE_{FL}$  = value of the real effect of a function (%) (See  $RE_{FL}$ )

$FAZ_{FL}$  = value of the factor of the topical social interest (0-3) (see FAZ)

CD = decennial average price of wood at the roadside in CZK per  $m^3$  announced by the CR Ministry of Agriculture

PP = average annual potential production of forests in the Czech Republic in  $m^3 \cdot ha^{-1}$  determined by a special directive ( $6.3 m^3 \cdot ha^{-1}$ )

U = stand rotation

P = area of the unit (stand, stand part) in ha

## **Results**

Chapter shows examples of different practical usages of Vyskot et al Method during the period 2003 – 2013.

### **Evaluation of ecological damage on forest functions of the National Park High Tatras forests (Slovakia) caused by wind calamity**

More than 12 600 ha of forests in National Park High Tatras, Slovak Republic were devastated by the extreme wind calamity in September 2004. Ecological damage raised from calamity is valuated by the method of Quantification and Evaluation of Forest Functions on base of bilateral agreement of the Czech Republic and Slovakia.

Fieldwork including Representative sample plot differentiation was carried out in the period March – September 2005 in following steps:

- observing area localization by GPS
- forest management plan data set terrain verification
- wind calamity damage group determination
- obtaining the data for secular locality observing

There were observed following parameters of forest damage:

- wind calamity damage group A – D
- tree species composition, stocking and health conditions of healthy (standing) forest stands
- existence and conditions of natural reproduction
- existence of broken logs and windfall trees
- other observation

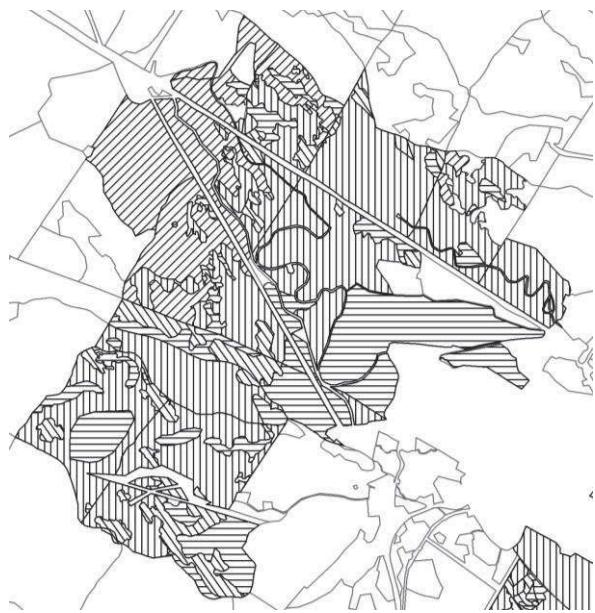
Chosen forest stands were classified into the wind calamity damage groups in correspondence with intensity of their calamity damage and observed parameters values.

### **Calamity damage degree group differentiation**

Four calamity damage degree groups were identified in damaged area of High Tatras according to own fieldwork:

- Group A – forest stands or the parts of forest stands totally destroyed by wind calamity. Unstocked areas or unstocked areas with strongly damaged solitaires (damage degree IV, IIIb) are characterized by this calamity damage group.
- Group B - forest stands or the parts of forest stands with very low stocking (stocking degree 2 – 4). Existing trees are mostly strongly or medium damaged (damage degree IIIa, II).
- Group C - forest stands or the parts of forest stands with low or stocking (stocking degree 5 – 7). Existing trees are medium or low damaged (damage degree II, I).
- Group D - forest stands or the parts of forest stands without damage or very low damaged by wind calamity. Stocking is without any changing according to conditions before calamity (stocking is full or slightly lowered), health status is good (damage degree 0, 0/I, I).

Picture 1 presents particular damage class distribution on selected forest stands surrounding Tatranska Lomnica.

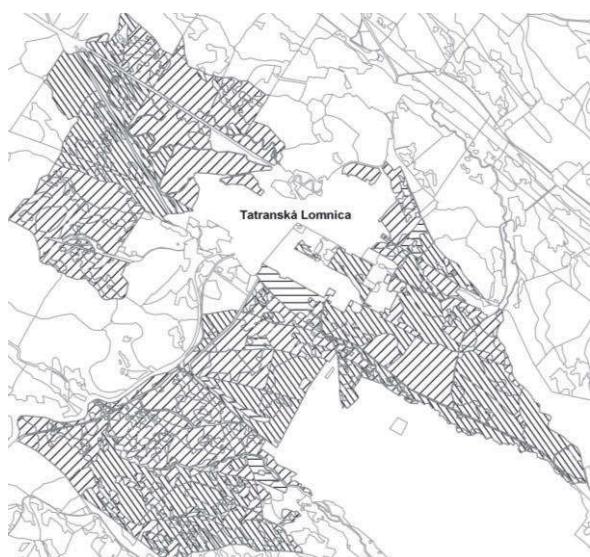


(source: Kozumplíková et al, 2007)

**Pic. 1 Map print of particular damage class on selected stands surrounds Tatranska Lomnica (north-west part)**

Legend: Damage classes:      Class A    |||||    Class B    =    Class C    //\     
 Class D    //\

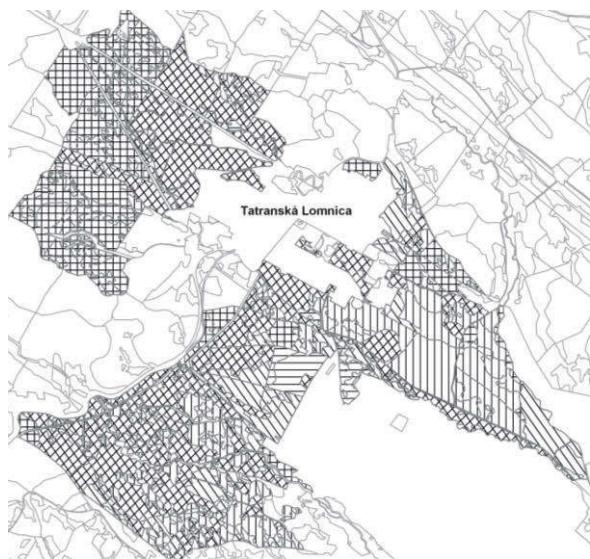
Pictures 2 - 4 present Real functional potential and topical functional effect of forest stands GIS layouts –example of social – recreational function



(source: Kozumplíková et al, 2007)

**Pic. 2 Map print of real potential of social-recreational function on model locality Tatranska Lomnica**

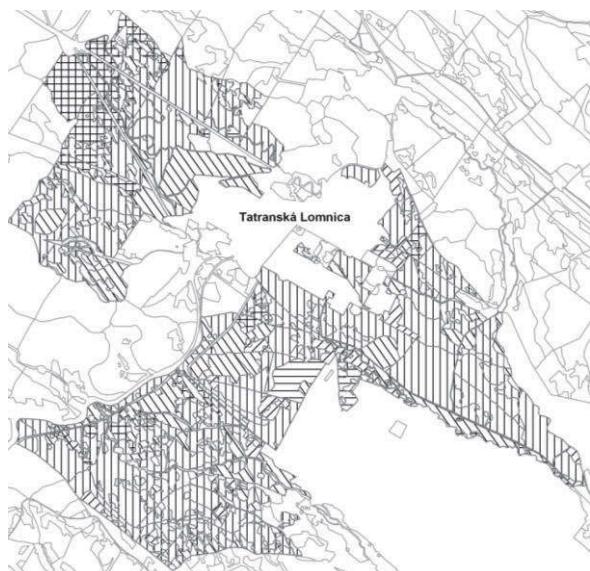
Legend (Fig.2): Real potential of forest functions: Degree 0    ····    Degree 1    |||||  
 Degree 2    =    Degree 3    //\    Degree 4    //\    Degree 5    //\    Degree 6    //\



(source: Kozumplíková et al, 2007)

**Pic. 3 Map print of real effects of social-recreational function in model locality  
Tatranska Lomnica before wind calamity**

Legend (Fig. 3): Real effect of forest functions (% of RP<sub>ff</sub>): ≤ 10%    11 – 30%    31 – 45%    46 – 55%    56 – 70%    71 – 90%    ≥ 91%



(source: Kozumplíková et al, 2007)

**Pic. 4 Map print of real effects of social-recreational function in model locality  
Tatranska Lomnica after wind calamity**

Legend (Fig. 4): Real effect of forest functions (% of RP<sub>ff</sub>): ≤ 10%    11 – 30%    31 – 45%    46 – 55%    56 – 70%    71 – 90%    ≥ 91%

Previous maps (Fig. 2, 3 and 4) present real potentials of forest functions in model locality Tatranska Lomnica and differences in real functional effect of forests stands before and after wind calamity. Decrease of forests functional abilities is obvious.

## Evaluation of ecological damage on forest functions coming out from the realization of golf resort Klánovice

Investment project for 18 holes golf resort realization is situated to locality Klanovicky les. Klánovický les is nevertheless very important forest locality with high social effects – part of natural park Klánovice-Čihadla and supra-regional bio-centre Vidrholec. Prevailing area of locality creates the west part of natural preserve Klánovický les- Cyrilov. Cadastral area Klánovice is incorporated to the 1st proposed zone of suburban recreational forests of capital Prague.

The procedure mentioned above was applied in forest stands (forest stand groups) influenced by potential golf resort realization. Influenced forest stands were obtained by the projection of the golf track layer and forest management map layer in GIS.

For financial expression of hectar value of real potential of forest functions is used price level of mediate biproduction 920 CZK per 1 m<sup>3</sup> of wood (arithmetical average price of wood at the roadside announced by the CR Ministry of Agriculture for years 1997-2006), the exchange ratio from CZK to Euro was used 28 CZK = 1 Euro. Final financial expression of ecosystem damage was modified by FAZ index.

**Tab. 1: Financial expression of real potentials of forest functions for the most presented stand types within particular forest management groups counted to 1 ha  
(source: Schneider et al, 2007)**

| FMG | Stand type | RPff (Eur) |        |        |        |        |        | Total (Eur) |
|-----|------------|------------|--------|--------|--------|--------|--------|-------------|
|     |            | BP         | ES     | HV     | EP     | SR     | ZH     |             |
| 27  | Z1P3P5P9x  | 29,827     | 29,827 | 14,466 | 22,370 | 27,143 | 37,284 | 160,919     |
| 23a | C5         | 37,962     | 28,472 | 18,412 | 28,472 | 17,273 | 37,962 | 168,552     |
| 23b | M5P1P9x    | 28,472     | 37,962 | 18,412 | 28,472 | 43,182 | 47,453 | 203,951     |
| 25b | M1P3P9x    | 27,116     | 20,337 | 13,151 | 20,337 | 24,675 | 33,895 | 139,510     |

On the base of ecosystem characteristics of forest stands analyse in observed part of Klanovicky les it should be claimed that in case of lasting deforestation the predicted average financially expressed damage counted to 1 ha is:

|  |               |
|--|---------------|
| Bio-production forest function           | 30, 189,- Eur |
| Ecological-stabilization forest function | 28, 848,- Eur |
| Hydric-water management forest function  | 17, 767,- Eur |
| Edaphic-soil protection forest function  | 25, 644,- Eur |
| Social-recreational forest function      | 25, 587,- Eur |
| Sanitary-health hygienic forest function | 40, 526,- Eur |

Total predicted average financially expressed damage counted to 1 ha is 168, 561,- Eur.

## Functional potential and effect of new afforested areas in frame of land arrangement in the cadastral area Horní Loděnice

Afforestation effect growth is a long-lasting process and it is based on growth conditions of forest ecosystems. Dynamics of real effect increasing is evaluated by method by Vyskot et al., 1996-2003. Valuated forest stands were planted out in 2005 on the base of Plan collective facilities for simple land arrangement for reconstruction and specify allotments in cadastral area "Horní Loděnice" (Vyskot et al., 2001) and Project of agricultural areas afforestation in cadastral area "Horní Loděnice" 2000 – 2009 (Schneider et al, 2008).

**Tab. 2 Financial expression of increasing of real functional effect of model forest stands (in CZK) (source: Schneider et al, 2008)**

| Forest function           | y. 2006 | y. 2030   | y. 2055   | y. 2105   |
|---------------------------|---------|-----------|-----------|-----------|
| Bioproduction             | 93,054  | 226,566   | 525,956   | 809,163   |
| Ecological-stabilization  | 129,496 | 294,539   | 431,652   | 507,826   |
| Hydric-water management   | 78,169  | 308,768   | 390,845   | 379,120   |
| Edaphic-soil-conservation | 102,087 | 247,927   | 413,211   | 486,130   |
| Social-recreation         | 124,949 | 310,480   | 575,524   | 689,115   |
| Sanitary-hygienic         | 121,145 | 343,896   | 664,344   | 781,581   |
| Total                     | 648,900 | 1,732,175 | 3,001,532 | 3,652,935 |

### Quantitative Assessment of Carbon Sequestration in Forest Ecosystems

Position of carbon storage classification in the system of forest functions is evaluated as a subcategory ('subfunction') of the production function, respecting the system of forest ecosystem functions.

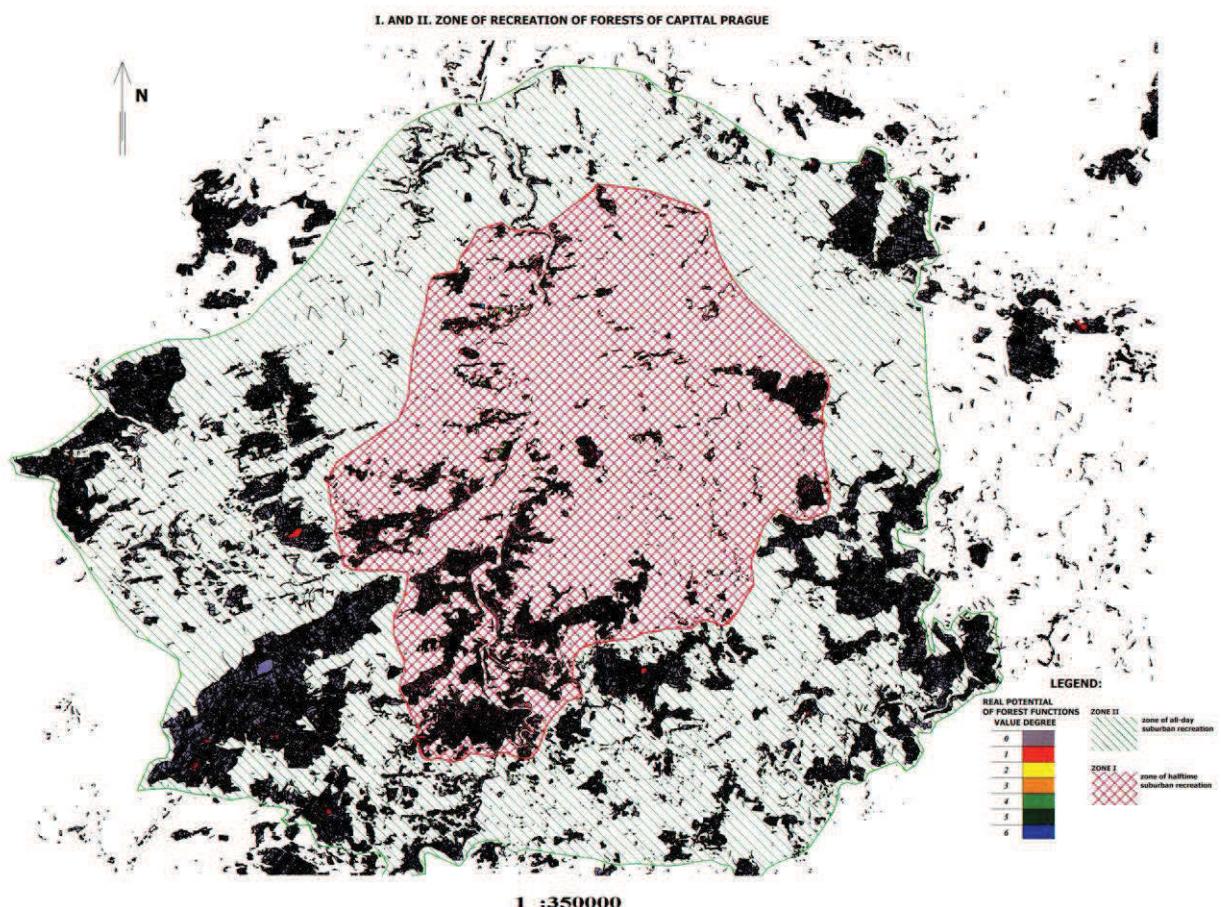
The subcategory of carbon sequestration is determined and quantified by two function determination criteria (ecosystem parameters) – the data on the amount of carbon sequestered in the aboveground biomass and the amount of carbon sequestered in the soil environment. The evaluated unit is a stand type (tree-species composition) within a management group. The amount of carbon in the aboveground biomass is converted using specific conversion formulas (Cienciala et al. 2006) for the main species of the CR (spruce, pine, oak, beech). The amount of carbon in the aboveground biomass is evaluated for mass of large timber. To derive this to the total mass (large timber and small timber), it is necessary to use other expansion factors (Cienciala et al. 2006). The data on the amount of carbon bound in the soil profile have been gained from the output data of CzechCarbo project (Schneider et al, 2008)

**Table 3. Function determination criterion – Volume of carbon (C) stock in the aboveground biomass in 100 years for the main economic tree-species (source: Vyskot et al, 2011)**

| function degree | function interval % | function criterion |        | interaction criterion   |     |      |     |
|-----------------|---------------------|--------------------|--------|---|-----|------|-----|
|                 |                     | RVB (AVB)          |        | volume of C stock in the aboveground biomass in 100 years m <sup>3</sup> ha <sup>-1</sup> |     |      |     |
|                 |                     | SM, BK             | BO, DB | SM  | BO  | BK   | DB  |
| 0               | < 11                | -9(16)             | -9(12) | 155   | 81  | 143  | 107 |
|                 |                     | 9(18)              | 9(14)  | 187   | 101 | 166  | 131 |
| 1               | 11—30               | 8(20)              | 8(16)  | 219   | 122 | 191  | 156 |
| 2               | 31—45               | 7(22)              | 7(18)  | 250   | 145 | 216  | 185 |
|                 |                     | 6(24)              | 6(20)  | 285   | 167 | 243  | 216 |
| 3               | 46—55               | 5(26)              | 5(22)  | 320   | 192 | 271  | 248 |
| 4               | 56—70               | 4(28)              | 4(24)  | 355   | 217 | 303  | 283 |
|                 |                     | 3(30)              | 3(26)  | 393   | 242 | 338  | 320 |
| 5               | 71—90               | 2(32)              | 2(28)  | 433   | 267 | 374  | 358 |
| 6               | > 90                | 1(34)              | 1(30)  | 474   | 293 | 4113 | 397 |
|                 |                     | +1(36)             | +1(32) | 516   | 319 | 453  | 439 |

## Management of capital Prague suburban forests according to form of its usage

In frame of the Ministry of environment of CR project, the ability to produce sanitary-hygienic and socially-recreational functions of suburban forests of capital Prague were quantified. Main climatic and hydric parameters which form mentioned forest functions were taking into the valuation too. Two main recreational zones of Prague suburban forests according to producing of sanitary-hygienic and socially-recreational function were proposed (see pic. 5).



**Pic. 5 Determining of I and II zone of recreation of capital Prague city suburban forests.(source: Vyskot et al, 2008)**

## Conclusions:

Practical applications of this method of quantification and evaluation of forest functions are still more abundant.

Applications at the level of ecosystem, organizational and spatial units of forests (Vyskot et al, 2003):

- Determination of values of real potentials of functions for every ecosystem unit with applications in each of the units of the organizational and spatial arrangement of forests in the CR
- Determination of the quantitative extent of a detriment to functions for each of the units of the organizational and spatial arrangement of forests,
- Financial expression of values of topical social effects of functions of units of the organizational and spatial arrangement of forests according to categories, subcategories and other division of forests

- Financial expression of incurred damage to functions for each of the units of the organizational and spatial arrangement of forests
- Calculation of values of topical social effects of functions of units of the organizational and spatial arrangement of forests according to categories, sub-categories and other division of forests

Application at the conceptual, administrative, control and executive levels:

- Educational and probative means of the new philosophy and conception of functionally integrated forest management.
- Sources and data for the execution of state administration of forests.
- Data for the execution of supervision and inspection in forests.
- Data for processing directions, subsidies, compensations and reparations in forestry.
- Data for forest planning.
- Data for relationships between landscape and forestry planning
- Data for the preparation of plans of care of specially protected areas.
- Data for objectified categorization of forests.
- Data for social regionalization of forests.
- General data of management procedures for functionally integrated management.
- Sources and data for the preparation and processing of forest management plans.

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## Literature:

CIENCIALA, E., HENŽLÍK, V., ZATLOUKAL, V., Assessment of carbon stock change in forests – adopting IPCC LULUCF Good Practice Guidance in the Czech Republic. Forestry Journal 52, p. 17–28, ISSN 0323–1046, 2006.

KOZUMPLÍKOVÁ, A., SCHNEIDER, J., MIKITA, T., CELER, S., KUPEC, P., VYSKOT, I. Usage possibility of gis space for ecological damage in consequence of wind calamity evaluation, TANAP (november 2004). Folia Oecologica. 2007. sv. 34, č. 2, s. 125–145. ISSN 1336-5266.

MACKŮ, J., Bilance uhlíku v nadložním humusu a svrchním minerálním horizontu. Manuscript. 2006.

SCHNEIDER, J., KUPEC, P., DOMOKOŠOVÁ, K., VYSKOT, I. Functional potential and effect of new afforested areas in frame of land arrangement in the cadastral area. In Środowiskowe aspekty melioracji wodnych. Wrocław: Wydawnictwo uniwersytetu przyrodniczego we Wrocławiu, 2007, s. 173–183. ISBN 978-83-60574-05-8.

SCHNEIDER, J., KUPEC, P., VYSKOT, I., DOMOKOŠOVÁ, K., MELICHAROVÁ, A. Financial Expression of Forest Functions Value. Glasnik : Šumarskog fakulteta = Bulletin Faculty of Forestry. 2007. č. 6, s. 1–13. ISSN 1512-956X.

SCHNEIDER, J., KUPEC, P., KOZUMPLÍKOVÁ, A., DOMOKOŠOVÁ, K., VYSKOT, I. Usage of ecosystem forest functions evaluation for the assessment of investment project realization influence to forest ecosystems on the example of natural preserve Klanovicky les - Cyrilov. Acta scientiarum polonorum. SGW Warszawa. 2008. sv. 7, č. (2), s. 29–38. ISSN 1644-0757.

SCHNEIDER, J., VYSKOT, I., KUPEC, P., MELICHAROVÁ, A., SMÍTKA, D. Modification of European Union standards of urban recreational forests according to delimitation of capital Prague recreational forests. In NEUHOFEROVÁ, P. Management of urban forest around large cities. Prague: CUA Prague, 2005, s. 39–41. ISBN 80-213-1381-1.

SCHNEIDER, J., VYSKOT, I., KOZUMPLÍKOVÁ, A., KUPEC, P. Evaluation and financial expression of wind calamity damage to functions of forest in High Tatras NP. In MOTTA, R., LINGUA, E. Natural Hazards and Natural Disturbances in Mountain Forests: Challenges and Opportunities for Silviculture. Trento: SISEF, IUFRO, 2007, s. 48.

VYSKOT, I., KAPOUNEK, L., KREŠL, J., KUPEC, P., MACKŮ, J., ROŽNOVSKÝ, J., SCHNEIDER, J., SMÍTKA, D., ŠPAČEK, F., VOLNÝ, S. Quantification and Evaluation of Forest Functions on the Example of the Czech Republic. Praha: MŽP ČR, 2003. 218 s. Neuveden. ISBN 80-7212-265-7

VYSKOT, I. a kol. Metodika vymezování příměstských zón rekrece podle funkčních schopností a účinků lesních porostů. 1. vyd. Brno: Mendelova zemědělská a lesnická univerzita v Brně, 2008. 51 s. ISBN 978-80-7375-258-3.

VYSKOT, I., SCHNEIDER, J. a kol. Ekologické a ekonomické hodnocení celospolečenských funkcí strukturně variantních typů lesů. Zpráva o průběhu řešení projektu VaV MŽP Sp-2d3-56-07. ÚTOK LDF MZLU v Brně. 2009

VYSKOT, I., SCHNEIDER, J., POKORNÝ, R., MAREK, M V. Vázání uhlíku lesními ekosystémy a jeho místo v systému celospolečenských funkcí lesů. In: MAREK, M V. Uhlík v ekosystémech České republiky v měnícím se klimatu. 1. publ. Praha: Academia, 2011. p. 187--206. ISBN 978-80-200-1876-2.

# **Share transfer restrictions and family businesses: The minority shareholder perspective**

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**Kajsa Haag<sup>1</sup>**

## **Abstract:**

Small- and medium-sized enterprises (SME's), of which most are family owned businesses (FOB's), play a crucial role in upholding many of the topics at the heart of the International Conference on Applied Business Research. They are especially noteworthy in relation to economic development, growth and innovation, sustainable development and rural development. The practice of FOBs is quite different from large companies with scattered ownership (Nordqvist, Hall & Melin, 2009). The practice turn in social science, well embraced in management studies (Vaara & Whittington, 2012), is relevant to develop new knowledge in the field of business law. We study the practice of shareholder protection and aim to narrow the gap between theory and practice regarding business law and FOBs. An entrepreneurially friendly and inspiring environment presupposes that business owners can protect their ownership positions against unwanted acquisitions of shares, as well as that they are not unwillingly locked-in in a position as minority owners. In addition, this requires legal rules that are not unnecessarily costly, time and energy consuming to comply with, administer and uphold. Legislators should, if possible, thus provide a set of rules that facilitates for owners to effectively avoid both unwanted acquisitions of shares and locked-in positions. We conclude that default rules in the form of e.g. a right of first refusal should be included in the articles, since the lack of an open market place anyhow makes it highly difficult to sell the shares. Furthermore, we find it important to allow also clauses that enhance the possibility to avoid locked-in positions in the articles whereas most national legislations today permit only clauses that contribute to the protection of ownership positions. **Key words:** family business development, small- medium sized enterprises (SME), business law, share transfer restrictions, minority shareholders, articles of association, shareholder's agreement, practical implications

## **Key words:**

Enterprises, transfer restrictions, family businesses, minority shareholders

## **Introduction**

The practice of family owned businesses (FOBs) is quite different from large companies with scattered ownership (Nordqvist, Hall & Melin, 2009) because of the intertwined and reciprocal relationship between the family and the business they own (Sharma, 2004). The effectiveness and continuity of small to medium-sized FOBs is highly dependent on stable ownership positions. A majority owner(s) elects the members of the board who, in turn, appoint the CEO. Thus preserving a majority ownership position is crucial for running the business. Furthermore, owners often wish the descendants to take over the firm. Then it becomes decisive to keep the shares within a family. The threats to ownership stability are many, complex and dynamic. One owner may, to the detriment of the companions, wish to sell his/her shares to the highest bidder or give them to a descendant. The same owners spouse can file for a divorce and the value of the shares can be included in the division of matrimonial property. Further, s/he can suddenly die, or be forced to retire due to old age or health problems.

Also the possibility for minority owners to exit is important for a FOB. A minority position can be obtained in many ways. Majority owners who are planning for a succession can, for example, start with giving the descendants ten per cent each of the shares. Further, a minority position can be obtained after an intestate succession or a divorce. Such posts are

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often very difficult to convey. Few buyers are willing to pay for shares that do not pave the way to an influence over how the business is run. Many minority owners are thus reluctantly locked-in, which results in a passive owner who does not contribute to the development of the firm and whose capital could be more useful elsewhere on the market. Ownership positions in FOBs are protected through *transfer restrictions* included in clauses in the articles and shareholder's agreement. The same legal documents can be used to enhance the possibility for *minority owners to exit*. Another option is to include similar clauses in stipulations for a charter for a family council. We describe, analyze and critically assess these clauses. Previous scholarly contributions on transfer restrictions are few and with scattered angles on the subject (Belcher, 1994; Tannenbaum, 1998; Cadman, 2004; Lacave & Gutiérrez, 2010; Sund, Andersson & Humphreys, 2012). In this paper we focus on minority shareholders in FOBs and especially investigate the following questions:

- 1) What are the rationales behind, and tools for, enhancing stability in ownership positions, or the possibility to convey minority shares, through legal efforts?
- 2) What types of transfer restrictions should be allowed in the articles of association and which ones should be expressed in shareholder's agreement?
- 3) What are the questions related to minority protection and exit rights and what policy should the legislator adopt in this regard?

From legal analysis of these questions we contribute to family business literature on protection of ownership and offer recommendations to policymakers and practical advices for owners of FOBs and their advisors.

There is no established definition of what constitutes a family-owned business (FOB). For the purposes of this paper we define such a business as an unlisted company owned by not more than four families or individuals. Together they hold more than 50 per cent of the shares (voting power). At least one family member is at least holding a position as director or the family, or families, exercise an influence through a family council, or similar. Lastly, a majority of the shareholders wish ownership of the firm to remain in the family/families (e.g. Sund et al, 2010).

This paper is focused on minority shareholders in FOBs, not least their possibility, through clauses in shareholder's agreement, to avoid being locked-in. Furthermore, we emphasize the two types of transmissions that seem especially problematic for FOBs, namely acquisitions of shares through divorce and inheritance.

## Share Transfer Restrictions

Share transfer restrictions can have an almost infinitive variation. Typical is that they in one way or another limit the option to freely convey ownership of shares. The restrictions can deal directly with ownership changes, for example a total ban on transfer of shares, or indirectly target such changes, such as when the co-owners are entitled to buy shares which have been pledged by one of them. Clauses with a more personal character can state that a new shareholder must belong to a certain family, i.e. the shares may not be conveyed to an outsider. Transfer restrictions are targeting either transfers or transmissions. Typical for a transfer is that it only entails the shares, as in case of a gift or sale. Transmissions, on the other hand, often involve all property owned by a shareholder, including the shares in a FOB. A frequent form of transmission of shares is an intestate succession, for example when the entrepreneur has not made an ownership succession during his or her lifetime and eventually deceases. Another example of a transmission is when a divorce in a business family results in shares in the FOB changing hands. Both cases often leads to a new, or several new, minority owner(s) who can be very dependent on transfer restrictions (Sund & Bjuggren, 2011).

An initial crucial question is whether there are sufficient rational reasons to enhance stability in ownership positions, or the possibility to convey minority shares, through legal efforts. Obviously this cannot be the case for listed companies with a multitude of shareholders. On the contrary, it is important that the shares<sup>503</sup> in such companies are freely transferable. It

provides, among other reasons, a daily quoted and reliable market price for the shares. Owners of big companies tend to use other instruments to protect their ownership positions, e.g. a holding company. For non-listed non-family-owned SMEs the reasons to provide opportunities to use transfer restrictions are relatively few. One example of such a company is two companions owning a business with no intentions of passing it on to the next generation. Instead the co-owners intend to sell the shares at a market price to an outsider,

i.e. the business is merely a capital investment. Potential complications are difficulties to find a buyer and excess capital gains tax. In such companies the risk of an unwanted new owner entering the circle of shareholders, or one companion unwillingly becoming locked-in, is limited in relation to FOBs.

In comparison, a FOB which is inherited, or transferred to the next generation during the lifetime of the entrepreneur(s), creates a highly complicated situation: Who will be the new majority shareholder(s) and who will head the company (Sund & Bjuggren, 2007)? Furthermore, owners and managers are in most cases the same persons and if one wishes to sell his or her shares, a change of ownership of shares typically also affects both the management and the business family. The matter is further complicated by the fact that the reasons for ownership changes are not only a wish to sell but also include forced exits caused by health problems/old age, death and divorce. Additionally, shares are often difficult to transfer to a new external owner (i.e. outside the family and the circle of established owner(s)). One reason is the previously mentioned lack of market value since there is no daily quoted prices on a stock market. For these business owners there is abundance of reasons to protect the ownership and, for minority owners, to avoid locked-in positions.

Constructions used by big companies (holding company, etc.) are unusual in FOBs. Instead the owners rely on transfer restrictions in the articles of association and shareholder's agreement. These documents often appear in a standardized form and are introduced at the inception of the firm.

It should be mentioned, though, that transfer restrictions are not always beneficial. When one owner wishes to transfer a part of his or her shares to a descendant in preparation of a future succession, a prohibitive clause could render such a transfer impossible. However, those situations should be avoided through exemptions (in the clause) for within-family transfers.

## The articles of association

### Introducing the articles

In general the articles provide a more secure way to avoid unwanted acquisitions of shares than shareholder's agreement. The company is bound by clauses in the articles and transfers in good faith are not possible. In comparison, the company is in many jurisdictions not bound by stipulations in shareholder's agreement. Thus the company must in such cases accept and register a new owner, although it is in breach with a clause in the shareholder's agreement, and acquisitions in good faith may be possible. However, national legal systems can deviate from this general picture. The relatively extensive impact of the articles, as well as the inappropriateness of certain restrictions (e.g. a prohibitive clause), makes it important not to allow all transfer restrictions in this instrument.

Statutes dealing with transfer restrictions can be shaped in relation to one of two extremes; either all restrictions are prohibited in law or all limitation on transfers are left to be decided by the parties, i.e. they are fully allowed to agree on any restrictions. The first alternative is a violation of the freedom of contract. Further, in practice the parties will, if needed, create other instruments to restrain unwanted transfer of shares. Alternative two – no interference from the legislator – can result in shareholders creating restrictions that goes too far, for example a prohibitive clause unlimited in time. Such a restriction would be incompatible with principles of property law. Within this amplitude the next question is which restrictions should be allowed in the articles?

## **Legally allowed clauses in the articles in Swedish companies**

According to Swedish law, only three types of clauses can be introduced in the articles:

1. A *consent clause* requires approval from the board or the annual meeting. If an application is denied, the shareholder can be allowed to appeal or demand that the board find another buyer. A *right of first refusal* requires a shareholder who wishes to convey his or her shares to notify the board, which in turn will inform the other owners. These have an option to buy the shares.

These two clauses must be complied with before a shift of ownership of shares and they can only entail transfers, such as a sale or a gift (not transmissions, for example an inheritance).

2. The third and last restriction allowed in the articles, a *post-sale purchase right*, is triggered after a transfer or transmission has been fulfilled.

All of the mentioned restrictions are constructed with the purpose to avoid unwanted new shareholders. In other words: They protect the positions of the established majority owner(s). The clauses are not molded in a way that enhances the possibilities for minority owners to avoid being locked-in. Thus the difficulties to sell minority posts cannot be counteracted via the three types of clauses that are allowed in the articles. The pros and cons of each clause are developed in Sund et al. (2012).

## **Shareholder's agreement and other instruments**

### **Introducing shareholder's agreement**

Typically, clauses legally not allowed in the articles but still considered important by the owners, are inserted in the shareholder's agreement (Chemla et al., 2007). As mentioned, such restrictions can have an almost infinite variation (e.g. Cadman 2004). On the question of how to avoid unwanted acquisitions of shares, we can only provide a number of examples of clauses and attempt to present them in a chronological scale in the following section. This, we hope, will provide a certain overview of the options. In this context we also suggest family law documents that can be helpful in order to protect ownership positions, such as a marriage settlement. Furthermore, examples of clauses that can contribute in avoiding locked-in positions are presented.

### **Avoiding unwanted acquisitions by a third party**

Using a chronological angle we find that transfer restrictions – molded in order to avoid acquisitions by a third party, i.e. outside both the family and the circle of established owners – span from cases where all changes of ownership of shares are eternally forbidden to cases when the shares can be bought from a new owner after a change of ownership has taken place.

1. A *prohibitive clause*, with a total restrain on transfer of shares, can be applicable during a certain period, usually a few years after start-up, or in perpetuity. The latter will probably not be upheld by the courts. Usually prohibitive clauses cover transfers, such as sales, but not transmissions, for example division of matrimonial property in case of divorce. Similar restraints can also appear in the form of a *personal clause*, e.g. with a total ban on conveying shares outside a certain family (Bråthen, 1996).
2. A *consent clause* requires approval from e.g. the board.
3. A *pre-emption right* demands an owner who wishes to convey his or her shares to notify the board, which in turn will inform the co-owners who have an option to buy the shares. A clause which is triggered when an owner by a third party is offered to sell his or her shares and which obliges the owner to sell the shares at the same price to the companions is labeled *right of first refusal* (Chemla et al, 2007).

The last two types of clauses can, if they are used by Swedish owners in the shareholder's agreement, be assumed to focus on transmissions, since restrictions that entail transfers are allowed in the articles.

4. A *post-sale purchase clause* (triggered after a handover) can include both transfers and transmission. We assume that it is in most cases used in the articles in Swedish companies, not in the shareholder's agreement.

Exceptions are often made in the mentioned clauses for e.g. sales to established shareholders or inheritance by family members.

Through stipulations in a charter for a *family council* family members can influence who is going to be a new (majority) shareholder. Perhaps such a clause demands unanimity, or a certain qualified majority among family members before shares can be transferred.

Furthermore, the risk for a divorce in a business family makes it important that spouses write a *marriage settlement* where the shares are made to separate property and thus are excluded from a division of matrimonial property. However, according to one study in the USA it appears as this is rare (MassMutual, 2002). Nevertheless, every son and daughter of a business family should insist on a pre-nuptial agreement before they marry. Otherwise, their shares in the FOB can be included in the division of matrimonial property in case of a future divorce (Sund et al, 2010). It should also be mentioned that a new owner, attaining his or her ownership through a divorce may end up with a minority post of shares. The situation with minority owners in the form of ex-husbands or ex-wives can cause problems that hamper the development of the business. This minority post can turn out to be impossible to sell, unless the co-owners have created an internal market (see next section)..

Additionally, when parents transfer shares to their descendants, through a testament or a gift, they should stipulate that the shares are separate property of the receiver. Then those shares will be exempt from the division of matrimonial property in case of a future divorce. In some countries, gifts will automatically (no conditions required) make the shares to separate property, for example in some states in the USA (Oldham 2009: 10 – 2-3). Companions can include clauses in shareholder's agreement whereby each is encouraged to write a marriage settlement. However, according to another American study, clauses entailing acquisitions through divorce often seems to be forgotten (Morrow, 2001).

The threat of a *sudden death* among owners of FOBs should give incentives to plan and carry through a succession during the lifetime of the older generation, perhaps through a gift or a testament. However, it is well known that this is not always the case. The ownership of the shares in the FOB too often ends up in the hands of the owners of the estate of a deceased shareholder. Then the rules of intestate inheritance will become decisive for the outcome, if the owners cannot agree on another solution. In such case it becomes important for co-owners to have the option to buy the shares as well as for the owners of the estate to have the option sell, if they do not wish to presume ownership after a division of the estate (Sund et al., 2010). This requires an internal market that can be created by a put option that obliges the other owners to buy the shares.

### **Evading a locked-in position**

As previously mentioned, it is typical for SMEs that shares may not be possible to sell to a new shareholder. Few persons are, for example, prepared to buy a minority post with no real influence in the business. The result can become that a shareholder, perhaps after a divorce or an inheritance, is locked-in which often results in him or her becoming a reluctant passive owner. The capital represented by the shares does not contribute to the business in an active sense. This drawback can be counteracted via transfer restrictions creating a form of internal market. The first two examples are, in this sense, important in relations to a third party:

1. In a *drag along*-restriction the shareholders agree that if one wish to sell his or her shares to an third party, also the others are obliged to convey their shares at the same price and other conditions to the same acquirer.
2. According to a *tag along*-clause a selling owner is obliged to bind the acquirer to also buy the shares, at the same price and other conditions, from the other owners, if they are willing to sell. This can be a very beneficial way to exit for minority owners (e.g. Chemla, 2007; Lacave & Gutiérrez, 2010).

It should be mentioned that several authors emphasize the importance for minority owners to be protected by the two mentioned clauses if a majority shareholder, for example in a venture capital company, wish to sell his or her shares before an agreed date (e.g. Lacave & Gutiérrez, 2010). The following clauses can be important between the established co-owners:

3. A *put option* provides an owner with the right to sell his or her shares to the co-owners. A *mandatory buy-sell agreement* can have a similar impact, i.e. it obliges the other owners to buy the shares if one shareholder wish to sell or is deceased (Belcher, 1994; Tannenbaum, 1998).
4. When a shareholder has a right to buy the shares from a co-owner, which is labeled *call option* (Chemla et al, 2007).

A common main purpose for all these restrictions is, in our opinion, to counteract the lack of an open market place, not to avoid unwanted acquisitions of shares. We therefore discuss and analyze how the co-owners can create an internal market serving the interests especially of the minority owners in a FOB.

Lacave & Guitérrez (2010) mentions one example of a FOB in the fourth generation and with several owners. Using a tag-along clause these can discourage one owner who wishes to sell his or her shares to a third party and thus alone cashing in on a family business reputation built up over generations.

In the following case vignettes we present additional examples of transfers (sale and gift) and transfers after a transmission (divorce and intestate inheritance), which can be impossible to carry through due to the lack of an open market:

1. In case of an intergenerational succession of ownership in a FOB it is common that the entrepreneur A (80 %) starts with handing over minority posts to the children, for example B and C (10 % each). A put option can serve the interests of B and/or C of being able to regret the engagement and exit. Thus if B or C wish to sell, the co-owners are obliged to buy.

Assume that each co-owner after a few years own one third each of the shares. Furthermore, B is working as CEO and has initiated several interesting projects that have the potential to manifold the market value of the firm. A or C can decide to capitalize this potential future value by selling his or her shares to a third party before the optimum development is reached. Through a drag-along clause the other two co-owners can have the same option and thus, among other benefits, discourage an early exit.

2. If a spouse, according to national law, can acquire shares in a FOB through division of matrimonial property in case of divorce, it can be beneficial for all co-owners if the new shareholder can sell the shares, however only to the companions. Thus the latter can through a call option avoid a third party (perhaps a competitor) entering the scene and the ex. spouse can cash in (although there is no open market).

Should the ex-spouse remain and if other co-owners wish to sell after a few years, the buyer may require all the shares. In such a case a drag-along clause can be useful for them, since it will oblige also the divorced spouse to sell. The latter can, on the other hand, benefit from a tag-along clause, if it is the other shareholders who have sold their shares (which together form a majority).

3. The third way to acquire shares which is typical for FOBs is when the entrepreneur dies without having carried through a succession. National law will then be decisive for who will inherit the shares (Sund et al., 2010). For the sake of simplicity, assume that the shares are in equal portion inherited by three children. If there are other co-owners, the three kids can through a put option have a possibility to sell the inherited shares to them. Should the children be the only co-owners, each will benefit from a drag-along clause. Otherwise, one of them may cash in by selling his or her shares to the detriment of the others.

A drag along-clause is not beneficial for every owner in all cases. It can, for example, result in a shareholder unwillingly being forced to sell. One drawback with a tag along-clause is that it may result in even bigger difficulties selling the shares in these businesses, since a buyer cannot acquire just a majority post. She or he will be forced to buy all the shares in the firm. The benefits of a put option can be dependent on how the value of the shares is decided. Even if it is agreed to use a fair value, it is still complex to establish. The same disadvantage is typical also for a call option.

## The minority shareholder and exit – the legislative perspective

From a financial and legal point of view, shareholders with a minority position in a FOB may find themselves in a position where they want to exit the company. The reasons may vary from case to case, but can basically be subdivided into the following groups:

- (a) The minority shareholder is no longer able or interested in continuing being actively and/or passively involved in the firm because of age, health or other similar reasons.
- (b) The minority shareholder is no longer in a position to be, actively and/or passively, involved in the firm because of disagreement between him or her and the other shareholders concerning the current or future prospects of the company. Such disagreement might either be attributable to the minority shareholder or the majority shareholder or both.
- (c) The minority shareholder is no longer directly or indirectly being allowed to, actively and/or passively, being involved in the firm because of oppression by the majority shareholder which takes the form of the minority shareholder being deprived of his or her at least implicit right to involvement in the FOBs business and/or economic reward by way of remuneration or dividends from the company.

From a legislative point of view there are a number of different policies whereby a legislator can address exit issues in corporate law legislation. These different policies may be broken down into the following approaches:

The either *explicit or implicit ignorant approach* means that the legislator leaves the exit problem to the parties to solve either in the articles of association (assuming it is allowed, which may or may not be the case) or in shareholder agreements. Typical for this approach is that the legislator is not aware or at least pretend not to be aware, of the economic efficiency losses and practical problems associated with exit situations. This is currently the legal situation in for instance Sweden. To make matter worse it is unlikely that the parties even legally may solve the exit situation by way of exit rules in the articles of association in Swedish company law. Probably the parties may legally only address the issue in the shareholders' agreement.

The *liberal non interventional approach* assumes that the legislator basically is aware of the exit problem or at least not substantially unaware of it, but leave it to the parties to solve it either in the articles of association or in a shareholders agreement (Denmark serves as an example of this approach).

The *liberal standard contract approach* likewise assumes that the legislator is aware of the exit problem and, furthermore, includes a set of default rules in the corporate legislation which addresses the typical problems associated with exit in the aforementioned situations (a)-(c). The set of default rules will not fit a minority of FOBs and those may deviate from the either in the articles of association or in a shareholders agreement (assuming such an agreement may override rules in the corporate statute).

The *conservative social-liberal approach* also assumes that the legislator is aware of the exit problem, but contrary to the other legislative policies supra the legislator in this case deems it necessary to intervene because of the risk for ethical unacceptable consequences and/or economic efficiency losses. Therefore the legislator intervenes with mandatory rules which addresses the problem (Norway illustrates this approach). Such rules may be either *minimum rules* which allow a higher degree of protection for the minority shareholder, i.e. the

right to exit due to other, different circumstances, in the articles of association or in the shareholder's agreement or *exclusive rules* in that they do not allow any other, alternative regulation in the articles of association or in the shareholder's agreement.

In practice most jurisdictions solve the exit problem by way of a legislative policy which contains elements of more than one of the approaches supra. And, furthermore, many jurisdictions address the exit problem by way of indirect rules rather than direct rules. In for instance some countries an oppressed shareholder may by way of invoking a rule concerning unfairly prejudicial conduct get a court order for winding up the company and thereby bargaining from strength for exit against a majority shareholder (UK belongs to this category).

In our view, the most essential in the law making process is to avoid the *explicit or implicit ignorant approach*. Any of the other approaches has their advantages and disadvantages. From an economic point of view we are not aware of any substantial economic analysis whereby they *per se* have been analyzed and compared to each other although there are a number of research papers in the area of exit rules. As a matter of fact there is some empirical evidence that at least the *liberal non interventional approach* is malfunctioning in practice because shareholders do seldom address the exit problem at the time the company is formed or later (Neville, 2010).

## Conclusions

An entrepreneurially friendly and inspiring environment presupposes continuity, i.e. business owners can protect their ownership positions against unwanted acquisitions of shares, as well as an opportunity for change in the sense that they are not unwillingly locked-in in positions as minority owners. These circumstances points to a need for legal efforts. Additionally, it requires rules that are not unnecessarily costly, time and energy consuming to comply with, administer and uphold. Legislators should, if possible, thus provide a set of rules that makes it possible for owners of SMEs to effectively avoid both unwanted acquisitions of shares and locked-in positions (not least as minority owners). The tools for this endeavor are transfer restrictions.

The absence of an open market can make it highly difficult to sell shares in FOBs. Perhaps the only interested buyer is a competitor who suggests a low price and has no other ambitions than to gain access to business secrets. Thus default rules (i.e. restrictions that are always included in the articles, unless actively opted out) in the form of e.g. a right of first refusal can cause only limited controversy and need not be created by the shareholders (Sund et al, 2012). No money and time have to be spent on forming transfer restrictions (unless the legally provided are opted out). It can be more controversial to have a put option, since it may become costly for co-owners, and consequently the firm, to buy the shares from one shareholder who wishes to exit. Thus we advocate the liberal standard contract approach.

On the question which types of restrictions that should be allowed in the articles, we limit the discussion to FOBs and we focus on the previously mentioned situations where transfer restrictions seem to be of special importance for these businesses, i.e. when shares are acquired through divorce or intestate inheritance.

One striking conclusion for countries like Sweden, which only allow transfer restrictions targeting protection of ownership positions in the articles, is that minority owners can be left without realistic possibilities to exit. It is obvious that an owner in a minority position would benefit from e.g. a put option in the articles, such as a descendent who as a gift receives ten per cent of the shares, in preparation for a future succession, from the entrepreneur. Also on a societal level it is more productive if such an owner can sell the shares to the co-owners and instead invest the capital in a new business where s/he can be an active owner. Perhaps such restrictions should be implemented in the articles through a default rule? By creating this kind of internal market many problems of locked-in positions can be solved. This can surely contribute to less money, energy and time spent on negotiations and litigations, as well as provide more risk-willing capital. Furthermore, on some instances it appears to be a

better solution than the previously mentioned alternative (right of first refusal), such as a put option in cases where an owner ends his or her employment in the firm. However, an internal market presupposes a price mechanism. Otherwise the problems of being stranded in a minority position can result in a very low price for the shares. One possibility is to oblige the accountant to calculate a price annually, which is used until it is time to estimate a new. Perhaps this solution has to be supplemented with an agreement on the method(s) to use for this annual evaluation.

The benefits of having an internal market are even more obvious in cases where a shareholder, in a family firm, is deceased. If the owners of the estate do not wish to continue owning the shares they can, through a put option that obliges the other shareholders to buy the shares, have a possibility to exit the firm.

The last situation, special for family-owned SMEs, is the case of divorce. Here we advocate making it legally impossible to gain ownership in these businesses through division of matrimonial property, unless the shares are a pure capital investment (Sund et al, 2010). Thus a transfer restriction (call option) allowing co-owners to buy out a new owner after divorce will be of minor importance.

If it is not possible to use the mentioned type of clauses in the articles, we recommend families, owners and consultants to consider using it in the shareholder's agreement. Family members who wish the shares to remain over generations can use clauses with a personal character in stipulations in a charter for a family council or in a shareholder's agreement.

In relation to previous research on transfer restrictions, we limit our approach to FOBs and the legal angle. Furthermore, it is not possible to cover all transfer restrictions that are allowed in the articles according to national legislation in all countries. We use the Swedish legislation as one example. A similar limitation has to be used for the infinite variation of clauses in the shareholder's agreement. We present a number of options on a time scale for clauses protecting ownership positions and use a dual approach – on the one side, in relation to a third party and, on the other side, relative other established shareholders – for clauses enhancing the possibilities for a minority owner to exit. However, we do not claim to have exhausted the options. Among other interesting directions for future research on the positions of minority shareholders, we would emphasize comparative analyses between countries, as well as further explorations of national means to enhance this protection.

## References

- Belcher, D.I. (1994). Buy-sell agreements for family businesses. *American Law Institute* (C 939 ALI-ABA 211).
- Bråthen, T. (1996). *Personklausuler i aksjeselskaper*. Oslo: Gyldendal.
- Cadman, J. (2004). *Shareholders' Agreements*. London: Sweet&Maxwell.
- Chemla, G., Ljungqvist, A. & Habib, M.A. (2007). An Analysis of Shareholder Agreements. *Journal of the European Economics Association*, 5(1) 93-121.
- Lacave, I.S. & Gutiérrez, N.B. (2010). Specific Investments, Opportunism and Corporate Contracts Theory of Tag-along and Drag-along Clauses. *European Business Organization Law Review*, 11(3) 423-458.
- Neville, M. (2010). A Statutory Buy-Out right in SMEs - an Important Corporate Governance Mechanism and Minority Protection? In M. Neville & K. Ensig Sørensen (Eds.), *Company law and SMEs* (pp. 247-293). Thomson Reuters.
- Nordqvist, M., Hall, A., & Melin, L. (2009). Qualitative Research on Family Businesses: The Relevance and Usefulness of the Interpretive Approach. *Journal of Management and Organization*, 15(3), 294-307.
- Morrow, E.P. (2001). Your business succession plan: Are you going barefoot? *Journal of Financial Planning*, 14(5) 2-4.
- MassMutual Financial Group (2002). *American family business survey*. Springfield.
- Oldham, J.T. (2009). *Divorce, separation and the distribution of property*. (Release 44). New York: Law Journal Press.
- Sharma, P. (2004). An Overview of the Field of Family Business Studies: Current Status and

- Directions for the Future. *Family Business Review*, 17(1), 1-36.
- Sund, L-G., Almlöf, H. & Haag, K. (2010). Divorce and death in the family firm – A business law perspective. *European Business Law Review*, 21(2) 101-118.
- Sund, L-G. & Bjuggren, P-O. (2007). Family-owned, limited close corporations and protection of ownership. *European Journal of Law and Economics*, 23(3) 273-283.
- Sund, L-G. & Bjuggren, P-O. (2011). Ownership Restrictions, Risk and Team Considerations in Family-owned Businesses. *European Business Law Review*, 22(1) 93-105.
- Sund, L-G. & Bjuggren, P-O. (2012). Protection of ownerships in family firms: post-sale purchase clauses and management perspective. *European Journal of Law and Economics*, 33(2) 359-370.
- Sund, L-G., Andersson, J. & Humphreys, E. (2012). A European Private Company and Share Transfer Restrictions. *European Business Law Review*, 23(4) 483-496.
- Tannenbaum, F.D. (1998). What every business lawyer and business owner should know about buy-sell agreements. *Practicing law institute corporate law and practice course handbook series* (1089 PLI/Corp 441).
- Vaara, E., & Whittington, R. (2012). Strategy-as-Practice: Taking Social Practices Seriously. *The Academy of Management Annals*, 1-52.

# Rural tourism and agrotourism in the Slovak Republic

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## Abstract:

Tourism is a part of social life and is developing worldwide on a massive scale every year. Its dynamics is exceptional and brings significant gains to many countries.

Slovakia has very good conditions for tourism development, i. e. and for his components – agrotourism and rural tourism. In addition to natural attraction such as mountains, caves, lakes, healing mineral springs, rich flora and fauna. The Slovak Republic also offers a valuable historical buildings and complexes, cultural monuments, castles, palaces, buildings of folk architecture, folk expressions, traditional crafts etc.

Nowadays, rural tourism and agrotourism are becoming quite frequent terms, although rural tourism in Slovakia is relatively a new form of tourism in comparison with other countries. The recognition of cultural traditions, especially the specifics of individual regions of the world, is considered one of the most profitable industries. Global trend of mass tourism circumvent and Slovakia – the country although a small size, but rich in natural, cultural and historical features. Global trend of mass tourism also does not ignore Slovakia at all – it is a country with a small size but rich in natural, cultural and historical wealth. Rural tourism and agrotourism are put down for the future of the countryside as a stabilizing factor in economic and social development.

Social and economic benefits can be included to the most important in rural tourism and agrotourism from which we can mention for instance: the improvement of infrastructure, development of small and medium-sized enterprises, improving income and others. Agrotourism in Slovakia can gradually subserves several basic goals such as maintaining the traditional rural settlements and the security of landscape and ecological functions, utilization of material base of farms and private farmers for the provision of agrotourism and not only to gain additional income but also using of the available material base of rural population.

Rural tourism is a higher income for the village, possibilities to create job opportunities in the village, their revitalization and also improves the living standard of the population.

Entrepreneurship in rural tourism has its own certain specificities. Engaging communities and businesses in tourism development is influenced by objectives pursued by both visitors and entrepreneurs. Visitors want to spend their vacation on extraordinary places, which are connected with nature and values. Countryside represents these values and also its own way of life, traditions and the beauty of countryside, connection to nature, implementation of physical activity to health care of family, especially children, full board etc. The entrepreneurs service providers must realize these values. Successful businesses in rural tourism quality are services for visitors. Therefore it is very important to know about the technology and ways to provide rural tourism services on required standard.

Slovakia is one of the most rural countries of the Europe. The exact number of agricultural entities working with agrotourism and country tourism is unknown.

Customers' requirements about a good countryside vacation should encourage the entrepreneurs in rural tourism to provide their facilities with additional services.

The aim of this paper is the evaluation of the position of the Slovak rural tourism and agrotourism based on the acquisition and processing of information in this field.

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Free available reports, materials and data published by Agricultural Paying Agency (PPA SR), professional publications, papers and other resources were used for processing this paper. To solve this problem, we used information, which were taken from the World Economic Forum and the Slovak Agency for Tourism.

### **Key words:**

Rural tourism, Slovak Republic, entrepreneurs, agrotourism, income, countryside, tourism, services.

## **Introduction**

Travelling has been a characteristic feature of human society and lifestyle. At these days, tourism is like any normal consumer product transacted through retail outlets, wholesalers, and even departmental stores of many countries.

Original opportunities of leisure time, quality environment, relaxation, peace or being in nature are becoming searched mainly at the present time, when is no day without stress, mass media, technology or progress. A lot of people are hardworking and don't have enough time for themselves. It is important to be connected with the nature for each of us, especially children. Because of not being in nature people lose their immunity. Those children who live in the city usually do not know the feeling of being in fresh air, caring about animals, eating ecological products, enjoying calm and full of nature sounds environment. Especially in these times families enjoy spending the day together.

In the Slovak Republic staying in the country has a deep tradition. The existing diverse cultural and especially natural potential of Slovak municipalities can be used for the development of rural tourism and agro-tourism in the Slovak Republic.

## **Something about rural tourism and agrotourism**

Rural tourism has developed considerably in recent decades and now offers a warm alternative that includes accommodations in a rustic atmosphere in the heart of nature, with delicious meals from the best of the local produce. Agrotourism is a specialized form of rural tourism. In simple terms, agrotourism is the crossroads of tourism and agriculture: when the public visits working farms, ranches or wineries to buy products, enjoy entertainment, participate in activities, shop in a country store, eat a meal or make overnight stays.

There is a wide range of guest rooms, family vacation units or pampering wooden cabins with breath-taking views of the landscape, either scattered among the green fields of kibbutzim or perched on mountaintops and hillsides, in the heart of orchards and pine groves, along the beach or beside rivers. Some cabins come with wonderful surprises, such as double jacuzzis and scented candles for a romantic atmosphere, while others offer agricultural activities, such as harvesting fruit in season, a visit to the cowshed or sheepfold, horseback riding, a ride in a wagon drawn by a tractor, visits to fruit and vegetable packing plants and olive oil or wine presses. There are also swimming pools, playground equipment for children and hammocks, for relaxing with a view of the horizon. All you have to do is give yourself up to the quiet pastoral surroundings and sink into never-ending tranquillity. Agrotourism is an important element of sustainable development and rural transformation.

An agrotourism farm is any land based farm or business that is open to the public. These specialized agrotourism destinations generally offer things to see, things to do, and produce or gifts to buy, and are open to the public at least some parts of the year. Some agrotourism farms are open 365 days, some only open for a few weekends in the fall. All offer a unique and entertaining farm experience and are generally appealing to all members in a family.

*Agrotourism should ensure the following three basic principles:*

Have something for visitors to see – animals, birds, farms and nature are few things which agrotourism could offer to the tourist. Apart from these, culture, dress, festivals and rural games could create enough interest among visitors in agrotourism.

Have something for visitors to do – participating in agricultural operations, swimming, bullock cart riding, camel riding, buffalo riding, cooking and participating in the rural games are few activities to quote in which tourists can take part and enjoy.

Have something for visitors to buy – rural crafts, dress materials, farm gate fresh agriculture products, processed foods are the few items which tourist can buy as memento for remembrance.

*Positives of agrotourism:*

- it is ideal combination of tourism and agriculture environment,
- it respects natural environment,
- it contributes to the creation and promotion of a country,
- it allows to explore the local beauty and traditions,
- it stimulates development of other business activities.

*Negative aspects of agrotourism:*

- competition of collocation and use of manpower - workers of farm: the main tourist season is essentially identical with the main agricultural season,
- competition of free capital allocation (make a decision about investment of financial resources),
- family members are hardworking, mainly women of farmers, negative impact on the environment (damage of field roads, interference of wild animals).

Importance of agrotourism is not only for tourists. Agrotourism is important for farmers, villages, regions and the state.

*Importance for tourists:*

- search for peace, quiet and nature,
- know the lifestyle and the philosophy of a farmer,
- search for their own family roots,
- possibility of collection of berries, purchase fresh fruit, vegetables, domestic products,
- chance to test their skills in agricultural work,
- cheaper vacation or holiday,
- suitable type of holiday for families with young children.

*Importance for farmers:*

- additional income resource,
- usage of free capacity of manpower in family,
- attractiveness of activities on the farm,
- community presentation,
- motivational aspect of the successor to the family farm,
- limiting outgoing of young families from the village,
- use and financial evaluation of free accommodation facilities or premises,
- use of land, water, woods, natural formations on own land or village land for vacation and relaxation.

*Importance of agrotourism for villages:*

- it uses existing housing stock or objects which have not served to its original purpose,
- increases level of village equipment,
- creates sales of agricultural products,

- increases residents' income and income of a village,
- creates financial resources for equipment of a village,
- creates conditions of formation new jobs,
- revives and maintains traditions, folklore,
- revives and maintains culinary habits,
- contributes to using of cultural, natural and historical potential of not only village.

*Importance of agrotourism for regions and the state:*

- becomes an important production function of agricultural and alternative to solve some of problems,
- reduces unemployment in agricultural sector and creates job opportunities also in other fields used by agrotourists,
- stabilizes the rural population,
- helps to maintain and functional restore rural settlement,

In case of developing agrotourism in the Slovak republic is important that operators of touristic facilities have to use better ways how to lure local clients. With this know-how they can than lure foreign visitors.

## **Support programs of rural tourism and agrotourism**

Promoting the development of rural tourism and agro-tourism in Slovakia in the regional tourism requires a comprehensive support system and tools at national, regional and local level. Promoting tourism in a particular area is a part of the regional policy, which is the purposeful component of state and local governments at the central, regional and local level and effects on dynamics of the development of individual regions. The system programming documents of regional policy is created by strategic plan regional development, regional development programs, and concept development of region. The following document is the issue of tourism as a factor of regional development. The system of economic instruments of regional policy consists of several elements: the credit system instruments (interest rate reduction, extension of the maturity of loans, payment of the loan, payment of interest or part), tax policy (tax breaks, including the regionally differentiated tax relief redistribution processes in areas tax), investment and non-investment grants and subsidies, government guarantees or bank guarantees).

### **A.) The program documents of Slovakia**

Basic program document for the implementation of regional and structural policy of the Slovak Republic is the National Development Plan (NDP) for the period 2007 to 2014, which defines the objectives, priorities and measures will not only financed by the Structural Funds, as well as from national sources and the applicant's own resources.

National Development Plan was formed to meet the following criteria:

- full compatibility with the programming means of regional policy in the EU Member State,
- creating documents for withdrawal of funds from the Structural Fund,
- part of the national economic policy aimed at regional development.

National Development Plan provides a comprehensive overview of the current state of SR regions, their strengths and weaknesses, shortcomings and possibilities and areas of development. NDP describes the options for addressing the problems of these regions, also defines development priorities and possible way of achieving them. NDP analyzes the macroeconomic environment, economic and social situation in Slovakia and specific analysis of individual sectors. On the basis of these indicators, NDP define strategic goals and priorities which are necessary to achieve it. The aim was to increase the competitiveness of the NDP and the performance of lagging regions while respecting sustainability and to narrow the gap in GDP per capita compared to the EU countries. National Development Plan is implemented through operational programs.

**B.)** Another program document is **The plan of economic and social development**. The town, city or region to prepare the plan fulfils one of the basic principles of the EU regional policy – the principle of programming. The plan of economic and social development of the municipality is to have each community developed in accordance with the programming documents. The possibility of obtaining public funding from the EU funds and the state budget is often tied to the ability of community development projects co-financed from its own resources, respectively the sources of private investors. The importance of the economic and social development is also necessary to highlight because the scoring system to assess the quality of applications and projects, grants or does not grant the request points depending on whether or not processed according to said plan and whether the project has required a close connection with the activities of neighbouring communities, cities, counties, micro-region or region. Therefore missing points can be often cause for rejection of the application for financial support.

**C.) Community Support Framework**

It is a basic program document of a Member State for the use of EU funds in the period 2000 – 2006 and approved by the Commission in agreement with the Member State. European Commission in the development of the Community Support Framework is based on adopted Development Plan of the State (in the case of SR was developed National Development Plan 2004 – 2006). Community Support Framework includes the strategy and priorities for action of the Funds and the Member State, their specific objectives, the contribution of funds and other financial resources. This document is divided into priorities and implemented through one or more operational programs. In the case of the Slovak Republic applies to Objective 1 of EU cohesion policy. In the next programming period 2007 – 2013, the Community Support Framework is replaced by another type of document – the National Strategic Reference Framework.

**Program documents relating to rural development**

Sectorial Operational Programme (SOP) Agriculture and Rural Development (RDP) is a program on which will be carried out measures for all regions outside Bratislava, falling below 75% of GDP per capita of the EU average. Rural Development Plan 2007/2013 is one of the programming documents for the implementation of the adopted measures. Sectorial Operational Programme Basic Infrastructure, which will be carried out by one measure – Renovation and development of villages and protection and conservation of rural heritage.

**European Social Fund**

Structural Funds play a substantial role to help all regions build research and innovation capacities corresponding to their situation and priorities. This approach is reflected in the Commission's Strategic Guidelines for Cohesion Policy, which expects the Structural Funds to fully back the implementation of the Partnership for Growth and Jobs.

The European Social Fund is the oldest source of structural funds. It was established in 1957 by the Roma agreement on the constitution of the European Economic Community.

ESF contributes to the priorities of the Community regarding enforcement of economic and social consistency through improvement of employment opportunities, support of high employment rates, and an increase in the number and quality of working places. It does so through support of the member state policies that focus on achievement of full employment, equality and work productivity, support for social inclusion including the access of disadvantaged people to employment and the reduction of national, regional and local difference in employment. To fulfil these tasks, the ESF supports priorities of the Community regarding the necessity of enforcing social consistency, increases of productivity and competitiveness and support of economic growth and permanently sustainable development.

In pursuit of this activity the ESF considers particular priorities and goals of the Community in the areas of education and professional preparation, increasing participation of economically inactive people in the labour market, fighting against social exclusion,

particularly exclusion of disadvantaged groups such as people with physical handicaps, supporting equality between women and men and eliminating discrimination.

### **EU Structural Funds as a tool for rural regeneration**

From 1 January 2004, Slovakia has a chance to benefit non-refundable funds from the EU structural funds. Their goal is levelling out differences in levels of development between regions and EU Member States, with emphasis on disadvantaged and lagging areas, including rural areas. Funds are the main instruments of EU regional policy and in these activities directed to one third of the total EU budget. The EU Structural Funds are instruments of structural and regional policy, which is aimed at reducing the disparities in levels of development between regions of the EU member countries to strengthen economic and social cohesion. The EU Structural Funds are:

#### **1. European Regional Development Fund (ERDF)**

The ERDF is designed to finance infrastructure investments in job creation, local development projects and small and medium-sized enterprises short, the ERDF finances:

- direct aid to investments in companies (in particular SMEs) to create sustainable jobs,
- infrastructures linked notably to research and innovation, telecommunications, environment, energy and transport,
- financial instruments (capital risk funds, local development funds, etc.) to support regional and local development and to foster cooperation between towns and regions,
- technical assistance measures.

#### **2. European Social Fund (ESF)**

This fund supports the return of the unemployed and disadvantaged groups into employment in particular the funding of training and employment support. The ESF supports actions in Member States in the following areas:

- access to employment for job seekers, the unemployed, women and migrants,
- social integration of disadvantaged people and combating discrimination in the job market,
- adapting workers and enterprises: lifelong learning schemes, designing and spreading innovative working organisations,
- strengthening human capital by reforming education systems.

#### **3. European Agricultural Guidance and Guarantee Fund – EAGGF**

The Fund was set up in 1962, but the arrangements on the financing of the common agricultural policy were finalised in 1970. The EAFRD finances in a context of shared management between the Member States and the Union the Union's financial contribution to rural development programmes implemented in accordance with the European legislation on support for rural development. Budget discipline takes account of the reform of the CAP as provided for by Regulation 73/2009.

#### **4. Financial Instrument for Fisheries Guidance – FIFG**

The aim of the FIFG is to contribute to achieving the objectives of the common fisheries policy. It supports structural measures in fisheries, aquaculture and the processing and marketing of fishery and aquaculture products. In this way it promotes the restructuring of the sector by putting in place the right conditions for its development and modernisation.

### **Cohesion fund**

The Cohesion fund is a specific tool and is aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90 % of the Community average. It serves to reduce their economic and social shortfall, as well as to stabilise their economy. It supports projects in the fields of environment and trans-European transport communications building. For The Cohesion fund there are different rules as for the Structural funds:

- projects are approved by the European Commission,
- covers the whole territory of the Slovak Republic, applicant's contribution to the project is the state,
- rate financing for all projects is 80 to 85 % of public expenditure, minimum amount of the project is 10 million Euros.

### **The Village Renewal Programme in the Slovak Republic**

Village Renewal Programme (POD) is a recognized and successful instrument for rural development in the developed countries of Europe and since 1998 takes place in Slovakia. The primary objective of this process is to maintain the identity of communities, countries and culture development. It seeks to create economic, organizational and technical prerequisites for it to rural communities on their own trying to develop a healthy environment, maintaining the natural and cultural values of the country and the development of organic farming by using local resources.

Village Renewal Programme is based on the principle of recovery of physical, natural and spiritual development environment. It is a process in which the community plan, design and implement such activities and actions that lead to sustained increases in standards of living in the village – along with maintaining its specifics. The program combines all the initiative of people learn their cooperation for a common vision. Vision of how it could look any one Slovak village.

Village Renewal Programme (POD) is a popular and successful tool in the form of rural revival in developed European countries. It is an expression of social changes and return to the original traditional values of rural and community togetherness. It combines elements of reconstruction, development and protection of citizens on the basis of conservation principles.

The main objective of the Village Renewal Programme is to keep a man in the country by creating economic, organizational and qualifications support rural communities to be tried by their own harmonious development of a healthy environment, conservation of natural and cultural values of the rural landscape and environmentally sound development of economic activities with an emphasis the identity of a specific environment.

The Government approved the document for the first time in 1990 – the "Restoration Village". Since then, the program received further guidance on updating it. It was based on principles similar program in Austria and Germany called "Dorferneuerung". Many of the villages involved in the program have confirmed that this is a systematic program that delivers positive results in their development.

### **The current state of rural tourism and agrotourism in the Slovak Republic**

The potential of tourism in the Slovak Republic is quite extensive. It includes almost all the essential types and forms of tourism. One of the forms of tourism is rural tourism.

In the field of rural tourism there are several bodies that provide activities, working in coordination, promotion, presentation of equipment and creating conditions for the development of rural tourism and agrotourism as the Ministry of Agriculture, Slovak Association of rural tourism and agrotourism, Slovak Association of Entrepreneurs in agrotourism. Number of subjects in rural tourism and agrotourism is not exactly known.

Folk architecture is an important component of cultural heritage. Within the European folk architecture belongs the Slovak Republic to the Central European territory which divides the northern area of wooden buildings and stone architecture of Southern Europe. Best preserved folk architecture are often recreation objects. Based on the role played by individual recreational objects, a term "second apartment" is used nowadays. We call the second apartment or facilities as objects that are used for temporary place of residence and are used primarily for vacation purposes.

The range of appearance, dimensions, ways of how to use the buildings, which are used for individual vacation is very wide. It is very difficult to describe an object of individual recreation because in many languages it can have different meanings. Sometimes it has incontinent labelling. For example, the definition in French is "résidence secondaire". It

means a house located in rural area used by a family which has a home in another town and this place is their permanent residence. In English it is "second homes". It is an object of temporary residence of owner who has a permanent residence on other place and uses this object for recreation and vacation.

Objects of individual recreation are a specific kind of accommodation facilities used for recreational purposes. They are characterised by a small accommodation capacity for limited users, their diversity and in most cases there are many located on a small area. We include here objects which were built newly, e. g. cottages, gardening cottages, holiday cottages. These are objects which were used for temporary living, but the way of living there was changed and they were allocated from housing stock and known as cottages.

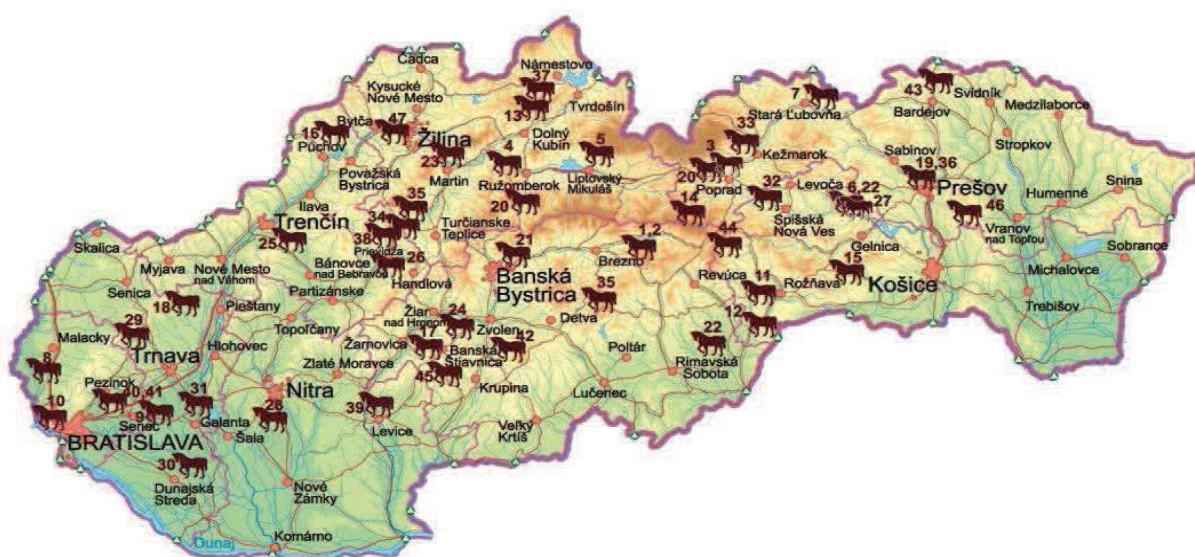
In the Slovak Republic, the Slovak association of rural tourism and agrotourism records objects of individual recreations which are registered in this association. There are many private objects of this kind and therefore it is sometimes difficult not only for a citizen but also for a foreign visitor to find accommodation in some places of this kind in some regions of Slovakia.

**Tab. 1 Registered objects of individual recreation in the Slovak association of rural tourism and agrotourism**

| Region          | Number of districts | Area in km <sup>2</sup> | Number of registered facilities |
|-----------------|---------------------|-------------------------|---------------------------------|
| Banskobystrický | 13                  | 9455                    | 7                               |
| Bratislavský    | 8                   | 2053                    | 8                               |
| Košický         | 11                  | 6753                    | 4                               |
| Nitriansky      | 7                   | 6343                    | 13                              |
| Prešovský       | 13                  | 8993                    | 13                              |
| Trenčiansky     | 9                   | 4501                    | 4                               |
| Trnavský        | 7                   | 4148                    | 13                              |
| Žilinský        | 11                  | 6788                    | 73                              |

Source: Slovak association of rural tourism and agro-tourism (2012)

Online: <http://agroturist.sk/zariadenia.php>



**Pic. 1 Map of the Slovak Republic with marked areas of rural tourism and agrotourism  
Potential of rural tourism and agrotourism in Slovakia**

Agrotourism has an unused potential and it could be a way of contributing to the development of regions in Slovakia. People in rural areas could increase their financial income by providing accommodation and by selling their domestic production. Nowadays more and more tourists search for locations and facilities which provide their own bio products or buying fresh products from local people and they keep the principles of

ecological behaviour in the operation of their facilities. Foreign visitors are similar in this behaviour. They prefer discovering the beauty of the Slovak nature, local cuisine and viniculture.

Rural tourism is a modern phenomenon of the rural economy, capable of enhance the natural, cultural and historical features of the territory and at the same time can become not only a major, but also an additional source of income for the rural population. In Slovakia, 346 villages and localities scattered settlements (hamlets, villages) gradually lose their original economic function and they have natural and cultural potential, which can be used for tourism development in the country. Location of these villages is important. They can be located in lowland, foothill or mountain regions. These regions have their own culture and recreational facilities. Municipalities that are valuable in a recreational area with housing stock and folk architecture are considered as a potential reserve of rural tourism. Recreational and cultural potential of these villages is a part of the rural tourism.

A part of rural tourism is agrotourism which has many advantages, e. g.:

- it uses already build facilities which were not used,
- creates conditions of economic development of the territory,
- contributes to a wider dispersion of tourism land use,
- does not require installation of new areas of wild land for a new building equipment,
- mobilizing funds for the benefit of economic growth involving rural population in tourism services,
- usage of local natural resources and people skills.

### **Actual problems of agrotourism development**

Rural tourism and agrotourism becomes more popular nowadays but there are many problems, which are holding the development of this kind of vacation. The main problems are as follows:

- Quality and complexity of services,
- Cooperation between enterprises in the tourism resort and region,
- Promotion of the Slovak Republic as a tourist destination abroad,
- Business environment for small and medium businesses,
- Coordination of support for rural tourism and agrotourism among central government bodies.

The quality of services is basic precondition for survival of local entrepreneurs in rural tourism and agrotourism.

Small capacity accommodation facilities, e. g. family houses, bungalows, cottages, farms or bigger pensions, provide services for rural tourism is the Slovak Republic. All these facilities are differed by the quality of equipment and by the quality of offered services. In the Slovak Republic exist law forms, which guarantee a minimal standard for equipment and offered services for accommodation facilities. Nevertheless the quality of their services is very different.

This problem is also in facilities in rural tourism for some reasons:

- owners of small accommodation facilities (especially private facilities) are in common unqualified and they are less experienced in this activity,
- unskilled operators resulting from partial relatively low demands on accommodation services in small capacity accommodation facilities as defined in the Trade Act,
- work of small accommodation facilities is most based on family business, operators of accommodation facilities don't employ additional (qualified) workers or they expect from their workers universal skills (they perform accumulated job functions),
- entrepreneurs offer accommodation services in houses and cottages and they provide this activity "illegal", without being registered in Licensing Office, therefore they are not controlled,
- existing categorisation of accommodation facilities defines minimal requirements for their equipment (standards) only in general and also with standards for offering services,

- high investment intensity at the start of business contra limited options by obtaining external resources (especially public). This can influence the quality of equipment in these facilities.

EUROGITES as a professional union developed standards for facilities of rural tourism. EUROGITES is an European sectorial association that represents the interests of national organizations representing typical service operators on farms and in rural tourism. Standards of this union determine the framework criteria for evaluation the products of rural tourism facilities in the Europe. In Slovakia, there is no comprehensive system for evaluating service quality of rural tourism facilities, taking into account national specificities an the standards applicable at international level.

**Cooperation between enterprises in the tourism resort and region** – in the world it is known that everyone who works in rural tourism or agrotourism is “doomed” to cooperate with other subjects of rural tourism in current region. Only in Slovakia we don't know that. Many tourism associations, created for this purpose either no longer work or are struggling with great difficulties. There are only few which work together. Cooperation of subjects and entrepreneurs could lead in better quality of services, better promotion on the tourism market, representation of members, joint tourism products for visitors etc. Even legislative measures cannot be enforced at national level to promote cooperation in tourism (tourism law, or the law on associations). The resistance is from all critical partners who are involved in this implementation (State government and business representatives).

**Promotion of the Slovak Republic as a tourist destination abroad** – small and medium enterprises in rural tourism and agrotourism are able to promote their own devices, but they cannot participate in the promotion of tourism in the whole country. Promotion of agrotourism in the Slovak Republic is on the government. The situation that arose in the Slovak Agency for Tourism, especially in recent years (personnel changes and lack of conceptual work), jeopardize the effective functioning of the organization, and despite several fold increase in the budget for its activities through the EU Structural Funds, it has not experienced significant promotion in Slovakia Foreign tourism markets. In the future it is important to coordinate financial resources of organizations for promotion of tourism and agrotourism in Slovakia.

**Business environment for small and medium businesses** – the reality in business of small and medium enterprises in rural tourism is not very good. Business requires administration work in law changes, administration of various office reports, e. g. tax offices, social insurance, health insurance, government, etc. This requires a lot of work time and entrepreneurs don't spend time to improve the quality of their services and facilities. Many entrepreneurs do this agrotourism by another work which is stable. Despite doing a job in contributions to social and health insurance, the company must pay back payments, regardless of if they have or do not have guests, or if they have high sales. Entrepreneurs can use bank loans and they are now more affordable than in the past, but the problem is their maturity at the current interest rate and terms of the bank. In agrotourism there are many factors which the entrepreneur cannot influence, e. g. bad weather and these factors can influence the traffic and income of entrepreneurs.

**Coordination of support for rural tourism and agrotourism among central government bodies** – development of rural tourism and agrotourism in Slovakia is supported by the Ministry of Agriculture and Ministry of Economy of the Slovak Republic. The Ministry of Economy has as much financial resources for support as the Ministry of Agriculture. The agrotourism is supported by the Ministry of Agriculture of the Slovak Republic because it is connected with agriculture. Therefore for the future it is important that both Ministries will work and support agrotourism together. It is also important to coordinate preparing of documents for calls from central authorities to use structural funds of EU. All entrepreneurs in rural tourism have equal chances for the disbursement of funds of the European Union, regardless of whether they belong to the Ministry of Agriculture or the economy.

In the Slovak Republic, there are many options and positive aspects for the development of tourism as for the rural tourism and agrotourism. But there are also some weaknesses.

**Tab. 2 SWOT analysis of rural tourism and agrotourism in the Slovak Republic**

| STRENGTHS   | WEAKNESSES   |
|---|--|
| <ul style="list-style-type: none"> <li>Good geographical location of Slovakia, short transport distances from major markets.</li> <li>Suitable natural environment for improvement of rural tourism and agrotourism in the mountain and foothill areas.</li> <li>The existence of thermal sources and healing mineral springs.</li> <li>A typical inimitable national folklore and folk art.</li> <li>Varied national cuisine and wine tradition.</li> <li>Favourable price level of tourism services for overseas visitors.</li> <li>Stable political and social situation.</li> <li>Membership in the EU, the Eurozone and the Schengen area.</li> <li>Suitable natural environment, cultural, historical and natural heritage.</li> <li>Plenty of free labour.</li> <li>Large and still underused dwellings in the countryside.</li> <li>Relatively low price level of services especially in terms of foreign visitors.</li> <li>Expanding international cooperation.</li> <li>Special interest associations for rural tourism and agrotourism.</li> <li>Traditional hospitality of the Slovak people.</li> <li>Rich cultural traditions of Slovak nation.</li> </ul> | <ul style="list-style-type: none"> <li>Low involvement of the state to promote tourism of the country.</li> <li>Lack of a uniform presentation of the image of Slovakia.</li> <li>Differences in the quality of services in Slovakia.</li> <li>Disparity between price / quality.</li> <li>Leaving skilled labour abroad (follow unskilled labour in tourism services).</li> <li>Lack of language and professional skills of personnel.</li> <li>The low purchasing power of the domestic population.</li> <li>Persisting regional differences.</li> <li>Lack of typical farmhouses.</li> <li>Inappropriate structure of the material and technical base.</li> <li>Not enough of financial resources.</li> <li>Lack of professional qualification of entrepreneurs and their employees.</li> <li>Little experience of rural population with rural tourism and countryside cottages.</li> <li>Low quality of service.</li> <li>Lack of service infrastructure in rural areas.</li> <li>Declining competitiveness of Slovak Republic T&amp;T competitiveness index.</li> </ul> |
| OPPORTUNITIES   | THREATS  |
| <ul style="list-style-type: none"> <li>Gradual branding and image of Slovakia in the international tourism market.</li> <li>Use support programs of the European Union.</li> <li>Gradual development of transport infrastructure in Slovakia.</li> <li>Promotion of Slovakia through membership in international tourism organizations.</li> <li>Active involvement in the marketing groups of V4 countries in third markets.</li> <li>Intensive informatisation of Society.</li> <li>Options for upgrading of existing tourist facilities.</li> <li>Expanding product offerings to current trends in tourism: city breaks, incentive programs, healthy lifestyle.</li> <li>Expanding the network of educational institutions and consulting.</li> <li>Rehabilitation of existing recreational areas.</li> <li>Legislative changes in promoting cross-border cooperation in the development of rural tourism.</li> </ul>  | <ul style="list-style-type: none"> <li>Increasing competition in the international tourism market.</li> <li>The fall in demand in domestic tourism.</li> <li>The impact of climate change on tourism, environment, participation in tourism seasons.</li> <li>Poor flexibility in providing services and unwillingness to adapt to the requirements of the guest.</li> <li>Continuing impact of the global economic crisis on the Slovak economy.</li> <li>Restrictive and strict legal standards for businesses in the tourism industry.</li> <li>Natural calamities (floods, landslides, etc.).</li> <li>Lack of support for rural tourism.</li> <li>Deteriorating economic development in the communities in Slovakia.</li> </ul>   |

Source: own processing

As we can see from the SWOT analysis focused on the application of knowledge in rural tourism and agrotourism in Slovakia, there are many opportunities that we offer compared to confronting threats which are negative for application of rural tourism and agrotourism.

## Conclusions:

Tourism is one of the world's fastest growing industries as well as the major source of foreign exchange earnings and employment for many countries. Tourism can bring money to its country and especially the people near the tourist spot. One of the forms of tourism is rural tourism.

The Slovak Republic has the potential for tourism and rural tourism development, but it cannot be able to fully used.

Agrotourism is now a dynamic business sector in many parts of the world. There is commercialized this type of recreation. At present it has become the primary activity of numerous economic entities not only agrotourists farms, with a wide range of diverse forms.

Today, most family farms face serious economic challenges from foreign competition. Their earnings on commodities and livestock may not even cover production costs. But farmers who sell directly to the public – through fruit stands and farm country stores; and also add special activities for visitors, find they can continue farming and make a profit. Agrotourism is actually saving thousands of small farms from extinction.

And there are the travel trends that support the growth of agrotourism like: tourists are increasingly traveling by cars, families want to strengthen their relationships by being together, travellers are looking for experiences as part of their trips and tourists are taking shorter trips and planning at the last minute.

The exact number of agricultural entities working with agrotourism and country tourism is unknown.

The general problem of the Slovak tourism industry is disobeying of existing legal norms, tourism competitiveness of the Slovak Republic started to weaken, the phenomenon of the shadow economy and disobeying of conditions for classification into categories of accommodation facilities. There is not also cooperation between enterprises in the tourism resort and region. The situation has changed when the Slovak Republic entered the Europe Union. Therefore the competition in rural tourism and agrotourism increased, the perceptible of Slovakia is low and the promotion of the Slovak Republic as a tourist destination abroad is missing.

The Slovak Republic is determined by the change of the position in European or worldwide measure as other countries

## Literature:

*Agrotourism has an unused potential in Slovakia. It can help to improve regions.*

Retrieved March 4, 2013, from

<http://aktualne.atlas.sk/agroturistika-ma-na-slovensku-nevyuzity-potencial-mohla-by-vraj-pozdvihnut-regiony/ekonomika/slovensko-a-ekonomika/>

Agrotourism needs marketing. Retrieved March 8, 2013, from

<http://www.agroprogress.sk/konferencie-agroprogress/agroturizmus-potrebuje-marketing/>

BABINSKÍ, J., *Specification of rural tourism and agrotourism in context of the Europe and in the Slovak Republic* (Špecifikácia vidieckeho turizmu a agroturizmu v európskom kontexte a v SR). Retrieved March 8, 2013, from

<http://www.tik.sk/projekty/vidiecky-turizmus-a-agroturizmus/iikolo/specifikacia-vidieckeho-turizmu-a-agroturizmu-v-europskom-kontexte-a-v-sr/>

Eckert, Jane. 2013. "What Is Agritourism? Jane Eckert, of Eckert AgriMarketing Explains the Farm Destination Phenomena." In *Eckert AgriMarketing*, Retrieved February 2, 2013, from <http://www.eckertagrimarketing.com/eckert-agritourism-what-is-gritourism.php>

Europedia. *Financing of the common agricultural policy*. Retrieved March 12, 2013, from  
[http://europedia.moussis.eu/books/Book\\_2/6/21/03/03/index.tkl?all=1&pos=305](http://europedia.moussis.eu/books/Book_2/6/21/03/03/index.tkl?all=1&pos=305)

EU structural funds. Retrieved March 10, 2013, from  
[http://ec.europa.eu/research/infrastructures/index\\_en.cfm?pg=structural\\_funds](http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=structural_funds)

HABÁN, M., OTEPKA, P. (2004). *Agrotourism* (Agroturistika). Nitra: SPU

Kompasová, K. 2010. *Perspective forms of tourism in rural area* (*Perspektívne formy cestovného ruchu vo vidieckom priestore*). Retrieved February 20, 2013, from  
[http://www.euroregion-di.sk/manazer/images/prednasky/20.Perspektivne\\_formy\\_cestovneho\\_ruchu\\_voviedieckom\\_priestore.pdf](http://www.euroregion-di.sk/manazer/images/prednasky/20.Perspektivne_formy_cestovneho_ruchu_voviedieckom_priestore.pdf)

LÖRINCOVÁ, Elena. (2007). *Agrotourism in Slovakia and in chosen European countries* (*Agroturistika na Slovensku a vo vybraných krajinách EÚ*). Retrieved March 12, 2013, from [http://www.slpk.sk/eldo/aktualne\\_otazky\\_legislativy\\_modra04/lorincova.pdf](http://www.slpk.sk/eldo/aktualne_otazky_legislativy_modra04/lorincova.pdf)

Summaries of EU legislation. *Financial Instrument for Fisheries Guidance*. Retrieved March 12, 2013, from  
[http://europa.eu/legislation\\_summaries/maritime\\_affairs\\_and\\_fisheries/fisheries\\_sector\\_organisation\\_and\\_financing/I60017\\_en.htm](http://europa.eu/legislation_summaries/maritime_affairs_and_fisheries/fisheries_sector_organisation_and_financing/I60017_en.htm)

Regional policy – INFOREGIO, *Cohesion funds*. Retrieved March 12, 2013, from  
[http://ec.europa.eu/regional\\_policy/thefunds/cohesion/index\\_en.cfm](http://ec.europa.eu/regional_policy/thefunds/cohesion/index_en.cfm)

REPOVÁ, D. (2009). *Objects of individual recreation in Slovakia focused on cottages in the village Brestovec* (Objekty individuálnej rekreácie na Slovensku so zameraním na chalupárenie v obci Brestovec): master thesis. Bratislava: UK.

Rural tourism. Retrieved March 2, 2013, from  
[http://www.goisrael.com/Tourism\\_Eng/Tourist%20Information/Discover%20Israel/Pages/Rural%20Tourism.aspx](http://www.goisrael.com/Tourism_Eng/Tourist%20Information/Discover%20Israel/Pages/Rural%20Tourism.aspx)

SAVOV, R. - LANČARIČ, D. - KOZÁKOVÁ, J. - PAŠKA, I. (2012). *Comparison of ecological agricultural production in Slovakia and the EU* (*Komparácia ekologickej poľnohospodárskej výroby na Slovensku a v EÚ*). In: Acta oeconomica et informatica. (pp. 21 - 24.)

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# **Factors Affecting Online Buying Decision Making for Apparel in the Bangkok Metropolitan Area**

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## **Abstract:**

Technology and Internet usage have become parts of the daily lives of many people, and online shopping has followed closely behind, becoming a popular way for consumers to make purchases using the Internet. Completing transactions through a website is one of the ways people can place an order. In Thailand, the popularity of online purchases is very high. Online apparel is the most widely ordered product group that consumers purchase from online marketplaces. Interactions in real world shopping are mainly based on face-to-face activities between consumers and sellers, allowing consumers to touch and try the apparel. On the other hand, interactions in electronic commerce are not face-to-face; they take place through websites, and consumers cannot touch and try the product. The advantage, however, is that customers can shop anytime, 24/7. Despite the rapidly increasing number of consumers who use websites for online shopping, very little is known about how consumers make buying decisions, especially in the apparel industry, which comprise products that people like to try on. So, it is interesting and useful to find out what are the factors affecting online buying decision making for apparel in Bangkok metropolitan area.

The primary objective of this study was to examine major factors that influence online apparel purchases. The conceptual framework has shown that there is a positive relationship between technology and online buying decision making for apparel; there is a positive relationship between trust and online buying decision making for apparel; there is a positive relationship between marketing mix and online buying decision making for apparel. The research methodology that was used in this research was composed of data collection and data analysis. For data collection, 29 questions were used in the questionnaire submitted to the sample population. Data were gathered from customers who had ever purchased apparel online in the Bangkok metropolitan area. For data analysis, regression analysis was used to find out relationships between independent variables and dependent variables to test the hypotheses. The independent variables were technology, trust, and marketing mix. Technology consisted of security, usability/site design, and privacy. Trust consisted of trust in the online store. Marketing mix consisted of product, price, place, and promotion. The dependent variable was an online buying decision making process for apparel, using frequency to measure it.

The hypotheses were tested through multiple regression analysis. The analysis suggested that technology, trust, and marketing mix were strongly predictive and had a significant effect on online decision making. Trust was the most highly related factor affecting online buying decision making, which was followed by marketing mix and technology.

## **Key words:**

Electronic commerce, online apparel, purchasing

## **Introduction**

Nowadays, the world moves more quickly than it did and has become closer in proximity due to advances in communication, information systems, and transportation infrastructure. Globalization shows the interdependence of economic and cultural activities. Internet is a

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major contributor to globalization. Internet has become a part of human life as common as shopping, working, and learning. Online shopping or online retailing is a form of electronic commerce whereby consumers directly buy goods or services from a seller over the Internet without an intermediary service (Wikipedia, 2010).

In 2015, the forming of the ASEAN Economic Community (AEC) will establish ASEAN as a single market, and Thailand has an important role to play in this formation. Many countries in ASEAN tend to purchase online more now than in the past. A survey by MasterCard revealed that the online purchasing gap between developed countries and developing countries in Southeast Asia was growing smaller and smaller. This survey became a standard to indicate the trend of online consumer behavior. In the case of online purchases and the plan to purchase online, the survey showed that Thailand was leading in both online purchases (80%) and the trends to purchase online in the next 6 months (93%). This was reported as being at the same level as China, followed by South Korea (84%) and Malaysia (79%). In this perspective, the countries that have obviously seen the growth in online purchase are Thailand (+13%), Australia (+10%), Indonesia (+15%), New Zealand (+9%), and the Philippines (+15%). The countries that have experienced a decline in online purchase are India (-14%), Singapore (-10%), and South Korea (-17%) (Brand Buffet, 2012).

The consumption behavior of customers has changed, and customers tend to shop online more than in the past. The National Statistical Office (2011) revealed details about e-commerce in Thailand; B2B sales increased from 79,726 million baht in 2007 to 217,458 million baht in 2010; B2C sales increased from 47,501 million baht in 2007 to 67,783 million baht in 2010; and B2G sales increased from 177,932 million baht in 2004 to 344,370 million baht in 2010. As far as technology is concerned, 3G has been rolled out in Thailand, allowing people to be able to connect to the internet more easily, even throughout rural areas.

Online shopping is open 24 hours a day, every day so it is convenient for customers. They do not need to go to the shop, and this reduces drive time, being stuck in bad weather, and lack of parking. In addition, through online shopping, consumers can find products easily by using search tools, and customers can find detailed information on the Internet about the products they want to buy; this supports the decision-making process. On the other hand, entrepreneurs have taken an interest in online shopping because it can reduce the cost of having a physical building and employees. Also, the cost to create a website is lower now than before. Consequently, the online market has become one of the most interesting markets. In Thailand, the reported number of online purchasers of all goods and services is 561,758 people. For apparel, this number has been reported as 172,870 people, the highest category of online purchases.

## Literature review

### Direct marketing

Direct marketing is the use of consumer-direct channels to reach and deliver goods and services to customers without using marketing middlemen. These channels include direct mail, websites, and mobile devices. Direct marketers seek a measurable response, typically a customer order. This is sometimes called direct-order marketing. Many direct marketers use direct marketing to build a long-term relationship with the customer. Direct marketing is one of the fastest growing avenues for serving customers. Business marketers are using direct marketing to increase the productivity of their sales forces and to reduce field sales expenses.

Consumers in Bangkok are increasingly short of time and are tired of traffic and parking headaches. They now appreciate toll-free phone numbers and websites available 24 hours a day, seven days a week, and direct marketers' commitment to customer service. The growth of the Internet, email, and mobile phones has made product selection and ordering much simpler.

The newest channels for direct marketing are electronic. The Internet provides marketers and consumers with opportunities for much greater interaction and individualization. Companies must design websites that embody or express their purpose, history, products, and vision. A key challenge is designing a site that is attractive on first viewing and interesting enough to encourage repeat visits. Visitors will judge a site's performance on ease of use and physical attractiveness. Ease of use has three attributes, which are (1) the site content downloads quickly, (2) the first page is easy to understand, and (3) it is easy to navigate to other pages that open quickly. Physical attractiveness is determined by the factors of (1) individual pages are clean and not crammed with content, (2) typefaces and font sizes are very readable, and (3) the site makes good use of color (and sound). The website must also be sensitive to security and privacy-protection issues (Kotler et al, 2009).

### **E-commerce marketing**

E-commerce means that the company or website offers to transact or facilitate the selling of products and services online. E-commerce has given rise in turn to e-purchasing and e-marketing. E-marketing describes companies that try to inform, communicate, promote and sell its products and services to consumers over the Internet. The e term is also used in terms such as e-finance, e-learning, and e-service. The e will eventually be dropped when most business practice is online.

We can distinguish between pure-click companies and brick-and-click companies. Pure-click companies launch a website without any previous existence as a firm. Brick-and-click companies were existing companies that have added an online site for information and e-commerce.

There are several kinds of pure-click companies, including search engines, internet service providers, commerce sites, transaction sites, content sites, and enabler sites. Commerce sites sell all types of products and services. The Internet is most useful for products and services when the shopper seeks greater ordering convenience or lower cost. It is also useful when buyers need information about product features and prices. Ensuring security and privacy online remain important. Customer must find the website trustworthy. Investment in website design and processes can help reassure customers sensitive to online risk. Online retailers are also trying new technology, such as blogs, social networks, and mobile marketing, to attract new shoppers (Kotler et al, 2009).

### **Technology in online buying decision making**

In the context of this paper, technology refers to the website that the online store uses to sell its products so the website is the main part of the online store. Technological factors that ensure website functionality are security, privacy and usability/site design (Schaupp & Bélanger, 2005). A security threat is a circumstance, condition, or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, and modification of data, denial of service, and/or fraud, waste, and abuse (Kalakota & Whinston, 1996). The effect of security/privacy on satisfaction is in a positive direction (Liu et al., 2008; Szymanski & Hise, 2000). Online stores have many ways for payment, as some use credit cards, and some use money transfer. However, the consumer might hesitate to give his or her credit card number. Bélanger et al (2002) defined privacy in e-commerce as the willingness to share information over the Internet that allows for the conclusion of purchases. Culnan (2000) defined privacy as "the ability of an individual to control the terms under which their personal information is acquired and used." People are concerned that their personal information might be publicized or misused. Consumers are influenced by the interactivity of the website (Alba et al. 1997; Jarvenpaa & Todd 1997). The visitor's first impression of the website is derived from the page design, graphics, the layout, and color match, and can bring about decision making satisfaction (Liu et al., 2008; Szymanski & Hise, 2000; Bharati & Chaudhury, 2004). Li & Ping (2002) found that website quality significantly affected online shopping attitudes, intention, and behavior.

## **Trust in an online buying decision making**

Trust is a governance mechanism in exchange relationships that are characterized by uncertainty, vulnerability, and dependence. Trust is a belief that one person can rely upon a promise made by another (Pavlou, 2003). In marketing literature, trust is traditionally studied both in terms of trust in the salesperson and in terms of trust in the seller organization (Morgan and Hunt, 1994). In the context of e-commerce, trust beliefs include the online consumers' beliefs and expectancies about trust-related characteristics of the online seller (McKnight & Chervany, 2002). When the consumers want to buy the online product, they have to interact with the website, and they cannot see the salesperson face-to-face. Thus, trust will become an important factor in this process. Consumers have to have more trust in an online store than in a traditional store (Keen et al., 1999; Jarvenpaa, 2000). Trust decreases the feelings of uncertainty that arise when the shop, the shop owners, the quality of the product, and the settlement performance are unknown (Tan & Thoen, 2001).

## **Marketing mix to online buying decision making**

The marketing mix is a business tool used in marketing by marketing professionals. McCarthy (1996) classified these tools into four broad groups, which are (1) product, (2) price, (3) place, and (4) promotion. Product can be a tangible good or an intangible service. It is seen as an item that satisfies what a consumer wants. The product variables are product variety, quality, design, features, brand name, packaging, sizes, services, warranties, and return. Price is the amount a consumer pays for the product. It is very important for the company's profit. It can be list price, discounts, allowances, payment period, and credit terms. Place is to provide the product at a place that is convenient for the consumer to access. It is also a location, channel, transport, and inventory. Promotion is all of the methods of communication that a marketer may use to provide information about the product such as sale promotion, advertising, public relations, and direct marketing. In online markets, one of the benefits of online shopping is greater numbers of alternative products to compare, but consumers may have a limited ability to compare (Sharkey, 2011). Consumer satisfaction still depends on product variety and product price (Liu et al., 2008). Convenience replaces place in the marketing mix. With the rise of online purchasing, place has been becoming less relevant. Convenience takes into account the ease of buying the product, finding the product, finding information about the product, and several other factors (Don et al., 1993). Consumers perceive the time savings and reduced efforts compared with traditional forms of shopping as being beneficial (Jarvenpaa & Todd, 1997). The online stores can provide a delivery service to customers to make the process more convenient, and this can also impact customer satisfaction (Sharma et al., 1995; Liu et al., 2008; Schaupp & Bélanger, 2005) since customers do not have to go to the store and face drive time, crowded parking, bad weather, and long distances to stores. These concerns can sometimes lead to poor shopping experiences. Thus, there are transport issues associated with the convenience of online shopping (Burke, 1998). Therefore, convenience is the major motive for shopping online (Chiang & Dholakia, 2003). The quality of the information online leads to an increase in decision-making satisfaction (Liu et al., 2008; Kim & Lim, 2001; McKinney et al., 2002; Bharati & Chaudhury, 2004). So, websites should provide clear and understandable information to online shoppers (Liu et al., 2008).

## **Online decision making**

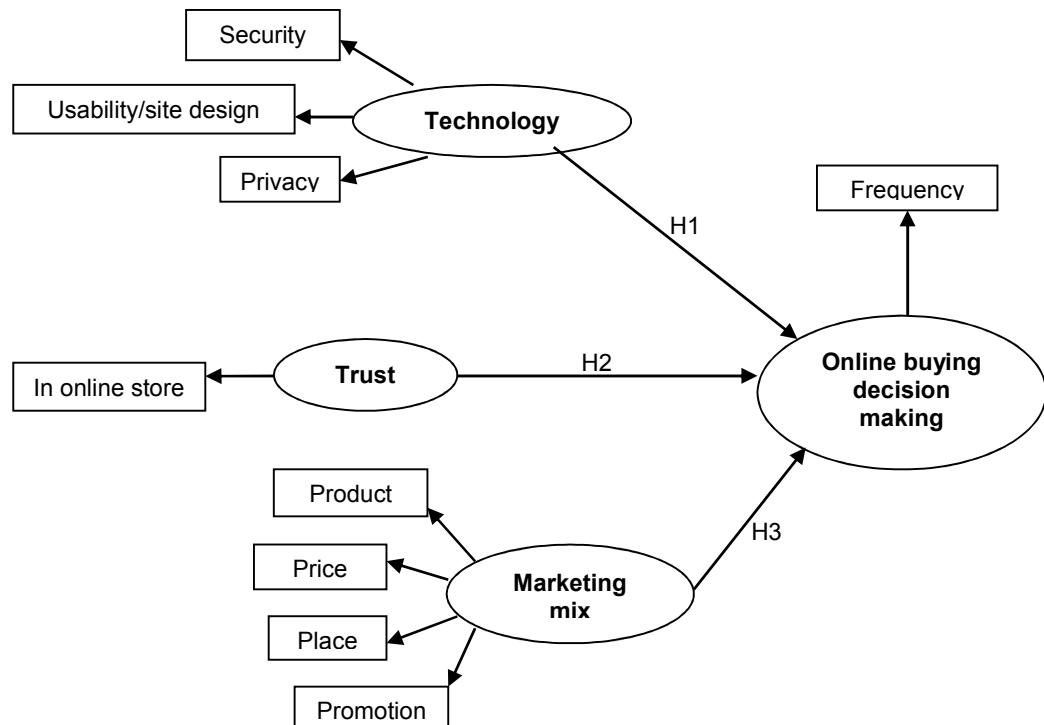
Buying decision-making comprises the decision-making processes undertaken by consumers before, during, and after the purchase of a product or service. There are 5 stages, including (1) need recognition, when the consumer recognizes what he / she needs, (2) information search, when the consumer searches about the product which would satisfy his / her needs, (3) evaluating purchasing alternatives, when the consumer evaluates the different alternatives that he / she comes across and understands which products would be properly suited for him / her, (4) the actual purchase decision, when the consumer might just change the decision because of the opinions of peers or unforeseen circumstances, and (5) the post-

purchasing behavior, which occurs after the consumer purchases a product but feels that purchasing another product would have been a better decision (Kotler et al, 2009).

This research focused on the actual purchase decision stage. There were three choices of heuristics, including the conjunctive heuristic, where the consumer sets a minimum acceptable cut-off level for each attribute and chooses the first alternative that meets the minimum standard for all attributes; the lexicographic heuristic, where the consumer chooses the best brand on the basis of its perceived most important attribute; the elimination-by-aspects heuristic, where the consumer compares brands on an attribute selected probabilistically, where the probability of choosing an attribute is positively related to its importance, and brands are eliminated if they do not meet minimum acceptable cut-off levels (Kotler et al, 2009). Most empirical research uses frequency or number of purchases and value of online purchases as measures of online purchasing (Li & Ping, 2002).

## Conceptual Model

Based upon the above-mentioned literature review, it was revealed that there are several antecedents to online buying decision-making. Three categories of factors were selected as a key to influencing online apparel decision-making, and they include technology, trust, and marketing mix. The technology factors deal with the website qualities that allow customers to be able to access the site, be able to use it in order to purchase, be safe, and have privacy in the handling of their consumer information. Trust factors deal with the concept that the customer is willing to rely on online stores. Marketing mix factors deal with product, price, place, and promotion.



**Fig. 1 Conceptual Model**

From the conceptual model, three hypotheses were developed as follows:

*H1.* There is a positive relationship between technology and online buying decision making for apparel.

*H2.* There is a positive relationship between trust and online buying decision making for apparel.

*H3.* There is a positive relationship between marketing mix and online buying decision making for apparel.

## **Methodology**

### **Data collection**

The unit of analysis in this study was the consumers who had past experience with buying apparel from online stores in the Bangkok metropolitan area. The tool for collecting the primary data was a questionnaire that was created on a website by using Google Drive (<http://drive.google.com>). This questionnaire was sent as a message to consumers one by one via the social media site Facebook, with an attached hyperlink, which redirected to the questionnaire. This questionnaire had two parts. The first part of the questionnaire is about the demographic data, and there were 9 questions. In this part, a check-list was used to identify consumer's general information. In the second part regarding the factors affecting online buying decision making for apparel, there were 20 questions, and each question was measured based on a multiple rating list scale. There were 5 levels from (1) "strongly disagree" to (5) "strongly agree." The questions about technology were adapted from Liu (2008) and Bélanger, et al (2002). The questions about trust were adapted from Jarvenpaa (2000). The questions about marketing mix were adopted from Schaupp and Bélanger (2005), Liu (2008), McCarthy (1996), Jarvenpaa and Todd (1997), and Burke (1998). The question about online buying decision making was adapted from Li and Ping (2002).

### **Reliability of measurement instrument**

In this study, a co-efficient of internal consistency was used to find reliability. Internal consistency was defined as a measure based on the correlations between different items across replications of the same test. Internal consistency was measured with Cronbach's alpha. According to George and Mallory (2003), a Cronbach's alpha of at least 7 is acceptable. The Cronbach's alpha of the second part of this questionnaire was 0.88. Consequently, it was concluded that the research instrument for this study had good reliability.

### **Data analysis**

The first part of the questionnaire inquired about demographic data in order for the researcher to figure out the frequency of this data and to conclude the appropriate percentages. The second part asked about the factors affecting online buying decision making for apparel, so regression analysis was used to test the hypotheses. Regression analysis is a statistical technique for estimating the relationship between dependent variables and one or more independent variables. It can forecast the dependent variable value when the independent variables value changed.

## **Result**

### **Demographic profile of respondents**

A total of 116 responses were collected. The demographic profile indicated that the majority of online apparel consumers in this research were female (94%) and male (6%). The highest span of age was 20 – 25 years (51.7%) followed by 26 – 30 years (28.4%). Those aged lower than 20 were the lowest (0.9%). The highest education of the consumers was

bachelor's degree (71.6%), higher than bachelor's degree (26.7%), and lower than bachelor's degree (1.7%). The most commonly reported occupation of the consumers was company employee (33.6%) and student (22.4%). The most commonly reported salary of the consumers was 10,000 – 15,000 baht (22.4%), followed by salary over 40,000 baht (19%). The majority of consumers spent 250 – 500 baht (56.9%) to buy apparel online, with others spending 501 – 750 Baht (25.9%). The most commonly reported reason that consumers purchased apparel online was convenience (61.2%).

### Hypothesis testing

*H<sub>1</sub>*, *H<sub>2</sub>* and *H<sub>3</sub>* examined the factors affecting online buying decision making for apparel. They were technology, trust, and marketing mix. The decision making (dependent variable) had a linear relationship with technology, trust, and marketing mix (independent variables), ( $R = 0.903$ ,  $R^2 = 0.815$ , adjusted  $R^2 = 0.810$ ,  $F$ -value = 164.251,  $p < 0.05$ ). This study found that 90.3% of the coefficient correlation was in decision-making by technology, trust, and marketing mix, and 81% of the adjusted  $R^2$  had a significance level of 0.05 and had a standard error of the estimate at  $\pm 0.309$ .

**Tab.1 Results of the hypotheses tests**

| Model         | R <sup>2</sup> | Adj- R <sup>2</sup> | B      | β     | t-value | Sig.  | Hypothesis result            |
|---------------|----------------|---------------------|--------|-------|---------|-------|------------------------------|
| 1             | 0.815          | 0.810               | -0.613 |       |         |       |                              |
| Technology    |                |                     | 0.289  | 0.279 | 5.694   | 0.000 | H <sub>1</sub> was supported |
| Trust         |                |                     | 0.298  | 0.327 | 6.476   | 0.000 | H <sub>2</sub> was supported |
| Marketing mix |                |                     | 0.633  | 0.502 | 8.510   | 0.000 | H <sub>3</sub> was supported |

From the regression analysis in this study, the regression equation was as follows:

$$\hat{Y} = -0.613 + 0.289 \text{ technology} + 0.298 \text{ trust} + 0.633 \text{ marketing mix}$$

Having 0.289 for the technology factor meant that the value of Y increased when technology increased by one unit, while trust and marketing mix remained unchanged. Having 0.298 as a trust factor meant the value of Y increased when trust increased by one unit, while technology and marketing mix remained unchanged. Having 0.633 as the marketing mix factor meant that the value of Y increased when marketing mix increased one unit, while technology and trust remained unchanged. Comparison of the influence of the three independent variables on the dependent variable was observed from the Standardized Coefficient Beta; therefore, marketing mix was important to online buying decision making the most, followed by trust and technology, respectively.

Technology had a coefficient of 0.289,  $\beta = 0.279$ ,  $t = 5.694$ ,  $t_{116} = 1.6576$ , and  $p = 0.000$ .  $\beta \neq 0$ , and  $|t| > t_{116}$  so the researcher rejected the null hypothesis. This means there was a positive relationship between technology and online buying decision-making at a significance level of 0.05. In other words, online buying decision-making was affected by security, usability/site design, and privacy. Trust had a coefficient at 0.298,  $\beta = 0.327$ ,  $t = 6.476$ ,  $t_{116} = 1.6576$ , and  $p = 0.000$ .  $\beta \neq 0$ , and  $|t| > t_{116}$  so the researcher rejected the null hypothesis, which means that there was a positive relationship between trust and online buying decision making at a significance level of 0.05. In other words, online buying decision-making was affected by trust in an online store. The marketing mix had a coefficient at 0.633,  $\beta = 0.502$ ,  $t = 8.510$ ,  $t_{116} = 1.6576$ , and  $p = 0.000$ .  $\beta \neq 0$ , and  $|t| > t_{116}$  so the researcher rejected the null hypothesis, which means that there was a positive relationship between marketing mix and online buying decision making at a significance level of 0.05. In other words, online buying decision-making was affected by product, price, place, and promotion.

All three hypotheses were substantiated. Therefore, technology, trust, and marketing mix could explain online buying decision making at a factor of 80%, showing that the most

important factors to online buying decision making were marketing mix, followed by trust and technology, respectively.

## **Discussion**

In the online market, it is important to understand factors affecting online consumer decision making. From this study, it was found that consumer's online buying decision making was highly related to trust, marketing mix, and technology. Technology factor had a positive relationship with online buying decision making by significant level at 0.05 which based on *H1* that there is a positive relationship between technology and online buying decision making. Every online consumer has to use technology to make a purchase. So technology is the factor which cannot disregard. In technology, usability/site design is a critical feature that affects the consumer; this finding is consistent with the study of Szynmanksi and Hise (2000). Security is a standard for all website that is a determining factor in buying decision which consistent with the study of Szynmanksi and Hise (2000) and Lui et al. (2008). The privacy in this finding is very important that contradictory to Schaupp and Bélanger (2005) finding that privacy features are the number one concern of online consumers in the purchase decision.

Trust factor had a positive relationship with online buying decision making by significant level at 0.05 which based on *H2* that there is a positive relationship between trust and online buying decision making. Trust in an online store is significant to online buying decision making, this finding is consistent with the study of Keen et al. (1999) and Jarvenpaa (2000). So we have to concentrate on it.

Marketing mix factor had a positive relationship with online buying decision making by significant level at 0.05 which based on *H3* that there is a positive relationship between marketing mix and online buying decision making. Product comes in the second rank. In this finding variety of product, quality of product and product information are very important to the consumer that consistent with the prior work that consumer satisfaction depends on product variety (Liu et al., 2008), and consistent with Keeney's work (1999) that the maximizing product quality is major factor in e-commerce success. The important of price is not too much different from the product but the consumers always buy the lower price, this finding is consistent with the study of Keeney (1999). Place was replaced by convenience in an online store, consumer save time and money for buying product and can purchase it anytime, these are important to online buying decision making, this finding is consistent with the study of Chiang & Dholakia (2003) that convenience is the major motive for shopping online.

## **Conclusion:**

This research aimed to study about the factors affecting online buying decision making for apparel. The researcher developed a model of online buying decision making for apparel. The key affecting factors of technology, trust, and marketing mix were found to have significant effects on online buying decision making for apparel. In online buying decision making for apparel, marketing mix was validated to be an important factor. Trust factors and technology factors were also found to influence a consumer's decision making.

Not only for the online apparel entrepreneurs but also for general online entrepreneurs, they can adapt the results of this research to their businesses by creating credibility to their online stores and to make a good relationship with the consumer. The entrepreneurs should provide products which consumers need in a good price and create a website that is easy for consumers to find the product and have high security and privacy.

The limitation of this study was the small sample size that cannot represent the whole population so this study cannot be a conclusive result in large online apparel consumers, and it was exploratory conclusion.

For future research, it is worthwhile to conduct a comparative research on the differences of online consumer decision making between pre-order product and in-stock products.

## References:

- Alba, J., J. Lynch, B. Weitz, C. Janiszewski, R. Lutz, A. Sawyer, S. Wood (1997). Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing*, 61(3), 38-53.
- Bélanger, France, Janine Hiller, and Wanda Smith (2002). Trustworthiness in electronic commerce: The role of privacy, security, and site attributes. *Journal of Strategic Information Systems*, 11, 245-270.
- Bharati, P. and Chaudhury, A. 2004. An empirical investigation of decision-making satisfaction in web-based decision support systems. *Decision Support Systems*, 37, 187– 197.
- Brand Buffet (2012). “Thailand” is the hottest of online shopping in Asia pacific. Retrieved November 10, 2012, from Brand Buffet website: <http://www.brandbuffet.in.th/2012/09/online-shopping-survey-mastercard/>
- Burke, R. (1998) Do you see what I see? The future of virtual shopping. *Journal of the Academy of Marketing Science*, 25, 352-360.
- Chiang, K. and Dholakia, R. 2003. Factors Driving Consumer Intention to Shop Online: An Empirical Investigation. *Journal of Consumer Psychology*, 13(1-2), 177-183.
- Culnan, Mary J. (2000). Protecting Privacy Online: Is Self-Regulation Working? *Journal of Public Policy and Marketing*, 19(1), 20-26.
- Don, E.S., Stanley I.T., Robert, F. and Lauterborn. (1993). Integrated Marketing Communications. NTC Business Books, a division of NTC Publishing Group.
- George, D. and Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update. 4th ed. Boston: Allyn & Bacon.
- Heijden, H. (2003). Understanding online purchase intentions: contributions from technology and trust perspectives. *European Journal of Information Systems*, 12, 41–48.
- Jarvenpaa, S.L. and Todd P. (1997). Consumers' reactions to electronic shopping on the World Wide Web. *International Journal of Electronic Commerce*, 1(2), 59-88.
- Jarvenpaa, S.L., Tractinsky, N. et al. (2000). Consumer trust in an internet store. *Information Technology & Management*, 1(1), 45–71.
- Kalakota, R. and Whinston, A.B. (1996). Frontiers of Electronic Commerce, Addison-Wesley, Reading, MA.
- Keen, P., Balance, C. et al. (1999) Electronic Commerce Relationships: Trust By Design. Prentice-Hall, Englewood Cliffs, NJ
- Kim, S.Y. and Lim, Y.J. (2001). Consumers' perceived importance of and satisfaction with internet shopping. *Electronic Markets*, 11(3), 148-54.
- Kotler, P., Keller, K.L. et al. (2009) *Marketing Management an Asian Perspective*. Singapore: Prentice Hall.
- Li, N. and Ping, Z. (2002, August). Consumer Online Shopping Attitudes and Behavior: An Assessment of Research. America's Conference on Information System, Dallas.
- Liu, X., He, M. et al. (2008). An empirical study of online shopping customer satisfaction in China: a holistic perspective. *International Journal of Retail & Distribution Management*, 36(11), 919 – 940.
- McCarthy, J.E. (1996). Basic Marketing: A Managerial Approach. 12th ed. Homewood, IL: Irwin.
- McKinney, V., Kanghyun, Y. and Zahedi, F.M. (2002). The measurement of web-customer satisfaction: an expectation and disconfirmation approach. *Information System Research*, 13(3), 296-315.

- McKnight, D. H. & Chervany, N. L. (2002). What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology. *International Journal of Electronic Commerce*, 62, 35-59.
- Morgan, R.M. and Hunt, S.D. 1994. The commitment–Trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20–38.
- National Statistical Office (2011). *Trend of e-commerce in Thailand*. Retrieved October 22, 2012, from National Statistical Office Web site: [http://service.nso.go.th/nso/nsopublish/citizen/news/news\\_e-comm.jsp](http://service.nso.go.th/nso/nsopublish/citizen/news/news_e-comm.jsp)
- Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce—Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 73, 69–103.
- Schaupp, L.C. and Be'langer, F. (2005). A conjoint analysis of online consumer satisfaction. *Journal of Electronic Commerce Research*, 6(2), 95-111.
- Sharkey, U. (2011). *Online Shop Presentation Mode for Consumer Decision Making and Flow Experiences*. Ph.D, National University of Ireland
- Sharma, A., Grewal, D. and Levy, M. (1995). The customer satisfaction/logistics interface. *Journal of Business Logistics*, 16(6), 1-21.
- Szymanski, D.M. and Hise, R.T. (2000). E-satisfaction: an initial examination. *Journal of Retailing*, 76(3), 309-322.
- Tan, Y-H., and Thoen, W. (2001). Toward a generic model of trust for electronic commerce. *International Journal of Electronic Markets*, 5(2), 61–74.
- Wikipedia. (2010, September). *Online shopping*. Retrieved Octorber 22, 2012, from Wikipedia, the free encyclopedia: [http://en.wikipedia.org/wiki/Online\\_shopping](http://en.wikipedia.org/wiki/Online_shopping)

# **State Israel as a new destination for African refugees**

**Eva Taterova<sup>1</sup>**

**Samuel Antwi Darkwah<sup>2</sup>**

## **Abstract:**

The aim of this paper is to describe and to analyze the new trends and phenomena that appear in the context of growing numbers of African refugees to Israel. Since the declaration of independence in May 1948, Israel's immigration policies have been exceptional in comparison to western countries. There have been significant disproportions in state's attitudes towards the Jewish immigrants and the immigrant of non-Jewish descent. While the Jewish immigrants have been encouraged to apply for the Israeli citizenship, the same procedure has been very complicated for all other applicants. The critics often assume that Israeli immigration legislative is discriminatory and incompatible with proclaimed democratic character of the state.

For most of the history of modern Israel, the majority of immigrants applying for Israeli citizenship or a status of permanent residence have been either of Jewish or Arab origin. Obviously, their motivation to reside in Israel has been based on their nationalist self-awareness, historical and cultural heritage and last but not least, religion. Since 1990s new trends in immigration have been appearing in Israeli environment. The most significant change is that the number of newcomers of neither Arab nor Jewish descent has been growing constantly. This new immigration wave has got its origin in Africa. Most of these immigrants are the refugees coming from Côte d'Ivoire, Eritrea, and Somalia as these countries face up a humanitarian crisis.

It has been the first time in history when Israel needs to deal with the challenge of non-Jewish and non-Arab immigrants. The reasons why Israel is considered as an attractive destination by the Africans are various. Firstly, the security situation in Israel was stabilized. The era of 1990s is sometimes called the decade of hope. Even though the peace process between Israel and the Palestinians collapsed in Camp David summit 2000, it is important to emphasize that since 1973 there has not been any significant war on Israel's territory. Terrorism is still considered to be a threat however according to the recent statistics, more people die due to the accidents on the roads than due to the terrorist attacks. Secondly, the State of Israel is a highly economically developed country, a member state of OECD, and it is able to provide all necessary services to its citizens. Finally, the geographic proximity needs to be considered. The journey from Africa to Israel is obviously very long and very harsh however Israel as the only democratic country in the region seems to be worth to overcome all these troubles. The other important factor is that due to the restrictions that are applied by southern European states, the chances to obtain an asylum are rather low for most of African immigrants.

## **Key words:**

Israel, immigration, African refugees, immigration law

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## **Introduction**

The State of Israel is often referred to be the only democratic country in the Middle East, although the criteria for which state can be described as a democracy and which not, are very different. The aim of this paper is to describe and evaluate the attitude of Israel towards illegal immigrants from Africa after 2000, with a particular focus on the legislative changes. The development in Israel since 2000 is significant in this respect, and very interesting not only because of it is contemporary but mainly because very importance legislative changes came in this period of time. Many opponents describe these changes as radical and discriminatory. This study aims to introduce and explain the impacts of these changes.

## **Methodology**

In terms of methodology, this article shall be seen as a preliminary study and survey. Thus, descriptions of the discussed issues shall be the main method that is used. The available primary and secondary sources of literature will be studied and analyzed.

As the topic of this article is very contemporary, most of the thesis cannot be confronted with the conclusions of other authors. At the same time, there are some limits of research. Firstly, there is the inability of the author to verify some data, particularly with regard to the number of illegal immigrants coming to Israel. The Statistical bureau of Israel and some non-governmental organizations provide different numbers in terms of illegal immigration (most of them are for obvious reasons just the estimations).

It is also necessary to emphasize that the described trends cannot be considered as having been completed yet, thus the presented conclusions cannot be understood as definitive. The basic method of research is qualitative research with regard to the analysis and interpretation of the available quantitative data. The historical research methods will be used. The examples of specific events will be demonstrated in order to explain the attitudes of the State of Israel to African immigrants since 1990s.

## **Historical background**

The State of Israel was established on 15th May 1948 by the Zionist movement despite of the protests of local Arab population. This date is usually considered as a starting point of Arab-Israeli conflict that has been lasting till today<sup>3</sup>. There has been at least one serious armed-conflict in each decade in last 60 years. Obviously, the situation of a constant conflict has had various effects on the society, including the attitude towards the immigrants of non-Jewish descent.

It was as late as in 1978 when the peace treaty between Israel and Egypt was signed. Thus to 1978, Israel was surrounded by the enemy states which was obviously a very dangerous situation (see Gilbert 2002 and Herzog 2008). The result of these events was so called siege mentality. Siege mentality refers to a situation when the society feels in a constant danger. It is believed that the danger can appear any time, and that the threats can be of a various nature (see Merom G. 1999). All foreigners<sup>4</sup> are perceived as a potential threat (e.g. spies, terrorists etc.).

In addition to the right of the Jewish people to their self-determination, there is also a long history of oppression based on the principles of anti-Semitism. Anti-Semitism dates back to the departure of the Jews to the Diaspora, and the peak is usually considered in the events of the Holocaust when more than six million Jews died (Johnson 1995: 501).

<sup>3</sup> However, some other authors work with a different timing as they see the roots of the conflict in period of time when the disputed territory was ruled by Great Britain (so called British Mandate for Palestine that lasted from 1922 to 1948).

<sup>4</sup> As a foreigner is perceived a person of non-Jewish descent.

The siege mentality and the long-term oppression are the main reasons why the integration of foreigners into Israeli society is very difficult. As a result of the decades of Arab-Israeli conflict, Arabs are perceived as the traditional adversaries of Israel. In the period 1948-1990, all other immigrants except of people of Jewish and Arab descent did not come to Israel in a huge numbers.

Since 1990s new trends in immigration have been appearing in Israeli environment. The most significant change is that the number of newcomers of neither Arab nor Jewish descent has been growing constantly. This new immigration wave has got its origin in Africa. Most of these immigrants are the refugees coming from Côte d'Ivoire, Eritrea, and Sudan as these countries face up a humanitarian crisis. It has been the first time in history when Israel needs to deal with the challenge of non-Jewish and non-Arab immigrants. The situation has changed since 1990s for various reasons.

The first reason was the peace process of 1990s (so called Decade of hope) when the final settlement of Arab-Israel conflict seemed to be possible due to the intensive peace negotiations. The second reason was the economic development of Israel as nowadays Israel is the member of OECD, and in general, the economic standards of the society are rather high.

The third motivation of African immigrants why to migrate to Israel is the fact that nowadays, Israel is considered to be the only democratic country in Middle East. The democratic standards of Israel are not exactly the same like in western countries, but the situation in Israel is obviously better in comparison to their home countries or the other countries in the region. According to the index of democracy provided by Freedom House, in 2013 Israel was marked as a free country (Freedom House 2013). Israel in this context is considered unique for the reason that the comprehensive analysis shows that Israeli political system can be characterized by features which it clearly ranks among democracy, but there are also the features that characteristic rather for autocratic regimes. That is why some authors use the title "damaged democracy", "democracy for Jews only", "hybrid democracy" or even "theocracy" when they describe the regime in Israel. Critics of Israel even talk about the specific form of apartheid (Davis 2003). The specific topic of numerous studies is the influence of Judaism on the political system in Israel as Israel was established officially as a Jewish state (see e.g. Jones, Murphy 2002). Another alternative concept which characterize the regime in Israel is the concept of ethnic democracy (Peled 2013).

Last but not least is the geographic proximity of the State of Israel. Obviously, the journey is still very long and very dangerous but Israel is closer compared to European countries.

Especially since year 2000, there is a new challenge in the form of immigrants from the developing world, mainly from Eritrea, Ivory Coast, and Somalia. There have been intensive debates concerning the status of illegal immigrants from these countries. On one hand, there are the humanitarian reasons and morality that oblige Israel to help the people who had to face up to very difficult situation in their home countries such as war, natural disaster, famine etc. People who oppose the idea that these illegal immigrants shall be granted citizenship or at least the residential status, have got quite persuading arguments as well. Firstly, they rise up a question whether these immigrants do not pose a threat to maintaining the Jewish character of the State of Israel due to the fact that these people usually come with the prospect of improving their socio-economic situation, but otherwise they do not have any relationship to the State Israel and the Jewish values. Given the fact that their country of origin are Muslim, there are also the fears that these people could have some linkages to Islamist terrorist groups such as Hamas, and Hezbollah.

One of the opponents of the increase in the number of immigrants from Africa to Israel is the current Israeli Prime Minister Benjamin Netanyahu, who said on the subject: "If we don't stop their entry, the problem that currently stands at 60,000 could grow to 600,000, and that threatens our existence as a Jewish and democratic state. This phenomenon is very grave

and threatens the social fabric of society, our national security and our national identity" (The Guardian 2012).

## African immigrants

### Situation in Côte d'Ivoire

Since the declaration of independence in 1960, Côte d'Ivoire went through three different stages of development. The first decades of independent Côte d'Ivoire were very successful both in terms economic progress and political stability. Unlike to other African countries, Côte d'Ivoire was able to maintain good relationships with the former colonial power (France), and also was able to beware of coups that would have had destabilized the country. The key person of this period was President Félix Houphouët-Boigny. At that period of time, Côte d'Ivoire was a key world exporter of coffee and cocoa (Miran 2006).

The period of prosperity ended in 1980s due to the economic crisis that had affected the prices of the raw commodities. The ill-effects of the economic crisis on Côte d'Ivoire were disastrous: empowerment of the population, increase of corruption and criminality. Since 1980s, Côte d'Ivoire has not been able to renew the former prosperity. The economic problems influenced the political stability of the country. In 1999, the country experienced the first coup in history. In the end, it was possible to have the free elections but the society was already fragmented. The main cleavage was between Christians and Muslims.

Since 2002, Côte d'Ivoire has been going through the civil war. There are the units of President Laurent Gbagba on one side, and three opposite fractions on the other side. During this conflict, thousands of people died and thousands of refugees decided to leave the country. Various international actors such as UN (the mission MINUCI, later mission UNOCI) and ECOWAS attempted to stop the violence but the success was only temporary as the armistice declared in 2010 did not last long (Petrarca 2008).

Alassane Quattary won the elections in 2010 but the result of these elections was doubted by former President of Côte d'Ivoire Laurent Gbagba. The dispute over election escalated the tension in the country. In result, a second civil war initiated. This civil lasted for almost a year – thousands of people died and almost of million people had to leave the war. In general, it is assumed that the conflict ended with the capture of Laurent Gbagba but the situation in the country is still quite unstable and there are many vulnerable people who seek for a protection.

### Situation in Eritrea

Eritrea declared independence in 1993 after a separation from Ethiopia. The independence was preceded by a bloody civil war with Ethiopia (the main cleavage was between Christian majority in Ethiopia and Muslim minority in nowadays Eritrea). Obviously, the civil war had very negative effects on both states. In order to start a successful post-conflict reconstruction, both states started to cooperate together. In case of Eritrea, one important precondition of post-conflict reconstruction was not fulfilled. This precondition was a political stability and peace (Tekle 1994).

Soon after gaining independence, Eritrea got involved in other conflicts. The first serious armed conflict occurred in 1995-1996 when Eritrea led a war over islands with Yemen. Another war came in 1998 with Eritrea on one side and Ethiopia on the other side. The main reason of this conflict was the clash over the border. Thousands of people died and thousands of people were displaced due to this war. Another conflict came in 2008 when Eritrea fought against Djibouti (Bereketeab 2009).

The situation in Eritrea remains complicated and the society has to deal with many difficulties. Since the war with Ethiopia in 1998, Eritrea has been facing up economic crisis. The situation went that far that in some regions, the threat of famine appeared.

## **Situation in Somalia**

Nowadays, Somalia is known as a case of extreme humanitarian crisis. There has been a civil war since 1991. Due to the civil war, Somalia has been divided in few autonomous regions and the central government fails to control the whole territory. The international community formed a UN mission called UNOSOM in 1992 but it was withdrawn four years later without achieving any success (Rutherford 2008).

The unstable political situations, violence, growth of Islamism and famine led many people to leave their country. Many of them are located in refugee camps in the neighbour countries such as Kenya, and Ethiopia. Many refugees decide to leave the region and apply for an asylum in the western countries despite the long and dangerous journey (Fitzgerald 2002).

The situation has escalated since 2011 when the fights intensified. In result, the supplies of basic needs were broken. In 2012, UN officially declared famine in some regions of southern Somalia. Due to these circumstances, the numbers of refugees have been growing every year. It is estimated that there are hundred thousands of refugees and displaced people (Shay 2011).

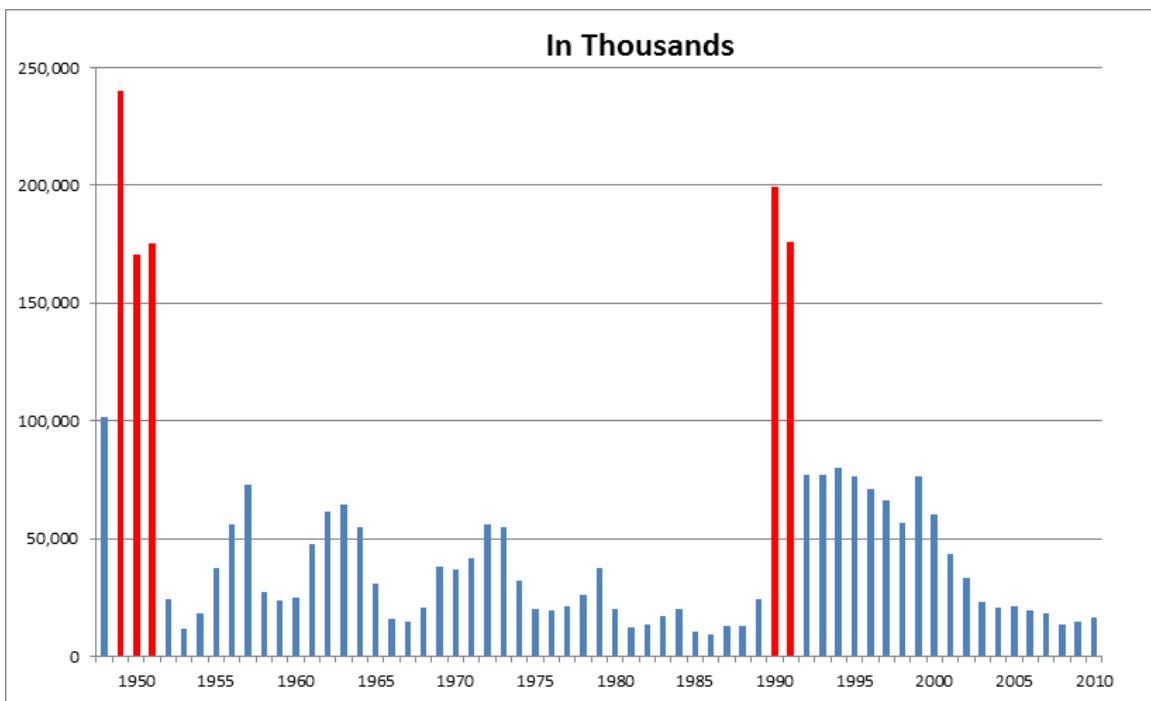
## **Demography aspects**

The last published report of Israel Bureau of Statistics of 25 April 2012 reflecting the demographic situation in Israel claims that the total population of Israel was 7,800,000. While the proportion of the Jewish population accounted for 5.9 million, the number of Israeli Arabs was 1.6 million, and approx. 327,000 people was in the category labelled as the others (Central Bureau of Statistics 2012). This report, however, reflects only the situation in Israel, and it does not take into account the situation in the Palestinian autonomous territories<sup>5</sup>. Further, the report does not include illegal immigrants whose numbers according to available estimates have been rising every year. These figures therefore represent only a part of the whole issue.

Arabs are still considered to be the main enemy of the Jewish state. This fact is reflected in Israeli immigration laws. At present, however, the possibility of further large armed conflict is not really expected. What is rather emphasized to be a possible future threat, is the growth of non-Jewish population living on Israeli territory.

According to available statistics, the overall Israeli population has been growing every year. In 2000 the population of Israel was around 6.2 million, while in 2012 it increased to 7.8 million (Central Bureau of Statistics 2012 and the United Nation Statistic Division 2010). Both fertility rate and mortality rate in Israeli society are balanced thus the main reason of the rapid increase of the population of Israel in last few years have been immigration. An indispensable part of the whole issue is the number of immigrants of Jewish origin. The arrival of this group to Israel is obviously encouraged and welcomed by the state. According to available statistics, however, in the period after 2000 the Jewish immigrants have been rather a minority in comparison to other groups. The numbers of Jewish immigrants in period 2000-2011 was around 300 000 people (Jewish Virtual Library 2013).

<sup>5</sup> There are many persons who have the status of Palestinian refugees, and theoretically a chance to return to the land of their ancestors



Pic. 1: Immigration to Israel 1948-2010

Source: Jewish Virtual Library 2010

The total fertility rate in Israeli society since 1990 have been standing at 3 children per one woman. When it comes to Jewish population, this indicator even slightly increased from an average of 2.7 children per woman in 1990 to 2.9 children per woman in 2009, while the Muslim and Christian parts of the population have recorded an opposite trend. The downward trend is particularly evident in Muslim society as there was an average of 4.7 children per one woman in 1990, but in 2009 the average decreased to only 3.7 children per one woman. An analysis of Christian population shows that there was a decrease from 2.6 children per woman in 1990 to an average of 2.4 children per woman in 2009. The rates of mortality among all religious groups remain at the same level (United Nation Statistic Division 2010).

With regard to those available statistical data and other objective factors as the number of Palestinians living outside of Israeli territory (who could seek for their eventual return to Israeli territory), it can be stated that Israel's fears of a possible demographic threat cannot be dismissed as completely unjustified.

## Immigration Laws

### Conditions for granting Israeli citizenship

With regard to the specific circumstances of the decades-long conflict with the Arabs, the conditions for granting Israeli citizenship are not comparable to the standards of Western countries. The basic principle which is applied is so called *ius sanguinis* (right of blood), however, it is not applied absolutely unconditionally. The approach of the State of Israel towards immigrants is a mixture of religious and secular conceptions of Judaism. The basic legal documents that deal with this issue are the Law of Return 5710-1950, the Law of Entry 5712-1952 and Citizenship Law 5712-1952. The amendments of all three documents have passed since 2000. What is important to emphasize is the fact that each of these amendment is considered controversial as will be described in the next sections.

Probably the best known of these three laws is the Law of Return. The original version of this law states: "Every Jew has the right to come to this country as ole<sup>6</sup>" (Israeli Ministry of Foreign Affairs). As a Jew is then defined the person whose mother or father was a Jew, or a person who converted to Judaism. There was an amendment to Law of Return in 1970 when a very important passage was incorporated. This amendment expanded the group of persons who can be granted Israeli citizenship to the grandchildren of Jews and their partners on the basis of the principle of family reunifications" (ibid).

Law of Return, of course, has got also some limitations. Thus even the application of people who otherwise fulfill the conditions of Law of Return can be rejected Israeli citizenship. The examples are people who are somehow involved in activities directed against Jews, people with criminal records, and people who endanger public health or the security of Israel in some way. In all these cases, however, the final decision is under the jurisdiction of Israeli Ministry of the Interior (ibid).

Another way how to obtain Israeli citizenship is a so called naturalization process. The naturalization process refers to people of non-Jewish origin who desire Israeli citizenship. The conditions are as follows: the applicant must reside legally in Israel at least for three years out of the last five years; show an active interest in the citizenship; renounce the citizenship of the original country; demonstrate knowledge of Hebrew, and especially formally express the loyalty to the State of Israel. In this case, however, the final decision whether to grant Israeli citizenship to a specific person depends on Ministry of the Interior (Israel Law Resource Center 2007a). Conditions of stay in Israel for foreigners are managed by Law of Entry to Israel 5712-1952 (Israel Law Resource Center 2007b).

Special conditions are for those who lived permanently in the territory of the British Mandate of Palestine before 1948, and despite the outbreak of clashes between Arabs and Jews in this area decided to stay. These people obtained Israeli citizenship in 1952 on the basis of Citizenship law (Israel Law Resource Center 2007).

### **Changes in attitude towards immigrants after 2000**

A crucial moment in regard to the Israeli immigration law was year 2003 when Israeli parliament was discussing a proposal which significantly modified the current system of granting Israeli citizenship based on the principle of family reunification.

From the very beginning, the proposal was seen as particularly controversial because it aimed at citizens of specific countries. The proposal stated that the right to Israeli citizenship by marriage (family reunification) should be denied to partners of Israeli citizens coming from Afghanistan, Iran, Iraq, Yemen, Lebanon, Libya, Pakistan, Sudan, Syria and the Palestinian autonomous territories. The choice reflected the long-term hostile relations of Israel with these countries. Minister of the Interior Eli Yishai commented the situation regarding the increasing number of illegal immigrants in an interview as follows: "...infiltrators together with the Palestinians quickly ends the Zionist dream. Muslims who come here even do not believe that this country belongs to us, white people" (RT 2012).

It is not too surprising that this regulation was immediately identified as discriminatory and racist. Critics of this proposal also argued that this proposal may lead to the separation of families which contradicts international conventions that Israel had signed. Despite a wave

<sup>6</sup> Ole (m.), ola (f.), olim (plural) are Hebrew terms for a status of Jews who decided to move to Israel during their first year in the country.

of criticism, the Israeli Supreme Court extended the validity of this regulation in 2006 (Haaretz 2008).

In contrast, one of the proponents of this (for many controversial) Act, Israeli Minister of Education Gideon Sa'ar said: "As long as we remain in a state of national conflict with the Palestinians in the West Bank and Gaza, I see no reason why they should be able to enter Israeli territory for the purpose of family reunification under the same conditions as English or Italian" (Telegraph 2012).

Another very controversial case which was discussed in connection to immigration law was the amendment to Citizenship Law in 2010. It was suggested that non-Jewish citizens should have declared their loyalty to Israel. The proposal said that all non-Jewish candidates for Israeli citizenship must express their loyalty to Israel as "Jewish and democratic state".

Loyalty oath was considered as very problematic especially Israeli Arabs but criticism did not come only from Arab circles. Minister of Social Affairs Isaac Herzog commented the approval of this act as follows: "At the edge of Israeli society appears whiff of fascism. The overall picture looks very disturbing and threatens the democratic character of the State of Israel. It appears tsunami measures that limit rights... We'll pay a high price" (The Guardian 2010).

It is clear that the loyalty oath was directed primarily against Arab immigrants who compared to other non-Jewish immigrants are expected to most reluctant to accept the State of Israel in its current form. A number of Israeli Arabs make no secret that they applied for Israeli citizenship because of their pragmatic reasons concerning their aim to improve their living standards and legal status in Israel.

The motivation, of course, can be very strong also for other groups of non-Jewish immigrants. The non-Arab immigrants who profess Islam may be perceived as a threat as well.

The third very recent change the Israeli legislation touched the status of illegal immigrants. The conditions of entry to Israel were restricted. This law is sometimes known as "Anti-Infiltration law". The issue of illegal immigrants began to be debated in the Knesset since 2008 Ministry of Defense highlighted this issue.

Essentially, Anti-Infiltration Law is a response to increasing number of illegal migrants from Eritrea and Somalia who have been trying to get to Israel through the border between Israel and Egypt. Proponents of stricter legislative pointed primarily to the fact that it is necessary to guarantee Israel's security and control who enters into the country (The Guardian 2012).

In contrast, the opponents argue that it is necessary to protect the human rights. In particular, they emphasized that UN High Commissioner for Refugees issued a statement saying that people from Eritrea should be considered as "a group under temporary humanitarian protection" because of the unstable situation in the country. As it was explained above, most of immigrant from other African countries have been facing up to similar problems in their home countries. Due to these facts, it was emphasized that immigrants coming from these countries should receive official refugee status rather than being persecuted for illegal crossing of the state borders (UNHCR 1951).

In the end, the proposal was adopted in 2010, however, the debate on how to deal with illegal immigrants continues as the number of illegal immigrants increases annually. Israeli parliament discussed the issue again in January 2012, and in May 2013, significant restrictions regarding the illegal immigrants were adopted. The new amendment to the Act on the Prevention of Infiltration states that every illegal immigrant who enters Israel may be detained without a trial for up to three years. In this respect, the law makes no distinction

between political asylum seekers and immigrants with different motivations for entering Israel. All illegally new-comers are automatically considered as infiltrators. At the same time, it was declared that illegal immigrants should be departed from Israel. Sanctions, however, threaten to Israeli citizens who employ illegal immigrants.

It should be emphasized that from the very beginning there was a certain inconsistency between what was declared and how these measures have been applied in practice. A number of illegal refugees has received an official refugee status and thus has got the right to stay in the country legally. Israeli Prime Minister Binyamin Netanyahu said in his public speech in June 2012: "Whoever can be sent away should be deported as quickly as possible. But it is clear that the Sudanese and Eritreans cannot be sent back to their countries" (RT 2012).

In addition to more strict legal standards, Israel also came with some other measures that should reduce the influx of illegal immigrants. Probably the most visible was the construction of the security fence on the borders between Israel and Egypt which began in 2011. Emerging barrier covers 266 km long Egyptian-Israeli border and effectively blocks most of the main routes that illegal immigrants commonly used (The Guardian 2012b).

## **Conclusion**

The described changes in the Israeli legal system with regard to the status of non-Jewish immigrants after 2000 clearly show many new trends and phenomena. These changes significantly reflect developments in the Israeli political scene as since 2000 right-wing and center-right parties have been dominating. In general, leaders of these political parties such as Ariel Sharon, Binyamin Netanyahu and Avigdor Lieberman are considered as political hawk who sometimes tend to choose extreme solutions. During their time in office, important amendments to existing immigration legislative documents were implemented. These amendments are often referred to be discriminatory to certain groups of the population, especially Arabs and Muslims, and declared to be incompatible with the democratic character of the State of Israel.

Traditionally, Israel perceived the Arabs as a threat. Due to decades of enduring Arab-Israeli conflict when one of the most important issues is a dispute over territory, a possibility of an influx of immigrants of Arab origin to Israeli territory has always seemed as very real and at the same time, as a possible threat to the Jewish majority. Since 1990s, and especially since the beginning of the new millennium, however, entirely new phenomenon appeared. There has been a significant increase of immigrants of non-Jewish and non-Arab origins who attempt to reside in Israel. What is unusual in Israeli context is the fact that these immigrants (usually from developing countries) chose Israel as their final destination with the prospect of improving their socio-economic living conditions, but without any ties to Jewish culture. For this reason, they are regarded as a potential threat rather than potential benefit.

There is quite an intense discussion regarding this issue in Israel. This discussion resulted in more restricting law regarding entry to Israel, and the introduction of the loyalty oath. Opponents of these legislative changes highlighted in particular the fact that such laws are discriminatory. Another argument was based on (sometimes exaggerated) emphasis on possible violations of human rights by the State of Israel.

## **Literature:**

Bereketeab, R. 2009. State-building in post liberation Eritrea: challenges, achievements and potentials. Adonis & Abbey.

- Central Bureau of Statistics. 2012, On the Eve of Israel's 64th Independence Day – Approximately 7.881 Million Residents. Available from: [http://www1.cbs.gov.il/www/hodaot2012n/11\\_12\\_106e.pdf](http://www1.cbs.gov.il/www/hodaot2012n/11_12_106e.pdf), cited 27. 12. 2012.
- Davis, U. 2003. Apartheid Israel: Possibilities for the Struggle Within. London: Zed Books.
- Fitzgerald, N. 2002. Somalia: Issues, History, and Bibliography. Nova Publishers.
- Freedom House. 2013. Freedom in the Word 2013: Democratic breaktoughs in the balance. Available from: [http://www.freedomhouse.org/sites/default/files/FIW%202013%20Charts%20and%20Graphs%20for%20Web\\_0.pdf](http://www.freedomhouse.org/sites/default/files/FIW%202013%20Charts%20and%20Graphs%20for%20Web_0.pdf), cited 19. 1. 2013.
- Gilbert, M. 2002. Izrael: Dějiny. Praha: BB Art.
- Haaretz. 2008. Citizenship law makes Israel an apartheid state. Available from: <http://www.haaretz.com/print-edition/opinion/citizenship-law-makes-israel-an-apartheid-state-1.248635>, cited 5. 1. 2013.
- Herzog, Ch. 2008. Arabsko-izraelské války: válka a mír na Blízkém východě od války za nezávislost v roce 1948 po současnost. Praha: NLN, Nakladatelství Lidové noviny.
- Israel Law Resource Center 2007a. Nationality Law 5712-1952. Available from: <http://www.israellawresourcecenter.org/israellaws/fulltext/nationalitylaw.htm>, cited 4.1.2013.
- Israel Law Resource Center 2007b. Entry into Israel Law 5712-1952. Available from: <http://www.israellawresourcecenter.org/israellaws/fulltext/entryintoisraellaw.htm>, cited 4. 1. 2013.
- Israeli Ministry of Foreign Affairs. Law of Return 5710-1950. Available from: [http://www.mfa.gov.il/MFA/MFAArchive/1950\\_1959/Law%20of%20Return%205710-1950](http://www.mfa.gov.il/MFA/MFAArchive/1950_1959/Law%20of%20Return%205710-1950), cited 4.1.2013.
- Jewish Virtual Library 2010. Available from: <http://www.jewishvirtuallibrary.org/jsource/Immigration/imgraph.html>, cited 19. 1. 2013.
- Jewish Virtual Library. 2013. Immigration to Israel: Total Immigration, by Year (1948–2012). Available from: [http://www.jewishvirtuallibrary.org/jsource/Immigration/Immigration\\_to\\_Israel.html](http://www.jewishvirtuallibrary.org/jsource/Immigration/Immigration_to_Israel.html), cited 19. 1. 2013.
- Johnson, P. 1995. Dějiny židovského národa. Praha: Rozmluvy.
- Jones, C., Murphy, E. 2001. Israel: Challenges to Identity, Democracy and the State. London: Routledge.
- Merom, G. 1999. Israel's National Security and the Myth of Exceptionalism. Political Science Quarterly, Vol. 114, No. 3, pp. 409–434.
- Miran, M. 2006. Islam, histoire et modernité en Côte d'Ivoire. Paris: KARTHALA Editions.
- Peled, Y. 2013. The Challenge of Ethnic Democracy: The State and Minority Groups in Israel, Poland and Northern Ireland. Exterer: Routledge.
- Petrarca, V. 2008. Un prophète noir en Côte d'Ivoire: sorcellerie, christianisme et religions africaines. Paris: KARTHALA Editions.
- RT. 2012. Israel govt calls for mass deportation of African immigrants. Available from: <http://rt.com/news/israel-immigrants-deport-mass-907/>, cited 19. 1. 2013.
- Rutherford, K. 2008. Humanitarianism Under Fire: The US and UN Intervention in Somalia.
- Shay, S. 2011 Somalia between Jihad and Restoration. Transaction Publishers.
- Tekle, A. 1994. Eritrea and Ethiopia: From Conflict to Cooperation. The Red Sea Press.
- The Guardian. 2010. Israel proposes Jewish state loyalty oath for new citizens. Available from: <http://www.guardian.co.uk/world/2010/oct/10/israel-jewish-oath-new-citizens>, cited 27. 12. 2012.
- The Guardian. 2012. Israel extends new border fence but critics say it is a sign of weakness. Available from: <http://www.guardian.co.uk/world/2012/mar/27/israel-extends-border-fence-critics>, cited 19. 1. 2013.
- The Guardian. 2012. Israel PM: illegal African immigrants threaten identity of Jewish state. Available from: <http://www.guardian.co.uk/world/2012/may/20/israel-netanyahu-african-immigrants-jewish>, cited 7. 1. 2013.

- The Guardian. 2012b. Israel extends new border fence but critics say it is a sign of weakness. Available from: <http://www.guardian.co.uk/world/2012/mar/27/israel-extends-border-fence-critics>, cited 19. 1. 2013.
- The Telegraph. 2012. Israel's cabinet votes to extend 'racist' citizenship law. Available from: <http://www.telegraph.co.uk/news/worldnews/middleeast/israel/9030915/Israels-cabinet-votes-to-extend-racist-citizenship-law.html>, cited 5. 1. 2013.
- UNHCR. 1951. The 1951 Refugee Convention. Available from: <http://www.unhcr.org/pages/49da0e466.html>, cited 19. 1. 2013.
- United Nation Statistic Division. 2010. The Population of Israel 1990–2009. Available from: [http://unstats.un.org/unsd/wsd/docs/Israel\\_wsd\\_brochure.pdf](http://unstats.un.org/unsd/wsd/docs/Israel_wsd_brochure.pdf), cited 19. 1. 2013.

# Forecast of international arrivals into USA regions

Jo Vu<sup>1</sup>

## Abstract :

This study tests the accuracy of disaggregating tourism time series by focusing upon the main regions of entry to the USA, using international arrivals data. Forecasts are run using the Basic Structural on monthly data. Accuracy of the arrival forecasts is measured for each region, and comparison is made of the forecast growth rates regional and nationally to compare the relative accuracy of different levels of aggregation. Forecasts of international arrivals are also made into the future for 2010-2015 for both the USA as a whole and for each of the main regions. These forecasts will provide interesting USA regional forecasts for the first time.

## INTRODUCTION

Considerable research has been done on comparative research models for forecasting tourist arrivals and also some research on the disaggregation of data (Lim 1997; Witt and Witt 1995). There is also a study conducted by Turner and Witt in 2002 on large-scale regional forecasts for China. However, no study has tested regional forecasting accuracy for regional (sub-national) areas in comparison to national arrivals forecasting. In many cases sub-regional tourist arrivals data is not available, and when available it is often in a different form to national data, most commonly collected as accommodation arrivals. The significance of this study lies with the use of international arrivals at different ports of entry, which is disaggregated by state-based regions in the United States, in order to determine whether such sub-regional data can provide accurate tourist arrivals forecasts, in absolute and relative terms, to the whole national flow data.

The significance for such research is that it potentially opens up the range of international arrivals forecasting that needs to be done in larger destinations, to a study of sub-regional impacts. There are some other countries including China and India where appropriate data may be available. Sub-national forecasts based upon regional data are extremely important for assessing regional development trends, and potential international tourism growth and decline locations within a national economy.

Variable regional growth is an area of study in itself. Most commonly in the tourism literature it focuses upon economic impacts (Bryden 1973; Archer and Fletcher 1990; Eadington and Redman 1991; Briassoulis 1991; Gray 1982; Burns and Holden 1995; Lundberg). Regional impacts can vary from the earning of foreign exchange and boosting local taxation to include employment creation (Witt et al. 2004), education opportunities, cultural impact (positive and negative), infrastructure improvements, communications development and investment and environmental change (Budouski 1976; Hall and Page

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1999). Social impacts (Dann and Cohen 1991; Dogen 1989; Pearce 1989) refer to the affects tourism has on collective and individual value systems, behaviour patterns, and quality of life and community structures.

Regional tourism growth may lead to changing consumption patterns and greater demand for imported goods (Bryden 1973), while tourism can import economic change such as inflation, resettlement and a widening of the divide between rich and poor at the domestic level. While it is possible to measure such impacts through the study of input-output analysis (Fletcher 1989; Frechling 1987; Johnson and Moore 1993) or CGE modelling, a primary determinant is to forecast regional growth if such studies are to be fully regional in examining the impact of international and domestic tourism.

## METHODOLOGY

Monthly data from July 2001 to December 2006 inclusive contains 66 periods in each time series to provide an adequate series to use a Basic Structural modelling (BSM) approach. The choice of using BSM series approach is primarily because of a lack of data available at sub-regional levels for econometric forecasting, and also because these models provide well established reliable results in previous research. There is also the problem of determining what determinant variables in an econometric approach are relevant at the regional level. Assuming the forecasting process can firstly be shown to operate using time series methods, a further step would be to develop a theoretical model of suitable regional determinant variables (that may or may not be economic in nature) for extending the forecasting process into a causal modelling framework.

The study uses the Root Mean Square Error (RMSE) and Mean Absolute Percentage Error (MAPE) for comparison of model accuracy, because these measures are widely accepted in the literature and in the case of MAPE unit free comparisons (Martin and Witt, 1989a; Martin and Witt, 1989b; Hanke and Reitsch, 1992) that are important for comparing results from tourist arrival flows of different volumes.

Additionally, the forecasts when summed from the regional flows are compared on the basis of forecast accuracy with the forecast of the total flow for the whole national flow data. This tests the more general issue of the accuracy of regionally disaggregating tourism time series. It is important to determine whether regional based forecasts can be accurately derived, and apart from the absolute measures of forecast accuracy (such as MAPE and RMSE) this issue is also a relative question. Comparison is also made of the forecast growth rates regionally and nationally, to compare the relative accuracy of the different databases and the different types of data. The question is whether regional data can generate a forecast as equally accurate as national data and if so, what can be the potential use of forecasts?

Forecasts of guest arrivals are also made into the future for 2010-2015 for each of the seven state-based regions in the United States, based on the best method selected with the lowest MAPE. These forecasts will provide interesting regional forecasts for the first time in the United States and allow for an assessment of the potential use of regional forecasting.

## DATA SOURCES

Data on international arrivals at were obtained from the Office of Travel and Tourism Industries - U.S. Department of Commerce, Washington, using Table G.1 of First Intended Address of Non-Resident Arrivals by World Region of Residence. Fifty two states were

broken down into seven main regions namely: New-England, Northern Eastern, Sothern Eastern, North Central, South Central, North Western and South Western.

## SEASONAL TIME-SERIES FORECASTING MODELS

The Basic Structural model (BSM) although used in previous research (Gonzalez and Moral 1995; Greenidge 2001) is less well known than ARIMA modelling (Frechling 1996; Dharmaratne 1995; Chu 1998a; Chu 1998b; Turner, Kulendran and Pergat 1995; Chan, Hui and Yuen 1999; Turner and Witt 2001; Lim and McAleer 2002; Goh and Law 2002). The BSM model has been shown as a highly accurate forecasting model in comparison to the univariate ARIMA model (Turner, Kulendran and Fernando 1997). According to Harvey and Todd (1983), the BSM deals with univariate time varying data with trend and seasonal components. The structural model also attempts to weight through time the main observable features of the actual time-series as:

$$\text{Observed series} = \text{trend} + \text{seasonal} + \text{cycle} + \text{irregular}.$$

In mathematical form, the basic structural model is expressed as  $Y_t = \mu_t + \gamma_t + \psi_t + a_t$ , where  $\mu_t$  is the trend component,  $\gamma_t$  the seasonal component,  $\psi_t$  the cyclical component and  $a_t$  the irregular component, where  $t=\text{time}$ . The deterministic trend component  $\mu_t$  can be represented as  $\mu_t = \alpha + \beta T$ , where  $\alpha$  and  $\beta$  are level and slope coefficients respectively, and  $T$  is the time trend for  $t = 1, 2, \dots, T$ . This basic structural model implies the observed series has a deterministic trend and the slope is fixed throughout time.

For stochastic trend,  $\mu_t$  becomes the stochastic trend component and is expressed in the form of  $\mu_t = \mu_{t-1} + \beta_{t-1} + a_{1t}$  where  $\beta$  the slope is also stochastic and changes from period  $t$  to  $t-1$  such that,  $\beta_t = \beta_{t-1} + a_{2t}$ . The seasonal component ( $\gamma_t$ ) has the stochastic seasonal form of  $\gamma_t = \sum \gamma_{t-j} + w_t$ . Note that,  $a_t$ ,  $a_{1t}$ ,  $a_{2t}$  and  $w_t$  are all stochastic error terms with expected values of zero.

The particular feature added by the BSM approach is that stochastic movements are permitted. So a stochastic trend can allow for changing consumer demand as fashion changes, and stochastic seasonality can allow for changing seasonal patterns. Such change is becoming increasingly common in the leisure market where formerly luxury holidays are becoming non-luxurious needs, and more than one holiday annually is changing the seasonal pattern as well. The trend, seasonal and cyclical components can be variously modelled, and the irregular component represents the variations in tourism demand that are not explained by the other components.

To perform Basic Structural method, the data were divided into two parts. The first time periods from July 2001 to December 2005 were used to estimate the model, and the remaining data (from January 2006 to December 2006) used for the forecast comparisons.

## FORECASTING PERFORMANCE

Measures of root mean square percentage error (RMSPE) and mean absolute percentage error (MAPE) are used to measure the difference between the forecast and actual values in the post estimation period (Mentzer and Kahn 1995; Witt and Witt 1992; Armstrong 2001). These errors are particularly useful in measuring the accuracy as they are unit free. The volume of tourist arrivals for each region is markedly smaller than the total international flows.

## INTERNATIONAL TOURIST ARRIVALS INTO REGIONS

Table 1 shows a summary of the MAPE error measures for the seven regions using international arrivals data; total national arrivals data (summed from the seven regions data). The results show an overall average of 8.61% compared to 9.60% for the total international arrivals. This implies that regional forecasts are as accurate as the national immigration data when used to forecast overall arrivals. However, the accuracy of the forecasts is generally less for the international tourist arrivals in some of the regional areas such as New-England (marginally less with MAPE of 9.63%) and Northern-Western area (15.57%), compared to the total international arrivals of the whole nation (9.60%).

**TABLE 1 MAPE FORECASTING ACCURACY**

| ARRIVALS                     | BSM MAPE    |
|------------------------------|-------------|
| New - England                | 9.63        |
| Northern - Eastern           | 5.47        |
| Southern - Eastern           | 8.95        |
| North - Central              | 4.60        |
| South - Central              | 6.54        |
| Northern - Western           | 15.57       |
| Southern - Western           | 9.57        |
| Overall Average              | <b>8.61</b> |
| Total International Arrivals | <b>9.60</b> |

Note: MAPE = Mean Absolute Percentage Error; BSM=Basic Structural Model.

**TABLE 2 FORECASTS OF INTERNATIONAL ARRIVALS INTO USA REGIONS**

| PERIOD | NEW-ENGLAND | NORTHERN-EASTERN | SOUTHERN-EASTERN | NORTH-CENTRAL |
|--------|-------------|------------------|------------------|---------------|
| 2010   | 6,373,594   | 3,360,910        | 5,092,705        | 285,034       |
| 2011   | 6,954,586   | 3,532,951        | 5,118,747        | 303,014       |
| 2012   | 7,576,537   | 3,713,901        | 5,144,820        | 322,124       |
| 2013   | 8,254,087   | 3,904,120        | 5,170,941        | 342,439       |
| 2014   | 8,992,227   | 4,104,074        | 5,197,099        | 364,040       |
| 2015   | 9,796,377   | 4,314,268        | 5,223,277        | 387,000       |

| PERIOD | SOUTH-CENTRAL | NORTHERN-WESTERN | SOUTHERN-WESTERN | TOTAL ARRIVALS |
|--------|---------------|------------------|------------------|----------------|
| 2010   | 1,606,882     | 1,173,903        | 7,028,639        | 23,189,345     |
| 2011   | 1,701,881     | 1,390,429        | 7,177,508        | 23,858,672     |
| 2012   | 1,802,358     | 1,646,892        | 7,380,260        | 24,527,385     |
| 2013   | 1,908,690     | 1,950,662        | 7,555,915        | 25,195,455     |
| 2014   | 2,021,266     | 2,310,458        | 7,731,502        | 25,863,049     |
| 2015   | 2,140,468     | 2,736,624        | 7,906,973        | 26,530,336     |

Table 2 displays the forecasts of international arrivals from 2010 to 2015 for both USA as a whole, and for each of the USA regions. These forecasts are made using BSM models. The Annual Average Percent Growth (AAGR) rates indicate that national wide; the growth for total arrivals for USA from 2006 to 2010 is 3.05% annually. Regionally, Northern-Western, New-England and South-Central show a high percent growth with AAGR of 17.57 %, 9.49% and 6.07% respectively. Northern-Eastern (5.28%) and North-Central (5.87%) both show a moderate growth but still higher than the national growth (3.05%) annually, whereas both Southern-Western (2.59%) and Southern-Eastern (0.77%) regions are projected to have slow growth as shown in Table 3.

**TABLE 3 ANNUAL AVERAGE PERCENT GROWTH 2006-2010**

| NEW-ENGLAND   | NORTHERN-EASTERN | SOUTHERN-EASTERN | NORTH-CENTRAL  |
|---------------|------------------|------------------|----------------|
| 9.49          | 5.28             | 0.77             | 5.87           |
| SOUTH-CENTRAL | NORTHERN-WESTERN | SOUTHERN-WESTERN | TOTAL ARRIVALS |
| 6.07          | 17.57            | 2.60             | 3.05           |

## CONCLUSION

The results from the analysis show that the BSM model does provide accurate forecasts and international arrivals data collected regionally in the United States can be used to accurately forecast tourist arrivals regionally. This analysis confirms that the regional forecasts of tourist are at least as accurate as the national data when used to forecast overall arrivals. The regional MAPE also showed a more accurate forecast, with an overall average of 8.61% error compared to 9.60% error for the total national arrivals. This implies that it is possible to use the regional data in the United States to forecast regional tourist arrivals.

This finding has considerable significance for USA tourism. When forecast ahead for international arrivals, Northern-Western region shows a very high forecast average annual growth at 17.57%. This implies that demand for tourist services of both a private and public nature will grow more rapidly in Northern-Western region in comparison to New-England (9.49%) and South-Central (6.07%). Southern-Western and especially Southern-Eastern show a very small growth of 2.60% and 0.77% respectively.

The findings indicate that regional arrival forecasts may be possible in other countries where regional cross-border data is collected. The potential for a closer examination of regional forecasting has highly significant implications for investment infrastructure and government planning in several countries. The regional impact of tourism is just as significant as the national impact, and carries with it the potential for disparity in regional growth resulting from varied international tourism incomes. It is extremely important to assess this potential disparity so that national governments can act in advance, to avoid future economic stagnation in those regions likely to receive fewer international arrivals.

Finally, these issues may have significant impact upon the development of econometric based regional models, and raise the question of allowing for other than economic variables. Although it may remain relevant to examine the same economic theory regionally as nationally, it is likely that the determinants of tourism demand at a regional level are different. Further study may examine this issue.

## REFERENCES

- Archer, B.H., and Fletcher, J.E. (1990). 'Tourism: Its Economic Importance.' In Quest, M. (ed.). *Horwirth Book of Tourism*, Macmillan Press, London.
- Armstrong, J.S. (2001). 'Evaluating Forecasting Methods.' In Armstrong, J.S. (ed.). *Principles of Forecasting*, Kluwer Academic Publishers.
- Box, G.E.P., Jenkins, G.M., and Reinsel, G.C. (1994). *Time Series Analysis, Forecasting and Control*. Englewood Cliffs, NJ: Prentice Hall.
- Briassoulis, H. (1991). 'Methodological Issues: Tourism Input-Output Analysis.' *Annals of Tourism Research*, 18 (3), 485-495.
- Bryden, J. (1973). *Tourism and Development: A Case Study of the Commonwealth Caribbean*, Cambridge University Press, Cambridge, UK.
- Budowski, G. (1976). 'Tourism and Conservation: Conflict, Coexistence or Symbiosis.' *Environmental Conservation*, 3 (1), 27-31.
- Bull, A. (1991). *The Economics of Travel and Tourism*, Longman Cheshire, South Melbourne.
- Burns, P., and Holden, A. (1995). *Tourism: A New Perspective*, Prentice Hall.
- Chan, Y.M., Hui, T.K., and Yuen, E. (1999). Modelling the Impact of Sudden Environmental Changes on Visitor Arrival Forecasts: The Case of the Gulf War." *Journal of Travel Research*, 37, 391-394.
- Chu, F.L. (1998a). 'Forecasting Tourism: A Combined Approach.' *Tourism Management*, 19 (6), 515-520.
- Chu, F.L. (1998b). 'Forecasting Tourism Demand in Asian Pacific Countries.' *Annals of Tourism Research*, 25 (3), 597-615.
- Dann, G., and Cohen, E. (1991). 'Sociology and Tourism.' *Annals of Tourism Research*, 18, 154-169.
- Dharmaratne, G.S. (1995). 'Forecasting Tourist Arrivals to Barbados.' *Annals of Tourism Research*, 22 (4), 804-818.
- Dogen, H.Z. (1989). 'Forms of Adjustment: Socio-Cultural Impacts of Tourism.' *Annals of Tourism Research*, 16 (2), 216-236.
- Eadington, W.R. and Redman, M. (1991). 'Economics and Tourism.' *Annals of Tourism Research*, 18 (1), 41-56.
- Fletcher, J.E. (1989). 'Input-Output Analysis and Tourism Impact Studies.' *Annals of Tourism Research*, 16, 541-546.
- Frectling, D.C. (1987). 'Assessing the Impacts of Travel and Tourism: Measuring Economic Costs.' In Ritchie, J.R. and Bret and Goeldner, C.R. *Travel, Tourism and Hospitality Research*, Wiley, New York, 333-352.

- Frechtling, D.C. (1996). *Practical Tourism Forecasting*, Butterworth-Heinemann, Oxford.
- Goh, C., and Law, R. (2002). 'Modelling and Forecasting Tourism Demand for Arrivals with Stochastic Non-stationary Seasonality and Intervention.' *Tourism Management*, 23 (5), 499-510.
- Gonzalez, P., and Moral, P. (1995). 'An Analysis of the International Tourism Demand in Spain.' *International Journal of Forecasting*, 11, 233-251.
- Gray, H.P. (1982). 'The Contributions of Economics to Tourism.' *Annals of Tourism Research*, 9 (1), 105-125.
- Greenidge, K. (2001). 'Forecasting Tourism Demand: An STM Approach.' *Annals of Tourism Research*, 28 (1), 98-112.
- Hanke, J.E., and Reitsch, A.G. (1992). *Business Forecasting*. Allyn and Bacon, Boston.
- Hall, M.C., and Page, S.J. (1999). *The Geography of Tourism and Recreation*, Routledge, New York.
- Harvey, A.C., and Todd, P.M.J. (1983). 'Forecasting Economic Time Series with Structural and Box-Jenkins Models: A Case Study.' *Journal of Business and Economic Statistics*, 1: 200-314.
- Johnson, R., and Moore, E. (1993). 'Tourism Impact Estimation.' *Annals of Tourism Research*, 20 (2), 279-288.
- Lim, C. (1997). 'An Econometric Classification and Review of International Tourism Demand Models.' *Tourism Economics*, 3 (1), 69-81.
- Lim, C., and McAleer, M. (2002). 'Time Series Forecasts of International Travel Demand for Australia.' *Tourism Management*, 23 (4), 389-396.
- Lundberg, D.E., Krishnamoorthy, M., and Stavenga, M.H. (1995). *Tourism Economics*, New York: John Wiley.
- Martin, C.A., and Witt, S.F. (1989a). 'Forecasting Tourism Demand: A Comparison of the Accuracy of Several Quantitative Methods.' *International Journal of Forecasting*, 5, 7-10.
- Martin, C.A., and Witt, S.F. (1989b). 'Accuracy of Econometric Forecasts of Tourism.' *Annals of Tourism Research*, 16 (3), 407-428.
- Mentzer, J.T., and Kahn, K.B. (1995). 'Forecasting Technique: Familiarity, Satisfaction and Usage.' *Journal of Forecasting*, 14, 465-476.
- Pearce, D.G. (1989). *Tourism Development*, London, Harlem.
- Turner, L. W., Kulendran, N., and Fernando, H. (1997). 'Univariate Modelling Using Periodic and Non-Periodic Analysis: Inbound Tourism to Japan, Australia and New Zealand Compared.' *Tourism Economics*, 3:39-56.
- Turner, L. W., Kulendran, N., and Pergat, V. (1995). 'Forecasting New Zealand and Tourism Demand With Disaggregated Data.' *Tourism Economics*, 1 (1), 51-69.

Turner, L. W., and Witt, S.F. (2001). 'Forecasting Tourism Using Univariate and Multivariate Structural Time Series Models.' *Tourism Economics*, 7: 135-147.

Witt, S.F., Song, H., and Wanhill, S. (2004). 'Forecasting Tourism-Generated Employment: the Case of Denmark.' *Tourism Economics*, 10 (2), 167-176.

Witt, S.F., and Witt, C.A. (1992). *Modelling and Forecasting Demand in Tourism*. London: Academic Press.

Witt, S.F., and Witt, C.A. (1995). 'Forecasting Tourism Demand: A Review of Empirical Research.' *International Journal of Forecasting*, 11 (3), 447-475.

# **Tourism shift from developed to underdeveloped countries**

**Jo Vu<sup>1</sup>**

## **Abstract:**

The developed countries have had a long history of gaining the greater benefit from trade between nations, and international tourism is a form of trade that represents exports as tourist arrivals. The economic development of world regions has increasingly been linked to tourism development and particularly the volume of tourist arrivals. Worldwide the share in tourism is increasingly spreading to less developed economies and it has been assumed that most world regional international tourism flows from the developed to the underdeveloped world, and forms a process of foreign exchange income. This paper examines the question of whether tourism arrivals volume has moved from the developed to underdeveloped countries over the recent period from 2000 to 2005.

## **Key words:**

World economic dimensions, Principal component analysis, Dynamic Shift-Share Analysis.

## **Introduction**

International tourism has increasingly drawn out the huge similarity or "commodification" of developed economies that have created "sameness" from their intense competition. Under this process it is argued that the relatively wealthy developed markets have become the main source markets of tourism (away from the "sameness"), and the relatively poorer developed world the destination for much of this international travel (refer to Table1), on the larger scale, although the question remains unclear. Regions that are relatively developed such as Europe and the Americas receive less than the average rate of world tourism growth compared to regions containing few developed countries. Although, measures of world regional arrivals are confused by the huge intra Europe travel and some neighbour country movement, much of which is domestic in nature and very short in length of stay.

**Table 1 International Tourist and Growth for World Regions 1996-2005**

| Region       | 1996  | 2005  | AAGR % |
|--------------|-------|-------|--------|
| Africa       | 21.9  | 36.7  | 5.9    |
| Americas     | 116.9 | 133.5 | 1.5    |
| Asia Pacific | 93.4  | 155.4 | 5.8    |
| Europe       | 353.3 | 441.5 | 2.5    |
| Middle East  | 14.1  | 39.1  | 12.0   |
| World        | 599.6 | 806.2 | 3.3    |

Source: WTO 2001-2007 - Compendium of Tourism Statistics; AAGR – Average Annual Growth Rate

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However, this does not mean that international tourism does not flow between the developed economies such as within the states of Europe, but Table 1 does suggest that tourism has a rare capacity to transfer foreign exchange from developed countries to underdeveloped countries on a world scale. In consequence, those countries often most concerned about the flow of tourists are either those countries that benefit from the foreign exchange and want more of it, or countries that consider they want to reduce the flow of foreign exchange from their countries. It is increasingly difficult as Taiwan, Korea and China have found to artificially stop the outflow of tourists through economic or political barriers, and at the same time, the developing economies (in many instances) have increased their demand through improved destination attractiveness with lower costs, and heightened tourism experiences (for example, China, Thailand, India, Laos, and many Pacific Islands).

This has not changed the potential benefits of the centre in their ownership of airlines, hotels, and resorts that enable a reverse trickling back of foreign exchange from tourism in the developing world, but there is a limit to their control of this expenditure. Taxes and local factors of production can still favour local employment and a flow of foreign exchange to the destination market. Moreover, tourism is a service industry, and potentially provides a means for the developing countries to also develop a service based economy (around tourism) but in this case based more on the inbound market than the outbound market. Therefore, tourism unlike any other service tends to provide a degree of reverse comparative advantage in international tourism, from the long-term traditional domination by the core economies.

The objective of this paper is of two fold. The first is a preliminary analysis of world international regional tourism to test whether the volume of flow (as opposed to receipts) does tend to indicate over time a movement of tourism trade in favour of the developing countries. The second is, from the results of the mentioned preliminary economic structure analysis; using dynamic shift-share method to determine where tourism trade is flowing relative to a general measurement of economic development.

## **MEASURING DEVELOPMENT - A Preliminary Analysis**

There are many ways of measuring economic development and some of these measures include variables other than strict economic variables such as pollution, overcrowding and even the pleasantness of climate. However, such measures can be largely subjective. For example, a high population density may indicate overcrowding but may also be a favoured state of living for many. Consequently, the measures used here are based upon economic and population indices that are basic to human economic wellbeing. Developed nations are expected to have higher gross national income per capita, higher levels of export trade, higher levels of gross capital formation, lower levels of percentage deficits on their annual budget, higher levels of direct investment, higher levels of life expectancy and lower levels of female adult illiteracy. The data representing these variables are available for a large number of countries. There are many other relevant measures, but they are not available for a large set of countries.

Tourism trade in developed economies is expected to generate higher volumes of departures, higher numbers of aircraft departures of their own airlines, higher levels of

tourism expenditure and lower levels of international tourism receipts and registered accommodation as measured by number of available beds.

It is difficult in some cases to identify economic development versus economic under development. The distinction may be obvious when comparing the most developed countries with the least developed. However, there is a continuum of development that is not readily defined and consequently, it is not obvious which countries are developed and to what level, when large numbers of countries are compared. Similarly, it is unclear what is a high number of international tourism departures or arrivals, as there is also a continuum. Consequently, the structural dimensions of economic development and tourism are not easily determined.

## DATA SOURCES

Annual tourism data is available and has been collected for 108 countries in 2005. Arrivals, Departures, Tourism Receipts, Tourism Expenditure and Number of Rooms were obtained from the Compendium of Tourism Statistics, World Tourism Organization 2007 edition. The economic data comprises Gross National Income (GNI), Exports and Imports of goods and services, Gross Capital Formation, Budget Balance, Aircraft Departures, Foreign Direct Investment, Internet Use, Life Expectancy, Fertility Rate and Female Adult Illiteracy were obtained from the 2007 Little Data Book (The World Bank).

These countries form a sub sample and are highly representative of the world's major regions and contain countries of different size and cultural/political background. The time period might be described as the medium-term over six years, and is considered long enough to establish whether there is a shift in the balance of trade.

## THE IDENTIFICATION OF A WORLD DEVELOPMENT STRUCTURE

Although there is a generalised assumption here that the primary structure of world international tourism is a structural imbalance in flows over time from the developed to the underdeveloped nations, it is far from clear that this simple structure is evidenced in reality, and that it is an obvious or simple structural relationship that exists in world tourism.

The analysis of structure in data matrices of this type can be achieved by the use of Principal Components analysis (Tabachnick and Fidell, 1996). The main goal of this form of factor analysis is to reduce a large number of related variables to a more manageable number of factors sometimes prior to using them in other analyses such as multiple regression or multivariate analysis of variance. The term factor analysis encompasses a variety of different, although related techniques namely principal component analysis and factor analysis. Both techniques attempt to produce a smaller number of linear combinations of the original variables in a way that captures most of the variability in the pattern correlations. However, in principal component analysis the original variables are transformed into a smaller set of linear combinations with all of the variance in the variables being used, whereas, in factor analysis, only the shared variance is analysed (Pallant, 2001).

In this preliminary study, principal components analysis is used to produce an empirical summary of the data set, as this technique is mathematically sound and can avoid some of the potential problems with factor indeterminacy associated with factor analysis (Tabachnick and Fidell, 1996). The objective of the analysis is an identification of the economic and tourism structure of countries through the identification of the main structural components and the subsequent clustering of countries on these components. In regard to the reliability of factor structures and sample size requirements, various authors suggest that it is not the overall sample size that is of concern, rather the ratio of cases to variables. Tabachnick and Fidell (1996) recommend at least 5 cases for each of the variables would be adequate in most cases, whereas Nunnally (1978) would suggest a 10 to 1 ratio. However, whatever the ratio is, two statistical measures generated by SPSS to help assess the factorability of the data sample are: the Bartlett's test of sphericity and the Keiser-Meyer-Olkin (KMO) measure of the sampling adequacy. The Bartlett's test of sphericity expects a p-value of less than .05 for the factor analysis to be considered appropriate, and a minimum value of the KMO of .6 or above is necessary for a good factor analysis (Pallant, 2001). These two measures will be discussed in the data analysis to assess the suitability of the data for component analysis. The ratio of variables to cases in this analysis is 6.75 cases to each variable.

In principal components analysis, the components are identified by the loading of the original variable, the more important the variable in the interpretation of the component the higher the loading. A standard procedure is followed whereby significant components are defined as those with an eigenvalue of 1 or higher, and a varimax rotation is applied to maximise the orthogonality of the components and clarify component interpretation. This is reasonable as the objective of the analysis is variable reduction, and the determination of discrete structural dimensions. However, it remains the case that an oblique rotation could also be theoretically sound.

The allocation of countries to each of the component groupings is achieved using the standardized component scores. The larger the value for an observation on a variable with a high loading on a component, the larger the score. In general, component scores are values for the observations on the new variables (components), reflecting the contribution each component (new variable) makes to their variance.

## RESULTS FROM ANALYSIS

To assess the suitability of the data for component analysis, the KMO .711 and Bartlett's (p-value=.000) tests show the component analysis is appropriate for the data. The Total Variance Explained Table Six indicates four components explain most of the variance with a cumulative total of 70.87%. The Rotated Component Matrix table shows the loadings of each of the items on the four components.

Component 1 is reflective of highly developed country scores (refer to Table 3) that are characterized by having high tourism receipts, high outbound travel expenditure, high departure of tourists, high number of rooms, high investment and arrivals. Component 2 is reflective of developed countries with high income and low fertility, high expectancy and low illiteracy, medium internet and budget. Component 3 is reflective of trading countries not based on tourism service sector trade but manufacturing trade. These countries may be less developed or developing countries. Component 4 is

reflective of those countries with relatively high capital development. These countries might be expected to be less developed countries (Table 2).

**Table 2 Rotated Component Matrix 2005**

| Component                          | 1     | 2     | 3     | 4     |
|------------------------------------|-------|-------|-------|-------|
| Receipts                           | .933  |       |       |       |
| Expenditure                        | .906  |       |       |       |
| Departures                         | .856  |       |       |       |
| Rooms                              | .852  |       |       |       |
| Investment                         | .742  |       |       |       |
| Arrivals                           | .624  |       |       |       |
| Fertility                          |       | -.741 |       |       |
| Life Expectancy                    |       | .730  |       |       |
| GNI                                |       | .720  |       |       |
| Illiteracy                         |       | -.717 |       |       |
| Internet                           |       | .566  |       |       |
| Budget                             |       | .548  |       |       |
| Imports                            |       |       | .954  |       |
| Exports                            |       |       | .946  |       |
| Capital                            |       |       |       | .797  |
| Cumulative<br>Extracted Variance % | 34.62 | 53.29 | 63.06 | 70.87 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

The principal components analysis has shed some light onto the question raised concerning the importance of tourism in the economic structure of countries worldwide. However, this analysis has been insufficient to fully test the question concerning the possible shift of tourism in favour of the developing countries. A more specific analysis is required on the arrivals measure and shift-share analysis is used for this purpose in the following section, building upon the principal components analysis interpretation of developing versus developed countries.

## **SHIFT SHARE ANALYSIS FOR DEVELOPED VERSUS UNDERDEVELOPED COUNTRIES**

Shift share analysis has been known to decompose growth in a region over a given time period. This simple descriptive technique has proved to be useful for isolating trends in regional performance, and for supplying data to policy makers to interpret changes in the industrial structure of their economies (Wilson and Mei, 1999). Basically, shift share analysis decomposes into three effects: a national growth effect known as share effect, an industry mix effect, and a competitive effect (Barff and Knight, 1988).

Wilson and Mei (1999) also argue that most studies using shift share methods are quite static in the way that they only consider changes at the beginning and the end of the period. This static approach does not take into account the continuous changes in the industry mix effect.

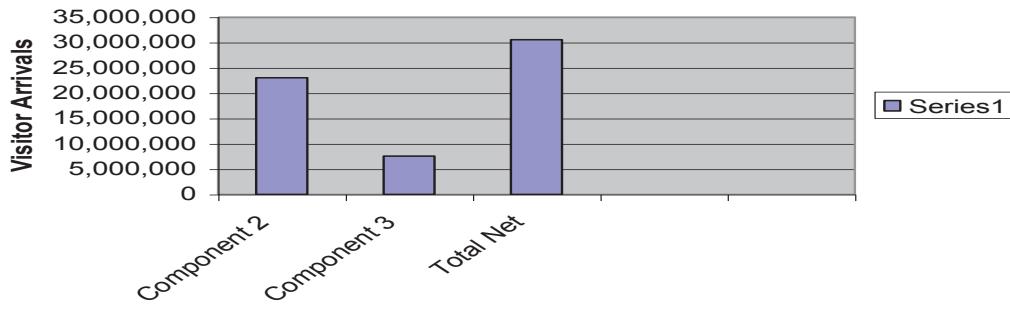
In addition, the static approach also does not take into account the interaction between the industry mix and the competitive effect. According to Toh, Khan and Lim (2004), the Esteban-Marquillas extension to the shift share approach allows for interaction by adding a fourth effect called the allocation effect into the model. Hence, a dynamic shift approach has been devised to allow for the adjustment of continuous changes in the industry mix component. However, the main criticism on the Esteban-Marquillas extension raised by Stokes (1974) is that this Esteban-Marquillas shift share extension can lose the property of region-to-region additivity, as well as aggregation-disaggregation symmetry. Stokes' criticism was later disproved by Haynes and Machunda (1987) to confirm that the Esteban-Marquillas shift share extension has an analytical superiority over the traditional shift share formulation.

In this analysis the work of Toh, Kha and Lim (2004) is used (incorporating the Esteban-Marquillas extension) to investigate the competitiveness between the underdeveloped and the developed countries from 2000 to 2005 inclusive. In this way the shift share approach measures the change over time to international visitor arrivals to the underdeveloped countries, benchmarked against the developed countries. This Esteban-Marquillas shift share extension assumes that visitor arrivals growth to the underdeveloped countries is due to the area wide effect, country mix effect, competitive effect and allocation effect. The net shift in visitor arrivals for each region is also measured to determine whether the underdeveloped countries are competitively superior to its benchmark area (the developed countries). The full details of the shift share formula are given in the appendix.

Shift share analysis can measure the relative movement in terms of one variable measure against another between groups. In this case the question is whether the variable tourism arrivals volume that seems to have moved (albeit weakly as indicated by a low loading) from the developing country components to the components representing the developed countries, over the period from 2000 to 2005, indicates that the advantage of tourism trade is shifting away from the developing world.

Countries are divided into components which are based on Table 3 - Component Score Listing for Countries 2005. Again the emphasis of using the current 2005 data as the most recent example is to reflect the current division between the underdeveloped and the developed countries. Note that component 1 represents the developed countries and component 4 represents the underdeveloped countries. The shift share analysis conducted here uses components 2 and 3 during the period 2000-2005, to measure the change between the two benchmark components one and four. A full list for each component can be found in Table 3.

**Figure 1**  
**Net Shifts in Visitor Arrivals from Developed to Underdeveloped Countries 2000-2005**



**Table 3 Component Score Listing for Countries - 2005**

| Scores                        | Component 1  | Component 2  | Component 3   | Component 4   |
|-------------------------------|--|--|---|---|
| Highest Score, More than +1.0 | France (1.93)<br>Germany (2.60)<br>Italy (1.83)<br>UK (3.86)<br>USA (6.88) | Australia (3.51)<br>Barbados (1.01)<br>Canada (1.06)<br>Denmark (1.54)<br>Finland (1.50)<br>Iceland (1.82)<br>Ireland (1.24)<br>Japan (1.37)<br>Kuwait (1.46)<br>Macao (1.25)<br>New Zealand (1.46)<br>Norway (2.95)<br>Sweden (1.66)<br>Syrian Arab Republic (1.85)                 | Belgium (1.23)<br>Hong Kong (4.69)<br>Malaysia (2.18)<br>Singapore (5.70)<br>Swaziland (1.44) | China (3.55)<br>Croatia (1.85)<br>Grenada (1.75)<br>Latvia (1.46)<br>Lesotho (1.21)<br>Maldives (1.41)<br>Mexico (1.57)<br>Moldova (1.02)<br>St. Kitts (2.11)<br>St. Vincent (1.17)<br>Slovakia (1.30)<br>Slovenia (1.33)<br>Spain (2.09)<br>Suriname (1.19)<br>Thailand (1.11) |
| Lowest Score, Less than -1.0  |  | Burundi (-1.75)<br>Cambodia (-1.13)<br>China (-1.17)<br>Ethiopia (-2.37)<br>Lao (-1.26)<br>Lesotho (-1.12)<br>Madagascar (-2.34)<br>Maldives (-1.37)<br>Nepal (-1.02)<br>Niger (-2.46)<br>Senegal (-1.50)<br>Swaziland (-1.35)<br>Togo (-1.58)<br>Tanzania (-1.32)<br>Zambia (-1.50) | Australia (-1.90)<br>Bangladesh (-1.09)<br>Japan (-1.27)                                      | Bolivia (-1.12)<br>Burundi (-2.30)<br>Cote D'Ivoire (-2.29)<br>Germany (-1.18)<br>Kuwait (-1.01)<br>Niger (-1.97)<br>Norway (-1.51)<br>Pakistan (-1.10)<br>Seychelles (-1.44)<br>Singapore (-1.53)<br>UK (-1.73)<br>Zimbabwe (-1.22)  |

Note: A full list of scores and countries for 2005 may be obtained by contacting the authors.

Table 4 summarizes the results from the analysis and shows that visitor arrivals from all regions to the underdeveloped countries recorded a net positive shift of 30,545,895 arrivals compared to the developed countries (Table 4).

**Table 4 Shift Share Analysis of Growth in Visitor Arrivals to Underdeveloped Countries  
2000-2005**

| From        | Actual Growth | Area Wide Effect | Net Shift  | Country Mix Effect | Competitive Effect | Allocation Effect |
|-------------|---------------|------------------|------------|--------------------|--------------------|-------------------|
| Component 2 | 29,718,890    | 6,713,363        | 23,005,527 | -4,314,656         | 92,653,978         | -65,333,795       |
| Component 3 | 10,800,520    | 3,260,152        | 7,540,368  | 30,064,370         | -22,927,514        | 403,512           |
| Total       | 40,519,410    | 9,973,515        | 30,545,895 | 25,749,714         | 69,726,464         | -64,930,283       |

In addition to an overall actual growth, the developed countries' total arrivals had a positive overall area wide effect (refer to appendix). This was due largely to the overwhelming Europe and America arrivals to the underdeveloped countries during 2000 and 2005. Also, the underdeveloped country destinations recorded a positive country mix effect in component 3. This means that the underdeveloped countries are increasingly specializing in attracting tourists from countries in component 3, because the growth rate from component 3 is more than from the rest of the originating regions.

Including the competitive effect, an overall positive effect of 69,726,464 arrivals into the underdeveloped countries confirms that the underdeveloped countries had a competitive advantage over the developed countries in travel arrivals. Finally, the allocation effect takes into account the interaction between the country mix effect and competitive effect. A negative allocation effect in component 2 means that the underdeveloped countries were not specialized in attracting tourists from this particular region, where they had a competitive advantage.

Therefore, the shift share analysis investigates relative changes in the visitor arrivals to the underdeveloped countries during the period of 2000-2005. The results indicate that in recent years, the underdeveloped countries have experienced an increasing growth rate in tourist arrivals compared to the developed countries. A positive net shift during 2000-2005 (30,545,895 people) implies that the underdeveloped countries has been competitively superior to the developed countries implying that the current shift in the balance of tourism trade will continue to favor the underdeveloped countries over the developed countries, and this may be beneficial in contributing to a redistribution of wealth.

## CONCLUSION

This research has tended to confirm the proposition that the basic structure of world tourism is flowing from the developed to developing world from 2000 to 2005. It has also shown that this is a significantly different trend in world trade from the normal core periphery development theory of world trade, evident since the mercantile era. However, it also shows that this does not mean the main flow of receipts is to the developing world. In a relative sense the developing world continues to be the main receipts earner from tourism trade. The significance is in the volume of flow to the developing world, and the tendency for this to be against the main trend of manufacturing and service trade.

This research does indicate a new and extremely important role for tourism in economic development as a world scale activity, uniquely capable of renewing the trend of increasingly greater divides between the “haves” and “have-nots” in world economic wealth creation through trade. Moreover, the unique role is not only in terms of the transfer of wealth from the developed to the developing world but also in terms of shifting the emphasis of wealth creation, in the developing world, from agrarian, mining and cheap labour manufactures to service industry employment. Furthermore, in this world trade role for tourism, any impact upon tourism such as natural disasters and political crises tend to have a potentially greater financial impact on the developing, as opposed to the developed world. Developed economies have many other economic trade activities, compared to the developing economies that have fewer service trade activities and less diversified economies.

The shift share analysis confirms the apparent shift, seen weakly in the component analysis of tourism flow volume to underdeveloped countries. However, it is also possible that the shift share in arrivals does not reflect a shift in expenditure. To some extent this is known for some individual countries. For example, Australia ranks about 18<sup>th</sup> in the number of tourist arrivals worldwide but about 7<sup>th</sup> in tourism receipts. It is assumed here that the aggregation of nations into regions overcomes such odd expenditure patterns. Further research would be useful to examine a similar data pattern based upon receipts as opposed to tourist arrival numbers, to more closely examine the question of the balance of trade, and the capacity of tourism growth to provide a degree of export advantage to underdeveloped regions.

In order to confirm whether the world structure of tourism expenditure does in fact flow from the developed to developing world and what that structure is, another analysis is needed using receipts data that is currently unavailable. This further analysis would also help to determine whether the impact of SARS is the cause of the change to structure, and whether there is a basic expenditure structure from which shock impacts such as SARS can cause significant variation.

## APPENDIX

### SHIFT-SHARE FORMULATION

$$T^1_{AB} - T^0_{AB} = T^0_{AB} (\beta_{ALL}) + T^0_{AB} (\beta_A - \beta_{ALL}) + H_{AB} (\gamma_{AB} - \beta_A) + (T^0_{AB} - H_{AB}) (\gamma_{AB} - \beta_A)$$

Where:

$T^0_{AB} (\beta_{ALL})$  = Area Wide Effect

$T^0_{AB} (\beta_A - \beta_{ALL})$  = Country Mix Effect

$H_{AB} (\gamma_{AB} - \beta_A)$  = Competitive Effect

$(T^0_{AB} - H_{AB}) (\gamma_{AB} - \beta_A)$  = Allocation Effect

$\gamma_{AB}$  = growth rate in tourist arrivals from region A to destination B

$\beta_{ALL}$  = growth rate in tourist arrivals from all regions to the benchmark area

$\beta_A$  = growth rate in tourist arrivals from region A to the benchmark area

$H_{AB}$  = expected tourist arrivals from region A to destination B

The terms in the equations are defined as:

$T^1_{AB}$  = tourist arrivals from region A to destination B at  $t^1$  (end of the period)

$T^0_{AB}$  = tourist arrivals from region A to destination B at  $t_0$  (beginning of the period)

$T^0_B$  = tourist arrivals from all regions to destination B at  $t_0$

$T^0_{A \rightarrow AREA}$  = tourist arrivals from region A to the benchmark area at  $t_0$

$T^1_{A \rightarrow AREA}$  = tourist arrivals from region A to the benchmark area at  $t_1$

$T^0_{AREA}$  = tourist arrivals from all regions to the benchmark area at  $t_0$

$T^1_{AREA}$  = tourist arrivals from all regions to the benchmark area at  $t_1$

Note: In this context, region A refers to the origin region excluding the underdeveloped (component 4) and the developed countries (component 1). Benchmark area refers to both components 1 and 4 collectively. Destination B refers to countries in component 4 (the underdeveloped countries).

The area wide effect measures the growth effect and is the product of the visitor arrivals from region A to the underdeveloped countries (component 4) at the beginning of the period multiplied by the growth rate in arrivals from all regions to the underdeveloped and the developed countries (components 4 and 1 respectively) collectively.

The country mix effect measures the changing importance over time of any other region A relative to the rest of the originating regions, for the benchmark destination area (which is component 4 in this case). If the country mix effect is positive, it means that the underdeveloped countries are increasingly specializing in attracting visitor arrivals from other originating regions A, since the growth rate from region A is greater than from other regions.

The competitive effect measures the performance of the underdeveloped countries relative to the developed countries to determine whether the underdeveloped countries have a competitive advantage over the developed countries in region A.

The allocation effect takes into account the interaction between the country mix effect and the competitive effect. This effect determines if the underdeveloped countries are specialized in attracting visitors from any other region A relative to the developed countries.

## REFERENCES

- Barff, R. and Knight III, P.L. (1988), 'Dynamic Shift Share Analysis', *Growth and Change*, 19 (1), pp.1-11.
- Haynes, K.E. and Machunda, Z.B. (1987), 'Considerations in Extending Shift Share Analysis: Note', *Growth and Change*, 18 (2), pp. 69-78.
- Nunnally, J.O (1978), 'Psychometric Theory', New York: McGraw-Hill.
- Pallant, J. (2001), 'SPSS Survival Manual', Sydney: Allen and Unwin.
- Stokes, H.K. (1974), 'Shift Share Once Again', *Regional and Urban Economics*, Vol. 4, pp. 57-60.
- Tabachnick, L.L. and Fidell, L.S. (1996), 'Using Multivariate Statistics', New York: Harper Collins.
- Toh, R.S., Khan, H. and Lim, L. (2004), 'Two-Stage Shift-Share Analyses of Tourism Arrivals and Arrivals by Purpose of Visit: The Singapore Experience', *Journal of Travel Research*, Vol.43, August, pp.57-66.
- Wilson, S. and Mei, W.Y. (1999), 'The Export Competitiveness of ASEAN Economies 1986-95', *Asian Economic Bulletin*, Vol.16, No.2, pp. 208-229.
- WTO (2007), 'Compendium of Tourism Statistics', Madrid, Spain.
- World Bank (2007) - Little Data Book.

# **Creating Youth Employment through Modern Beekeeping: Case Study of Selected Youth Trained in Moro Local Government Area Kwara State, Nigeria**

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**F. S. Lategan<sup>2</sup>**

**I. A. Ayinde<sup>3</sup>**

## **Abstract:**

Honey hunting is an age long practice of harvesting honey from the wild forest in Nigeria. The practice by the aborigines was crude, with the use of a flame of fire to kill the bees and their honey while the habitats are totally destroyed. The product of this method leads to contamination, unhealthy honey and difficult to store due to fermentation. Modern beekeeping is still at low ebb in Nigeria. It is yet to be adopted by the government as a farming enterprise with modest investment that could be used to reduce poverty and unemployment among the youth. In the quest of supporting the government in her drive for youth empowerment, Fayolam Farms conducted training program on modern beekeeping to some selected youth in the Moro LGA Kwara State, Nigeria in the year 2007. Four years after the program, it was evaluated to find out the level of progress (increase in the number of hives, harvest, market accessibility, return on investment) attained and the challenges the trainees are facing in commercial modern beekeeping. The training featured modules on modern beekeeping, beekeeping equipments, sites and colony establishment, beekeeping management, harvesting, processing, uses, storage of honey, simple farm record keeping, and tips on marketing. Structured interview schedules were used to collect data from 116 respondents who participated in the training and who were still active in apiculture. The questionnaire solicits information on demographic characteristics, the number of hives attained, harvesting, marketing of honey, returns on investment and the challenges faced in beekeeping enterprise. The results showed high levels (93%) of adoption among the males relative to their female counterparts. The mean age of participants was 28.6 years, mostly (89. 65%) were married, forty-four percent had junior secondary education and were predominantly (79.31%) farmers. Hive acquisition increased progressively after the training from 5 to 40 hives while the total revenue generated on individual aggregate was ₦ 119,275.00 with the share of male participants as high as 63.16%. At present, the productivity from the beekeepers was at a level which leaves room for improvement. The market for other honey bee products are yet to be tapped to increase revenue as concentration was still limited to marketing liquid honey alone. Production challenges faced by the trainees include destruction of hives by fire, pest and diseases, pilfering and absconding of bees. It is recommended that further training is needed for the beekeepers in other segments of beekeeping that will lead to better production and management of the bee farm.

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## **Key words:**

Beekeeping, agribusiness, training, employment, evaluation, youths, Villages

## **Introduction**

Beekeeping or modern apiculture is the art and science of rearing, breeding and managing honey bee colonies in artificial hives for economic benefits (Ikediobi, Obi and Achoba, 1985; Morse, 1989; Ahmad, Joshi and Gurung, 2007). The most common species utilized for this purpose is *Apis mellifera* (Hymenoptera: Apidae) of which about 25 species of economic importance occur in Europe, Middle East of Asia and Africa (Segeren, 1997). *A. Mellifera adansonii*, a native species of West Africa, is the one most commonly used in Nigeria (ERLS, 1995). Beekeeping has evolved into a farming enterprise that involves the use of sophisticated and artificial techniques to keep honey bees for bee products such as honey, Propolis, wax, pollen, bee venom and royal jelly (Ojeleye, 1999). It contributes significantly to securing sustainable livelihoods by assisting in transforming vulnerabilities into security (Ahmad et al., 2007:4). Beekeeping is also carried out by small farmers, and it is particularly suitable for under-privileged landless and low-income, low-resource individuals and groups. It requires minimal start up investment and generally yields profits within the first year of operation (Ahmad et al., 2007:4). In addition to the direct income from bee products, beekeeping generates off-farm associated employment opportunities in many fields including hive carpentry, honey trading, renting and hiring of bee colonies for pollination, and bee-based micro-enterprises (Ahmad, et al; 2007:4). Beekeeping does not require large size of land nor fertile land to produce as hives can be located on poor land, on top of trees, and rocky areas.

Poverty and unemployment are a common phenomenon in Nigeria. The report of the National Bureau of Statistics (NBS) (2011) indicates that Nigerians living in poverty line rose from 68.7m to 112.5 m (63.7% rise in poverty incidence) between 2004 and 2010 while the population rose from 139.2m to 158.6m (13.9% rise in population) over the same period. The report of BGL Research and Intelligence (2012) indicates that in 2011, Nigerians ages 15-24 (37.7%) and of those between ages 25-44 (22.4%) that are willing to work cannot find jobs with the youth accountable for more than 75 percent (NBS, 2010). Over the years, the government has addressed the problem with various programs, amongst which are the National Directorate of Employment (NDE), the Family Support Program (FSP), Better Life for Rural Women (BLRW), the National Agricultural Land Development Agency (NALDA), Directorate for Food, Roads, and Rural Infrastructure (DFRRI), Family Economic Advancement Program (FEAP) and National Poverty Eradication Program (NAPEP) (Osinubi, 2003). However, poverty and unemployment remained unabated (Oyekanle, 2011).

## **Problem statement**

The problem of youth unemployment is largely evident in Nigeria (Okafor, 2011). The implementation of the various programs at poverty reduction and creation of job has not focused much attention into beekeeping as an enterprise. Moreso, access to large acres of land in the rural area is becoming unattainable due to the tenure system of inheritance where land has been excessively fragmented. Ayinde (2011) argues that this phenomenon needs to be arrested by injecting less land-demanding farm business opportunities which are relatively easy to set up with a modest capital outlay and less-demanding administrative skills. Beekeeping therefore fits in well. Beekeeping technology is not complex and tedious, it requires a relatively small amount of time input as against crop or livestock farming, thereby making it viable for utilization in relief program (Cadwallader et al., 2011:2). It also play an important role in sustainable agricultural development through increase in resources without changing environmental balance (Moniruzzaman and Rahman, 2009: 109). The potentiality of rebuilding and kick starting sustainable livelihood endeared it to many interest groups because of its multi beneficial benefits. It was on these bases that Fayolam Farms (FF) situated at Fala village embarked on training of youth in modern beekeeping technology in an

effort to supporting government in poverty reduction. The idea was in line with the Corporate Social Responsibility (CSR) policy of the company. Four years after the training, the program was assessed to determine the current position of the trainees.

## **General Objective**

The study was aimed at critical assessment of the progress ensuring capacity development and the challenges of the beekeepers trained in 2007 who had no background in modern beekeeping.

### **Specific objectives are:**

- to determine the socioeconomic profile of the trained beekeepers,
- to determine the adoption rate and assess the current position of the beekeepers,
- to determine the level of progress (increase in the number of hives, harvest, market accessibility, return on investment) attained by the beekeepers,
- to determine the challenges the beekeepers are facing in the management of the apiary and suggest possible solutions.

## **Research Methodology**

### **Description of the Study Area**

Bode Saadu is the headquarters of Moro Local Government Area (MLGA), Kwara State, Nigeria. It is located at 80 56' 00. 00!!N and 4 0 47 ! 00.00 !! E (Google Earth, 2009). It is made up of several villages amongst which are Fallah, Bielesin, Oloru and Olokiti from where the trainees were selected. The MLGA has an estimated population of about 108, 792 and an estimated total land area of about 3272 km square (NPC, 2008). It is populated by rural settlements who are majorly domiciled farmers.

### **Data Collection Technique**

Data was collected from 116 beekeepers out of the 185 trained in 2007 representing 62.70%. There was no survey design because the respondents were already known. The semistructured interview schedule was used, which was face-validated by an extension officer of Kwara State Agricultural Development Program (KWADP). It was pre-tested using a small sample of 12 respondents from members of the Beekeepers Association of Nigeria (BAN), Ilorin Branch. The internal consistency reliability estimate of the instrument was calculated using Cronbach's Coefficient ( $\alpha=0. 92$ ) and the data was analyzed using the SPSS statistical program.

## Results and Discussion

### Socioeconomic characteristics of Respondents

**Tab. 1 Percentage distribution of respondents according to their social characteristics (n=116)**

| Social variables           | Percentage | Mean |
|----------------------------|------------|------|
| <b>Sex</b>                 |            |      |
| Male                       | 93         |      |
| Female                     | 07         |      |
| <b>Age (years)</b>         |            |      |
| 21-25                      | 34.48      |      |
| 26-30                      | 21.14      | 28.6 |
| 31-35                      | 41.38      |      |
| <b>Marital status</b>      |            |      |
| Married                    | 89.65      |      |
| Single                     | 10.34      |      |
| <b>Education</b>           |            |      |
| Primary education          | 24.13      |      |
| Junior Secondary Education | 44.82      |      |
| Senior secondary education | 31.03      |      |

Source: Field survey, 2011

The social characteristics of the beekeepers indicate that the majority (93%) is male. This finding corroborated that of Matanmi, Adesiji and Adegoke (2008) that majority (90%) of beekeepers in Nigeria are male. The mean age of the beekeepers was 28.6 years while the majority (89.65%) is married and attainment of primary school education standard and above was common to all respondents (Table 1). Given that education is an important factor in technology adoption, ability to read and write was used as one of the criteria for the selection of trainees. Age has been described as an important factor that influences the probability of adoption of new technologies (Akudugu, Guo and Dadzie, 2012:3) while education is thought to create a favourable mental attitude for acceptance of new technologies (Caswell et al., 2001).

**Tab. 2 Distribution of respondents according to their agro-economic characteristics (n=116)**

| <b>Occupation</b>          |       |
|----------------------------|-------|
| Farming                    | 79.31 |
| Non-farming                | 20.69 |
| <b>Types of farming</b>    |       |
| Crop production            | 82.60 |
| Mixed farming              | 17.40 |
| <b>Farming experience</b>  |       |
| 1-5 years                  | 13.04 |
| 6-10 years                 | 69.57 |
| 11-15 years                | 17.39 |
| <b>Farm size (hectare)</b> |       |
| 0.1 – 1.0                  | 26.09 |
| 1.1 - 2.0                  | 39.13 |
| 2.1 - 3.0                  | 13.04 |
| 3.1 - 4.0                  | 08.69 |
| 4.1 and above              | 13.04 |

Source: Field survey, 2011

The majority (79.31%) of the respondents were full-time farmers and engaged in crop production (Table 2). Access to farmland is one of the major problem of most new entrants into farming enterprise, but with beekeeping, land has not constituted a big challenge. Hives were located on poor uncultivable land, on top of trees, and rocky areas. This became advantages to the beekeepers as expansion was observed in the number of hives.

#### Hive Acquisition according to Gender

**Tab. 3 Changes in the distribution of hives per gender category**

| Year | Changes in distribution of number of hives per gender category (% per gender category) |      |       |   |       |   |       |   |       |
|------|--|------|-------|---|-------|---|-------|---|-------|
|      | 1-10   |      | 11-20 |   | 21-30 |   | 30-40 |   | Total |
|      | M  | F    | M     | F | M     | F | M     | F |       |
| 2007 | 86.5   | 13.5 | 0     | 0 | 0     | 0 | 0     | 0 | 100   |
| 2008 | 40.15  | 7.30 | 52.55 | 0 | 0     | 0 | 0     | 0 | 100   |
| 2009 | 15.45  | 7.32 | 26.83 | 0 | 50.41 | 0 | 0     | 0 | 100   |
| 2010 | 6.90   | 9.90 | 20.69 | 0 | 44.83 | 0 | 20.69 | 0 | 100   |

Source: Field survey, 2011

Table 3 indicates that male acquire more hives than their female counterpart within the period of 2007 to 2010 (Table 3). The decline in the female participation could be attributed to the specie of the bees *Apis Mellifera scutellata* with the characteristics of aggressiveness common to the Nigeria apiary colony. Colony management is best carried out for this type of bees either late in the night or early in the morning to reduce attack, and these period conflict with the female core duties to the household.

**Tab. 4 Changes in the number of harvesting times (HTs) per gender category across the four year period**

| HTs  | Once  |      | Twice |      | Thrice |      | Four times |     |
|------|-------|------|-------|------|--------|------|------------|-----|
|      | M     | F    | M     | F    | M      | F    | M          | F   |
| 2007 | Nil   | Nil  | Nil   | Nil  | Nil    | Nil  | Nil        | Nil |
| 2008 | 31.89 | 5.17 | 61.20 | 1.72 | Nil    | Nil  | Nil        | Nil |
| 2009 | 11.20 | 2.58 | 17.24 | 2.58 | 64.65  | 1.72 | Nil        | Nil |
| 2010 | 5.17  | 1.72 | 34.48 | 2.58 | 28.44  | 2.58 | 24.13      | Nil |

Source: Field survey, 2001

### Honey Production

Harvesting of honey commenced in July 2008 after the initial setback of hives destruction by fire in November and December 2007. Table 4 gives a breakdown which shows the number of times of harvesting as increasing from twice to four times in a year. The increase was an indication of good apiary management and availability of nectar and pollen within a coverage distance 500 meters for the bee workers.

**Tab. 5 Distribution showing average harvest per hive (liters)**

| Average harvest per hive (liters) | Percentage | Mean harvests per hive |
|-----------------------------------|------------|------------------------|
| 1-5                               | None       | n/a                    |
| 6- 10                             | 37.93      | 8                      |
| 11-15                             | 51.73      | 13                     |
| 16- 20                            | 10.34      | 18                     |

Source: Field survey, 2011

### Quantity of Honey Harvested Per Respondents

Honey flow was good with more than five liters per hive as indicated in table 5. This shows signs of good honey yield in the study area despite the fire destructions of some hives in 2007.

**Tab. 6 Economic Returns from beekeeping on average of respondents expressed in Nigerian Naira # (Year 2008 to 2010)**

| Year  | March<br>Male | July<br>Female | July<br>Male | Female   | November<br>Male | Female   | December<br>Male | Female   |
|---|---------------|----------------|--------------|----------|------------------|----------|------------------|----------|
| 2008  | Nil           | Nil            | 11.7         | 5.8      | Nil              | Nil      | 12.3             | 5.2      |
| 2009  | Nil           | Nil            | 12.9         | 7.7      | 14.7             | 9        | 9.4              | 6.2      |
| 2010  | 12.3          | 6.5            | 13.2         | 8.6      | 15.7             | 10.2     | 13.7             | 8.4      |
| Average yield<br>(liters)                     | 12.3          | 6.5            | 12.6         | 7.4      | 15.2             | 9.6      | 11.8             | 6.6      |
| Revenue<br>liters of honey<br>=₦650.00)       | (1 7,995.00   | 4,225.00       | 8,190.00     | 4,810.00 | 9,880.00         | 6,240.00 | 7,670.00         | 4,290.00 |
| Cost<br>of<br>production<br>+<br>depreciation | 1850.01       | 1250.01        | 2466.68      | 1666.68  | 2466.68          | 1666.68  | 616.67           | 416.67   |
| Profit  | 6144.99       | 2974.99        | 5723.32      | 3143.32  | 7413.32          | 4573.32  | 7053.33          | 3873.33  |
| Profit/liter                                  | 499.59        | 457.69         | 454.23       | 424.77   | 487.72           | 476.39   | 597.74           | 586.87   |

Source: Field survey, 2011

## Economic Returns from Beekeeping Investment

Table 6 indicates economic returns on yield of honey from 2008 to 2010. The average yield per respondent according to gender shows clearly that male respondents performed better in terms of efficiency of honey production given the same set of input used. This translated to higher revenue to the male respondents than their female counterpart. The highest revenue (N9, 880.00) was obtained in the month of November. On a general note, yield of honey was highest in 2010, which shows an indication that the respondents were gradually mastering the skill of beekeeping. Market accessibility was supported through the introduction of two major buyers to the beekeepers as this eliminated problem of marketing.

**Tab. 7 Contribution of the Program on Livelihood Support on average per Respondent in Nigerian Naira #**

| Items                                 |  | 2008   |          | 2009         |           | 2010      |           |
|---------------------------------------|--|--------|----------|--------------|-----------|-----------|-----------|
|                                       |  | Male   | Female   | Male         | Female    | Male      | Female    |
| Total honey produced (liters)         |  | 24     | 11       | 37           | 22.9      | 54.9      | 33.7      |
| Total revenue (₦650.00/liter)         |  | 15,600 | 7,150.00 | 24,050.00    | 14,885.00 | 35,685.00 | 21,905.00 |
| Total revenue for males               |  |        |          | ₦ 75,335.00  |           |           |           |
| Total revenue for females             |  |        |          | ₦ 43,940.00  |           |           |           |
| <u>Total revenue from the program</u> |  |        |          | ₦ 119,275.00 |           |           |           |

Source: Field survey 2011

Table 7 shows the gradual increase from revenue accruing from honey harvest from 2008 to 2010. The highest revenue was obtained in 2010. The average male respondents had revenue of N 75, 335.00 (63.16%) compared to the female with average of N 43, 940.00 (36.84%). The female beekeepers low output was attributed to the conflicting time of apiary management and harvesting with the core household activities.

## Utilization of Revenue Obtained from Beekeeping

Feedback from the trained beekeepers indicates that their livelihood had actually been transformed. Most of the beekeepers are targeting between 150 to 200 hives before the end of 2014, while most boast of the ability to pay the school fees and medical bill of the household. The training has proven the assertion of Ahmad and Partap (2009) that honey production through beekeeping could be a useful avenue for improving and transforming the rural economy and providing sustainable means of rural livelihood.

## Challenges Faced by Respondents on the Program

The majority (89.6%) of the respondents complained of various challenges confronting their maximum production to include pests, predators and eventual absconding of bees. These factors were also identified by Workneh, Ranjitha and Ranjan (2008) and Yirga and Ftwi (2010) of the challenges confronting beekeepers. The destruction of the hives during Harmattan brought about by indiscriminate bush burning, hive destruction by wild animals (honey mongers) and pilfering by honey hunters were other problems of significant importance as described by the respondents.

## Conclusion and Recommendations:

The evaluation of farmers and youth trained in beekeeping practices in 2007 was influenced by different factors. The minimum input requirement for training and market linkage were success factors. The challenges of hive destruction through fire outbreak, bees absconding and stealing by honey hunters notwithstanding, had proved that with the right extension technique in place, the rural economy could be transformed. This study has

demonstrated that beekeeping is a proven technology, adaptable to most farming systems, low capital investment, good returns, and environmental friendly. And where access to land for cultivation is posing big challenge, beekeeping does not require such. It is therefore recommended that.

Further training is needed for the beekeepers that will address all areas of challenges while emphasis should also be placed on honey by-products yet to be tapped by the apiarists that could further increase the profit margin.

Government should as a matter of urgency enforce the edict on indiscriminate bush burning that often destroy the bio-diversity that deplete forest resources.

### **Literature:**

- Ahmad, F; Joshi, S. R. and Gurung M, B. (2007). Beekeeping and Rural Development International Centre for Integrated Mountain Development Khumaltar, Lalitpur, Kathmandu, Nepal
- Ahmad, F. and Partap, U. (2009). Improving Livelihoods through Beekeeping: knowledge partnerships and value chains for bee products and services in the Himalayas. International Centre for Integrated mountain Development, Lalipur, Nepal. Info. Sheet No 4/09
- Akudugu, M. A., Guo, E., and Dadzie S. K. (2012) Adoption of modern agricultural production technologies by farm households in Ghana: What factors influence their decisions? Journal of Biology, Agriculture and Healthcare 2(3), pp. 1-13.
- Ayinde, A. F. O. (2011). Analysis of Ageing Farming Population and Agricultural Productivity among Cassava Farmers in the Rural Areas of Ogun and Ekiti States, Nigeria. Unpublished PhD Thesis, Department of Agricultural Extension and Rural Development, Federal University of Agriculture, Abeokuta, Nigeria
- BGL Research and Intelligence (2012). Economic Note: The Nigeria's paradox of growth amidst high poverty incidence. <http://research.bglgroupng.com/Documents/EconomicNote/ECONOMIC%20NOTE%20Nigeria's%20Paradox%20of%20Growth%20amidst%20high%20incidence%20of%20Poverty.pdf> Accessed 11/30/2012
- Cadwallader, A., Hewey, V., Isaza, S., and Simsek, E (2012) Supporting Urban Beekeeping Livelihood Strategies in Cape Town. Bachelor of Science Project, Worcester Polytechnic Institute, [http://www.wpi.edu/Pubs/E-project/Available/E-project-122411213327/unrestricted/CT11\\_Bees\\_Final\\_Report.pdf](http://www.wpi.edu/Pubs/E-project/Available/E-project-122411213327/unrestricted/CT11_Bees_Final_Report.pdf) Accessed 02/13/2013
- Caswell, M., Fuglie, K., Ingram, C., Jans S. and Kascak C. (2001). Adoption of Agricultural production practices: Lessons learned from the US. Department of Agriculture Area Studies Project. US Department of Agriculture, Resource Economics Division, Economic Research Service, Agriculture Economic Report No. 792. Washington DC
- Extension Research Liaison Service. (1995). Beekeeping technologies for Nigerian farmers. Extension Bulletin. Ahmadu Bello University. Zaria, Nigeria <http://www.ifpri.org/sites/default/files/publications/nsspnn29>. Accessed 11/30/2012
- Google Earth 2009. Google map. [O]. [http://google-earth-pro.en.so\(Earth 2009\)ftonic.com](http://google-earth-pro.en.so(Earth 2009)ftonic.com) Accessed 02/12/ 2013.
- Ikediobi, C.O., Obi, V.C and Achoba, I.A. (1985). Beekeeping and Honey Production in Nigeria. The Nigerian Field, 50: 59–70. In: A. A. Oyerinde and A.T Ande. Distribution and impact of honey bee pests on colony development of Kwara State, Nigeria. Journal of Agric and Social Sciences, 5: 85–88
- Matanmi B M, Adesiji G B and Adegoke M A (2008). An analysis of activities of bee hunters and beekeepers in Oyo state Nigeria. African Journal of Livestock Extension 6:7–11.
- Moniruzzaman, M and Rahman, M.S. (2009). Prospects of beekeeping in Bangladesh. Journal of the Bangladesh Agricultural University. 7 (1): 109-116
- Morse, R.A. (1989). History of Subsection; Beekeeping and Social insects". Bulletin Entomol. Soc. America, 35: 116–118. In: A.A. Oyerinde & A.T Ande. Distribution and impact of

- honey bee pests on colony development of Kwara State, Nigeria. *Journal of Agriculture and Social Sciences* 5: 85–88
- National Bureau Of Statistics. (2011). *Social Statistics in Nigeria*. Abuja: The NBS Publication.
- National Bureau Of Statistics. (2010). *Statistical News: Labor Force Statistics No. 476*. Abuja: The NBS Publication.
- Nigerian National Population Commission. (2008). *Nigerian 2007 Population Census Report*. National Population Commission of Nigeria. Abuja (2006).
- Ojeleye, B. (1999). Foundation of Beekeeping in the tropics. CEBRAD presss Ibadan Nigeria 225pp.
- Okafor, E.E. (2011). Youth unemployment and Implications for stability of democracy in Nigeria. *Journal of Sustainable Development in Africa* 13(1)
- Osinubi, T.S. (2003). Urban Poverty in Nigeria: A Case Study of Agege Area of Lagos State, Nigeria. Unpublished paper.
- Oyekale, T.O. (2011). Impact of poverty reduction programs on multidimensional poverty in rural Nigeria. *Journal of Sustainable Development in Africa* 13(6)
- Segeren, P. (1997). Beekeeping in the tropics. Agrodok 32 publication. The Netherlands. 85pp.
- Worneh, A, Ranjitha P, and Ranjan, S.K. (2008). Adoption of improved box hive in Atsbi Wemberta district of Eastern zone, Tigray Region: Determinants and Financial Benefits, IPMS (Improving Productivity and Market Success) of Ethiopian Farmers Project. Working Paper. ILRI (International Livestock Research Institute), Nairobi, Kenya
- Yirga, G and Ftwi, K. (2010). Beekeeping for Rural Development: Its Potentiality and Constraints in Eastern Tigray, Northern Ethiopia Agricultural Journal, 5 (3): 201-204

# **The gravity model of international trade: The case of Cotton initiative (WCA) countries**

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## **Abstract:**

In this paper we investigate the role of trade in achieving the development goals of the West and Central Africa (WCA). The four “Cotton initiative” countries (Benin, Burkina Faso, Chad and Mali) constitute the group of less-developed economies. In this group of nations, cotton remains an important source of income, employment, trade, and poverty alleviation. The main objective of this paper is to prove empirically the importance of trade in achieving development goal from the perspective of the West and Central African countries. In order to achieve such an objective, here is applied an empirical assessment of trade flows (exports) by implementing the gravity model of bilateral trade. Results of the gravity model assessment suggest that WCA exports are affected positively by their GDP and to a lesser extent by the GDP of their trading partners. Exports fall with the increasing of the distance, and the fall in the value of exports is greater as larger is the distance between the trading partners. In other words, the marginal fall in exports increases as far as the geographical distance between the trading partners increase. This might be explained by the fact that marginal transport costs increase proportionally with the geographical distance between partners.

**Keywords:** Cotton market, poverty, trade, gravity model

## **1. Introduction**

Cotton cultivation is central to the farming systems and rural economies in the West and Central Africa (WCA). With few cash-earning alternatives, cotton is often the only source of agricultural credit and is pivotal to reducing poverty and improving livelihoods for hundreds of rural and urban households (Bassett, 2008: 36). West and Central African countries are heavily dependent for their income on cotton production and export (Lee, 2013: 73). Cotton comprises approximately 30 percent of total exports of the four West and Central African nations (Benin, Burkina Faso, Chad and Mali) that accounts for a significant share of rural incomes of 10 million poor farmers in that region (Sumner, 2005: 272; Anderson and Valenzuela, 2008: 93; Lee, 2013: 86).

The consensus in the theoretical literature is that trade promotes economic growth and reduces poverty. It also encourages the allocation of resources based on perceived comparative advantages of participating countries and drives economic growth (UNEC for Africa, 2010: 39).

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Since much of the cotton production from WCA is exported, they compete directly in international markets with highly subsidized exports from the United States (Anderson and Valenzuela, 2008: 93). Therefore, in 2003, the four Central and West African nations proposed the “Cotton initiative”. Their proposal for accelerated elimination of trade-distorting cotton subsidies and financial compensation for losses while subsidies are being eliminated has been included as a central issue in the WTO negotiations (Sumner, 2006: 272). The “Cotton initiative” proposed two concrete solutions: a) subsidy reduction leading to their total elimination in three year period, and b) temporary financial compensation for the losses suffered until such a time as the subsidies are eliminated (OECDa, 2006: 110).

“Cotton initiative” was adopted by the WTO exactly because of two facts: cotton is heavily subsidized in rich countries and those subsidies hurt poor WCA countries which have a comparative advantage in cotton production and high share of their population depends on earnings from cotton trade. “Cotton initiative” is rather an exception to the broad-based rules of the WTO. There are rarely adopted commodity-specific rules in the history of GATT/WTO.

### **1.1. Importance of cotton in the WCA**

Cotton represents a crucial source of income, employment and trade in the West and Central Africa (WCA). Considering the importance of cotton, both for rural and for national economies, it is sometimes referred as African “white gold” (Delpeuch, 2013: 209). Cotton is important to the economies of the WCA countries in aggregate, and especially important to the poor in those countries who obtain a significant share of their employment and income from cotton (Alston et al., 2007:11). Because of the prominent role cotton plays in these economies, a small decline in cotton prices can make an enormous difference in the ability of their farmers to pay for health care, education, and food. A good price of cotton allows farmers to boost production of subsistence crops, slows urbanization by keeping people in rural areas, and creates localized wealth in rural places that need the most (Woodward, 2009: 171). Therefore, cotton is considered to play a key role in development and poverty reduction in the observed group of African countries.

The region’s comparative advantage in the production of cotton is in large part of what makes its farmers the most cost-efficient cotton producers in the world. Production costs for a farmer in Benin are estimated to be around US\$ 0.30 per pound, whereas the cost for the average U.S. farmer is around US\$0.68 per pound (ICAC, 2001). Not only is labour cheaper in WCA, but cotton produced there is also higher in quality because it is hand-picked and therefore “cleaner” than that picked mechanically. Cotton in the WCA region is also entirely rain fed, whereas 55% of cotton area in the rest of the world is irrigated (Woodward, 2009: 173).

The high dependency on cotton in these countries has important implications for poverty, particularly taking into account its sensitivity as the result of prices changes. An empirical study conducted by Minot and Daniels (2002) came out with an outcome that as the result of the cotton price decline (during the observed period 2000-2002), occurred a 7% reduction in rural per capita income in the short-run and 6% reduction in the long run. Accordingly, they found out that as a result of price decline, incidence of poverty will rise in the short run between 37-59%, while the average incidence of rural poverty (of cotton farmers) will increase between 40-48%. Therefore, Baffes (2005: 263) assumes that considering the fact that in most countries cotton is a smallholder crop, the implications of price changes (either induced by market forces or policy interventions) as well as changes in market share are enormous.

The price prospects (and consequently the export shares of low-cost producers, including WCA countries) can be improved considerably if support by developed countries is reduced substantially or eliminated altogether (Baffes, 2005: 273).

## **1.2. The role of WCA countries in the global cotton market**

The WCA countries are significant in the world cotton market, but nevertheless they are price takers and therefore face world market prices and policies of other countries that influence world market prices. According to Alston et al. (2007:1), these four countries collectively represent about three percent of the cotton world production and about eight percent of world exports. However, although they are significant participants in world cotton markets, even collectively the WCA countries do not exercise any market power in cotton trade.

## **1.3. World cotton subsidies and the “Cotton initiative”**

Cotton subsidies and their impact on international prices and the livelihoods of poor African cotton farmers have become a central focus of the Doha Development round of WTO negotiations (Woodward, 2009: 171). Importance of the elimination of cotton subsidies has taken a high profile partially because cotton represents an important crop, as well as source of income, for some of the world's poorest countries (such as those of WCA).

So called “Cotton initiative” was initiated by the four WCA countries (Benin, Burkina Faso, Chad, and Mali). In 2003, they submitted a joint proposal to the WTO, demanding removal of support to the cotton sector by the United States, China, and the EU and compensation for damages until full removal of support (Baffes and De Gorter, 2005: 42). According to Baffes (2011: 3), the WCA countries and Brazil argued that cotton subsidies caused world cotton price to decline, consequently causing reduction of their export revenues. However, according to the World Bank report (2008: 99), in March 2005, the WTO Dispute Settlement Body instructed the United States to bring the offending cotton subsidy measures into compliance with its WTO obligations. Moreover, additional dispute between the Brazil and United States concerning cotton subsidies achieved its mutual resolution in 2010 (Baffes, 2011: 2).

The effect of subsidies on world cotton prices and the export share of WCA cotton producers has been a highly debated and controversial subject (Baffes and Baghdadli, 2007: 6). In literature, there were attempts for empirical estimation of the elimination of the cotton subsidy programs. Thus, Sumner (2005: 282) assumed that eliminating all U.S. cotton programs, while other farms remained in place, would reduce U.S. production by 25-30%, reduce U.S. exports by about 40%, and rise world price by about 10%. Moreover, it is assumed that adding the removal of EU cotton subsidy programs would likely add another 2-3% to the overall world price effect of cotton. Taking an average of all models that stimulated the impact of subsidies, gives an effect in the order of 10% to 15%. According to Baffes and Baghdadli (2007: 6) this would be consistent to \$150 million losses to WCA countries.

Generally, according to Woodward (2009: 171) there are two opposing views considering the effects cotton subsidies. On the one side, opponents of the cotton subsidy programs argue that it is trade distorting, because it results in reduction in global cotton prices. They also assert that it is a burden on taxpayers (in U.S.) to keep afloat an inefficient industry that would not be profitable without subsidies. And on the other hand, advocates of the cotton subsidy program argue that larger factors are at play at the world cotton price and that the impact of the U.S. subsidies is negligible. No matter who is right or wrong, the recent report from the ICAC (2012: 1) highlights that despite the agreement on subsidy reduction, cotton remains heavily subsidized commodity. Subsidies to the cotton industry, including direct support to production, border protection, crop insurance subsidies, and minimum support price mechanisms are estimated at \$4.8 billion (in 2011) up from \$1.4 billion (in 2010). Cotton subsidies averaged 17 cents per pound (2011), up from 5 cents per pound on average (in 2010).

## **2. Objectives**

Considering the role of trade in alleviating poverty and enhancing the economic growth for the less developed countries, the primary objective of this paper lays on highlighting the role of the trade in achieving development goal from the perspective of WCA. Considering the fact that cotton has irreplaceable role in the total welfare of the WCA countries, our partial objectives tend to descriptively weight the economic size of the cotton as commodity, in terms of production, income and trade. Such descriptive goals we aim to conduct both in global and regional (WCA) level. In order to achieve the main objective of this paper here were conducted empirical analysis of WCA trade by implementing the gravity model of bilateral trade.

## **3. Methodology**

Comparative analysis involving the socio-economic and poverty descriptive indicators for the CWA countries constitute the first part of descriptive analysis in this paper. Furthermore, trade specific analyses are implemented in order to indicate the weight of the cotton in the total trade (particularly export) performance of the investigated countries.

### **3.1. Gravity model of bilateral trade**

International trade plays an important role in economic growth. It promotes competition, specialization and scale economies, and helps resource allocation based on comparative advantage (Wang et al, 2010: 894). Modeling and predicting foreign trade flows has long been an important task in international economics. One of the most fruitful ways to formalize this has been gravity type models. These models have been used to show the (statistical) significance of trading blocks and economic areas (Mátyás, 1997: 363). Therefore, for the purpose of this paper the gravity model of bilateral trade is performed.

The basic specification of the gravity model includes supply factors of the export country (population and GDP), demand factors of the import country (population and GDP), and trade supporting and impeding determinants (mostly transport costs or proxies thereof, geographical and cultural measures of bilateral proximity, etc.) (Egger and Pfaffermayr, 2003: 572). The gravity model is based on the assumption that the economically rich and geographically close countries trade more together than with third countries (Pokrivčák and Šindlerová, 2011: 34). In its simplest form, the gravity equation states that the bilateral trade between two countries is directly proportional to the product of the countries GDP's. Therefore, larger countries will tend to trade more with each other, and countries that are more even in their relative sizes will also trade more (Feenstra, 2002: 491). The basic form of the gravity equation is expressed in the following form (van Bergeijk and Brakman, 2010: 5):

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However, for the purpose of this paper, the above equation is adopted to fit it to the gravity model for the four West and Central African countries. Here is formulated the basic form of the gravity model equation:

The first three explanatory variables explain the variability of WCA exports for the variables like GDP of exporter  $i$ , than GDP for importer  $j$ , and distance between trade partners  $i$  and  $j$ . The last two explanatory factors are dummy variables. \_\_\_\_\_ is equal to 1 when the countries share a common language or past colonial links and 0 otherwise. \_\_\_\_\_, is an example of the dummy variable that we use when testing the effects of membership in common regional groups, standing in this case for WCA countries. There are two variants performed, unlogged and logged variables and two cases with/without non available data.

The group of four West and Central African (WCA) countries observed in this paper involves: Benin, Burkina Faso, Chad and Mali. The main arguments in favor of investigating this group of African economies are based on the assumptions that this group of countries represent: a relatively homogenous geographic area, operating in the common free trade areas, having a large agricultural sector, coping with deep poverty and highly income-depending on cotton production and export.

### **3.2. Data availability**

Database includes data on WCA total exports (dependent variable), GDP of the analyzed exporter, GDP of analyzed importer, distance between trading partners, language proximity between trading partners covering the four selected WCA countries and their trade partners (37 countries in total). The data cover 41 countries in our sample so that there are 9,128 data points ( $1141 \times 8$ ) in total and 296 for a given year.

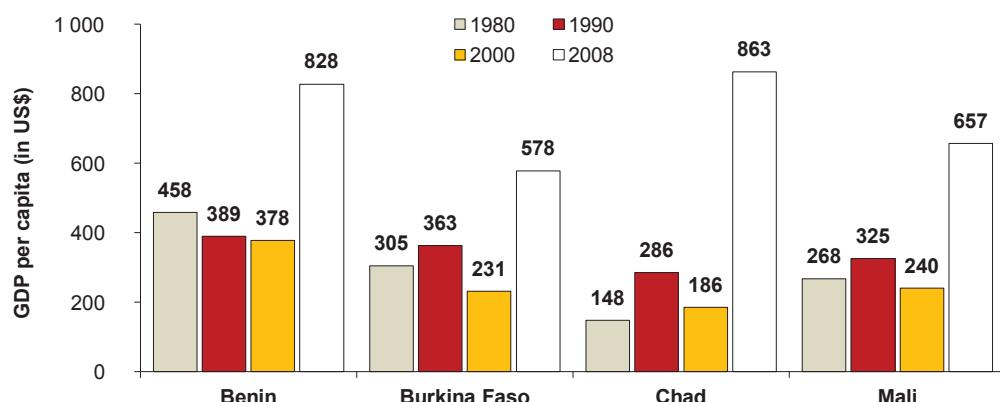
## 4. Results and discussion

The WCA countries constitute the group of low-income economies. Since the beginning of 2000s, the group of investigated countries went through a period of conflicting and political instability. Such distorting events had a deeply negative impact on their income and welfare. However, during the last decade, we could highlight an encouraging growth of income (in terms of GDP per capita). During the same period, Benin, Burkina Faso and Mali doubled, while Chad recorded a 4.6 times growth of their per capita income. Despite such an encouraging developing signal, the regional incomes remain extremely low. Agriculture is the primary economic sector constituting significant share of the GDP composition. Cotton cultivation and its export remains the primary source of income, trade and employment.

### 4.1. The state of economic development in the WCA

One of the key indicators screening the economic wealth of a country is the level of gross domestic product (GDP). Frequently, it can determine both, the scale of the national incomes and serve as the proxy to forecast the economic growth and development.

**Figure 1** Development of GDP per capita in the WCA countries



Source: IMF (World Economic Outlook, 2009)

As assumed in our initial analysis, the WCA countries are considered as the low-income economies. This conclusion is derived based on the data on the GDP level. Findings of our investigation covering the last three decades (1980-2008) indicates that the regional average of GDP per capita in all WCA countries has been varying negatively during the first two decades (period 1980-2000). Moreover, during the 1990s there is a clear indication of the sharp declining signals of domestic production in all WCA countries (see Figure 1). Such an outcome could be attributed to the ethnic conflicts and the political instability in the region. However, the encouraging growth of GDP per capita was recorded during the last decade (2000-2008). Namely, during the same period Benin, Burkina Faso and Mali has doubled their per capita incomes, while Chad has recorded an impressive increase for about 4.6 times. The overall regional average of the GDP per capita in WCA countries remains extremely low. The region's average GDP per capita (in 2008) has been estimated at the level of US\$ 730.

## 4.2. The role of agriculture in the WCA countries

Global trends of the diminishing role of the agriculture did not have a significant effect in the WCA countries. Agriculture remains the main economic activity – following their constant figures above 30% of the value added – GDP composition (see Table 1). Such an outcome is particularly true in the case of Benin, Burkina Faso and Mali. On the other hand, Chad represents the pattern of a country that is undergoing the process of industrialization as the result of the declining role of agriculture in the total structure of GDP and the raising influence of the industry, in particular the oil production. In 2010, agricultural sector constituted only 13.6% of the total structure of Chad's GDP.

Transformational process of agriculture in WCA is characterized by two main features, affecting the agriculture of the WCA region. *Firstly*, in the case of Benin, Burkina Faso and Mali the agriculture land has been expanding and gaining its environmental portion between two time periods (1990 and 2009). The World Bank data confirms substantial increase of the agriculture land in Benin during the two time periods, from 20.5% to 29.8 %. Similar outcomes have been noticed in Burkina Faso and Mali (see Table 1). *Secondly*, technological adoption hand to hand with the intensification process (irrigation and mechanization) had its inevitable impact in the increase of the agricultural productivity. Positive derivations of such influences are we are capable to point out in the rise of the cereal yield. Benin, Burkina Faso and Mali doubled cereal productivity (yield) from the low edge of 600-800 kg per hectare into over 1,150-1,600 kg. The same conclusions cannot be drawn for Chad, where cereal's productivity did not show improvement at the same scale as the rest of the WCA countries.

**Table 1** Selected agricultural indicators in the WCA countries

| Country      | Land area<br>(1000 km <sup>2</sup> ) | Agricultural<br>land<br>(% of land<br>area) |      | Cereal yield<br>(kg per hectare) |       | Agriculture value<br>added per<br>worker (constant<br>2000 US\$) |      | Agriculture, value<br>added<br>(% of GDP) |      |
|--------------|--------------------------------------|---|------|----------------------------------|-------|--|------|---|------|
|              |                                      | 2010  | 1990 | 2009                             | 1990  | 2010   | 1990 | 2004                                      | 1990 |
| Benin        | 110.6                                | 20.5  | 29.8 | 847                              | 1,402 | 427  | 666  | 36.1                                      | 32.2 |
| Burkina Faso | 273.6                                | 35.0  | 43.7 | 600                              | 1,054 | 107  | 163  | 28.8                                      | 33.3 |
| Chad         | 1,260.0                              | 38.4  | 39.2 | 559                              | 775   | 170  | 225  | 29.3                                      | 13.6 |
| Mali         | 1,220.1                              | 26.3  | 33.7 | 726                              | 1,615 | 406  | 428  | 45.5                                      | 36.5 |

Source: own elaboration based on the World Bank data (WDI, February 2013)

Importance of agriculture is shaped also on its contribution to the WCA employment. The agriculture sector employs over 60% of the labour force, mainly in the form of small farms. Apart from cotton production, the key agricultural activities developed in the WCA countries are food cropping, cocoa production, forestry and logging and fishing. On the other side, the main agricultural goods (excluding cotton) that WCA countries exports in the world are cocoa, timber and pineapples.

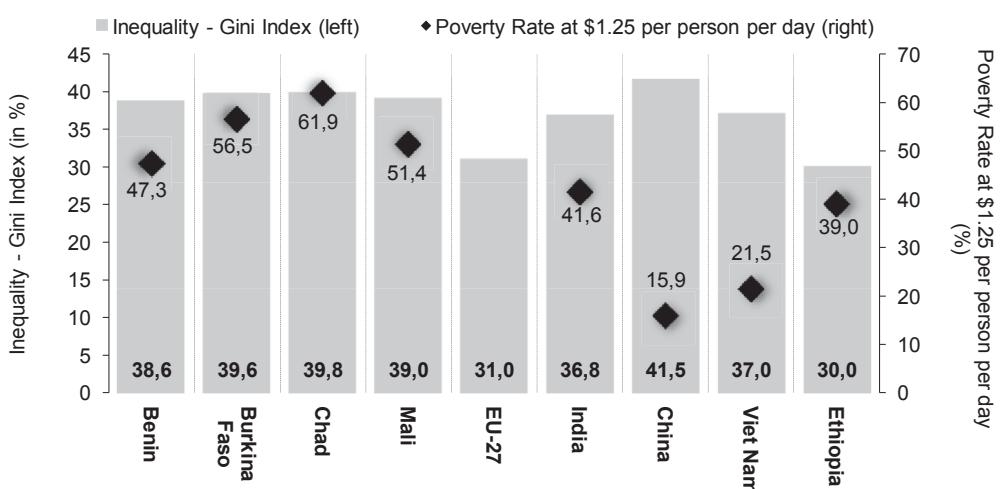
The rural part of the WCA countries is mainly dominated by the small-holder farms. Under those conditions, farmers would have an ability to develop their farms only if there would be possible to improve the access to the certain public goods, such as the infrastructure and the education, mainly reflected through the gain of the knowledge's to use the new production techniques, application of the quality control, and creating preconditions to access to the foreign markets.

### 4.3. Poverty and income distribution

Historical background of the African continent has its inherited roots in coping with high poverty. More than half of the population in the WCA countries live under the poverty line consuming less than US\$ 1.25 per day (see Figure 2). Within such a pool of poverty, the most dissimulating situation is registered in Chad where the poverty line exceeds 62% of the total population. The similar pattern of poverty is dominant in Burkina Faso and Mali. In a slightly better (but deeply worrying) situation is Benin where the 47% of population survives in the edge of the poverty line.

Data related to the year 2007 suggest that almost six out of ten WCA inhabitants suffer from one or more types of deprivation causing low levels of life expectancy, health, education, and living conditions. In particular, these occurrences are evidenced in the rural areas. The existences of such a large proportion of the population suffering the malnutrition and undernourishment conditions are the synonymous to the deep poverty in the WCA.

Considering the distribution of income we evaluated one of the main indicators related to the distribution of income – the Gini index. The data of the WCA countries, shows that the regional average of the Gini Index is at the level of 0.39, meaning that all WCA countries tends to stand closer the edge of the Lorenz curve, facing a sharp inequality and discriminative distribution of income. Similar pattern of income distribution is evident also in the case of the other developing countries such as China and India (see Figure 2).



**Figure 2** Poverty rate and income inequality in the WCA countries and selected economies (2007)

Source: UNDP (HDI report 2009), CIA Factbook 2009

### 4.4. Trade development in the WCA

Theoretical framework of trade rises up the importance of gains that nations capture from participating in the trade exchange. Trade can serve as an important tool to help countries achieving their development goals. According to OECD (2011: 3) trade can be a powerful engine for economic growth and, depending on its pace and pattern, reduce poverty.

The pattern of trade in the WCA countries indicates that since the beginning of 1990s, the role of trade in achieving development goals was increasing rapidly. A rapid growth of merchandise trade is clearly visible in the case of Chad. Within the last 20 years the role of trade (as a share of GDP) in Chad increased from 27.2% to 65.6%. Similar pattern of growth

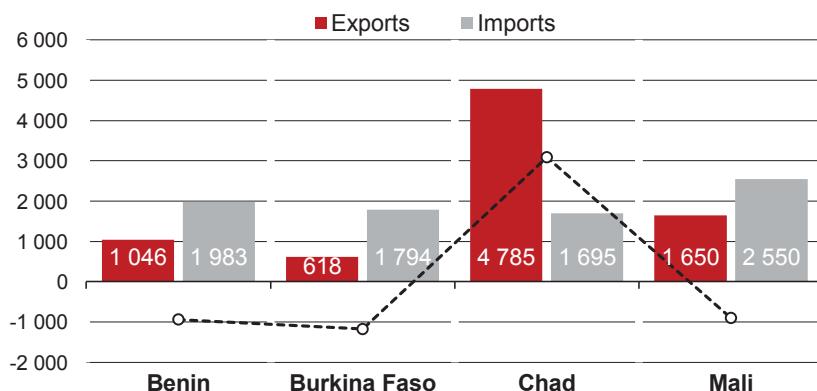
has been marked in Mali and Benin; while in the case of Burkina Faso the role of the trade remains inferior between the two time periods of our observation (see Table 2). Increasing role of trade has been closely related to the increase in the weight of exports. This is particularly true in the case of Chad, which remains the regional leader concerning the achieved progress in promoting its export potential during the last two decades. The Chadian volume of exports estimated a seven-fold increase since 2000. On the other hand, Burkina Faso tripled and Benin and Mali doubled their volume of exports.

**Table 2** The role and development of trade in the WCA countries

| Country      | Merchandise trade<br>(% of GDP) |      | Exports of goods<br>and services<br>(% of GDP) |      | Export<br>volume index<br>(2000=100) | Imports of goods<br>and services<br>(% of GDP) |      | Import<br>volume index<br>(2000=100) |
|--------------|---------------------------------|------|--|------|--------------------------------------|--|------|--------------------------------------|
|              | 1990                            | 2010 | 1990   | 2010 |                                      | 2010   | 1990 |                                      |
| Benin        | 30.0                            | 54.1 | 14.3   | 14.3 | 174.5                                | 26.3   | 28.0 | 206.0                                |
| Burkina Faso | 22.2                            | 37.8 | 11.0   | 11.4 | 324.5                                | 24.5   | 26.8 | 211.7                                |
| Chad         | 27.2                            | 65.6 | 13.5   | 39.0 | 698.3                                | 33.7   | 61.0 | 434.5                                |
| Mali         | 39.7                            | 51.4 | 17.1   | 26.2 | 137.0                                | 36.5   | 37.1 | 210.8                                |

Source: own elaboration based on the World Bank data (WDI, February 2013)

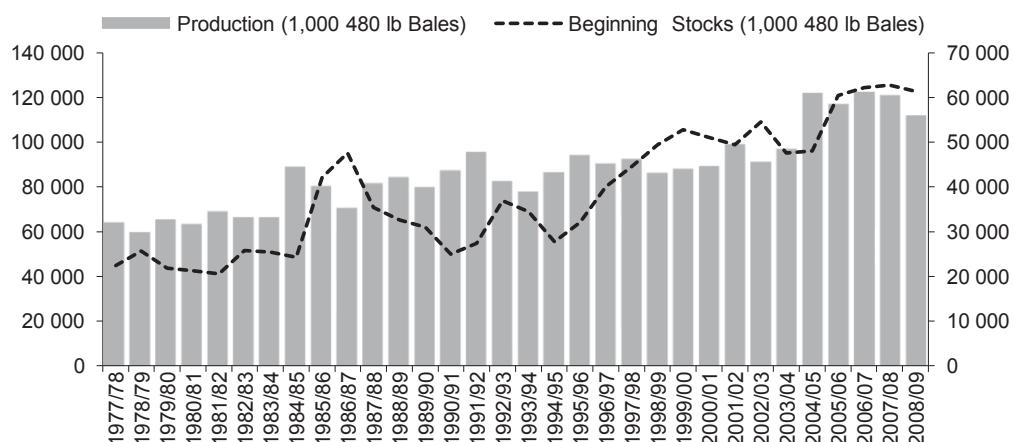
Despite such encouraging developments, almost all WCA countries (excluding Chad) remain net importers (Figure 3). The sharpest negative balance of trade is evidenced in case of Burkina Faso where the estimated gap between the exports and imports exceeds US\$ 1.2 billion. In contrary to the Benin, Chad is the single country of the WCA that has a trade surplus at the level of US\$ 3 billion.



**Figure 3** Total Exports, imports and trade balance, 2008 (in million US\$)  
Source: own elaboration based on UN Comtrade

#### 4.5. Global perspective of the cotton production

Historical world production of the cotton (see Figure 5) shows a constant increase over the last three decades. However, we could also notify periodic decreases of the cotton output as the result of global economic distortions, such as the changes in price of the cotton, subsidies, the cost of production, oil shocks, wars and conflicts etc.



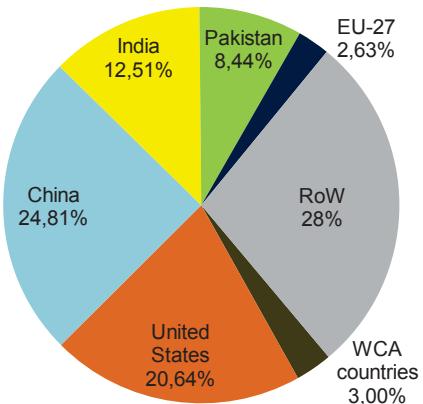
**Figure 5** World production and stocks of cotton (1977-2008)

Source: own elaboration based on the U.S. Foreign Agricultural Service

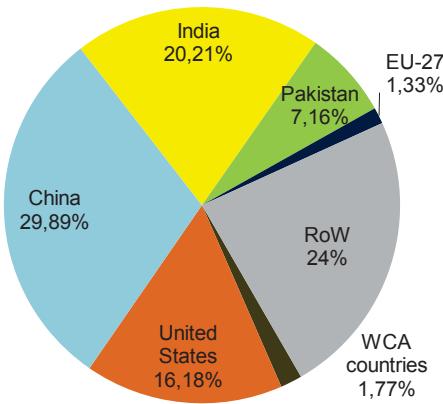
Since the early 1977, we could identify a slight decrease of the harvested cotton area globally. Since then the world cotton area declined from 33.5 to 31.1 million hectares. Despite such a decrease in the harvested area, productivity of cotton raised significantly. Such positive outcome is mainly driven by the intensification and technological change, taking place during the observed period. This is a clear signal of increasing efficiency in the production of cotton. Thus, in 1977, the world production of cotton was estimated at the level of 63,908 thousand 480lb bales, and the recent data from 2008 shows us that the annual world cotton output has almost doubled, reaching the level of 111,557 thousand 480lb bales. In addition, the trend of total cotton supply had the similar tendency of growth as did the production. In 1977, the cotton world supply was 113,408 thousand 480lb bales, while in 2008 it reached the figures of 205.704 thousand 480lb bales. Concerning the stock of cotton we could identify that the stock of cotton globally has tripled between the time period 1977 and 2008.

Production of cotton globally is significantly concentrated in the small group of important cotton global players (see Figure 6). The world's four largest producers as well as the consumers of cotton are China, the United States, India and Pakistan. China alone produces about a third of total world cotton output. Altogether these top-producers of cotton constitute almost three quarters (73%) of the total world cotton output, or expressed in the quantity figures more than 87 million lb Bales. On the other hand, our descriptive analysis indicates that WCA countries compose just over 1.7% (in 2008) of the world cotton output or around 2.1 million lb bales. Accordingly, we could identify a decreasing share of WCA role in the world production since 2001, when the WCA region constituted 3.0% of the global cotton production (2.9 million lb bales).

**World cotton producers 2001-2002**



**World cotton producers 2007-2008**



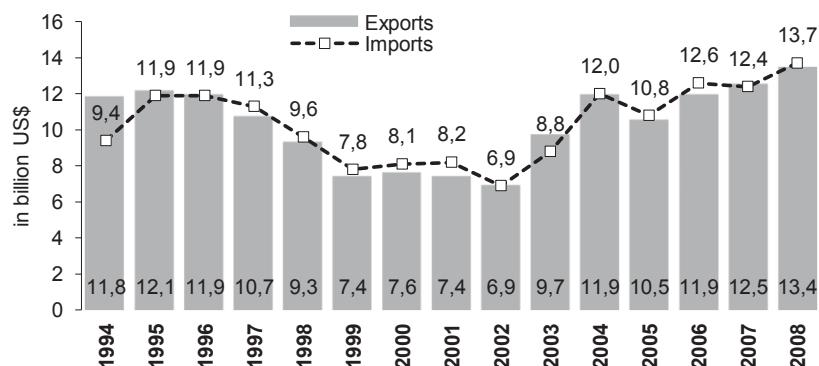
**Figure 6** Cotton world production share by country (in %)

Source: own elaboration based on the U.S. Foreign Agricultural Service

#### 4.5.1. Global perspective of the trade with cotton

The overview of the cotton world trade during the last two decades shows us the sufficiency of the supply that the world producers achieved to fulfil the world demand. Figure 7 indicates a declining trend of the cotton trade volume between 1996 and 2002, accompanied with a higher variability in cotton trade during the period 2003 to 2008. The lowest-peak of the cotton trade during the observed period (1994-2008), has been recorded in year 2002 estimating about US\$ 13.8 billion, and the highest-peak was registered in 2008 estimating the record cotton trade of more than US\$ 27.1 billion.

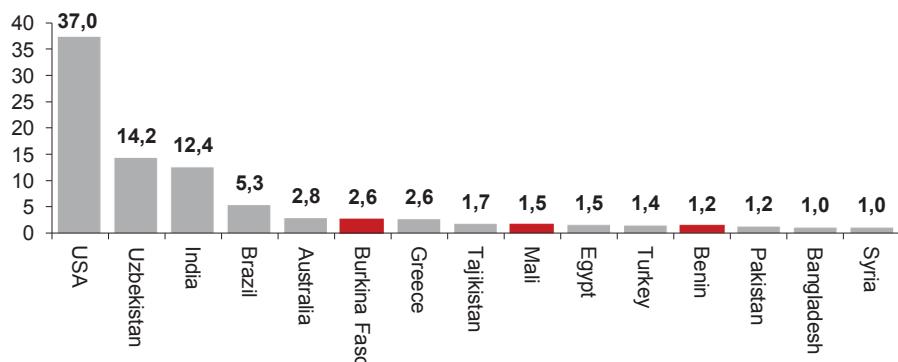
Based on the UN Comtrade data, the share of cotton in the world trade has been declining from 0.2% in the period 1994-1998, to 0.1% in the period 1999-2008. The total value of cotton exports since 1994 increased steadily, from \$USD 9.4 billion to 13.7 \$USD. Similar dynamic of growth is evidenced in the case of cotton imports. Accordingly, exports of cotton in 1994 constituted over 6% of total exports, while in 2008 the cotton share estimated a three-fold decrease at the level of 2%. The similar indications are noticed to the cotton imports, where in 1994 cotton imports contained around 4.3% of total exports, resulting in their decrease in the 2008 at the level of 1.8%. Basically, in the global level the importance of cotton during the observed period decreased significantly. However, despite the decrease of importance of the cotton in global trade, it remains crucial important commodity in the trade structure of WCA.



**Figure 7** World exports and imports of cotton, 1994-2008 (in billion US\$)

Source: own elaboration based on the UN Comtrade database

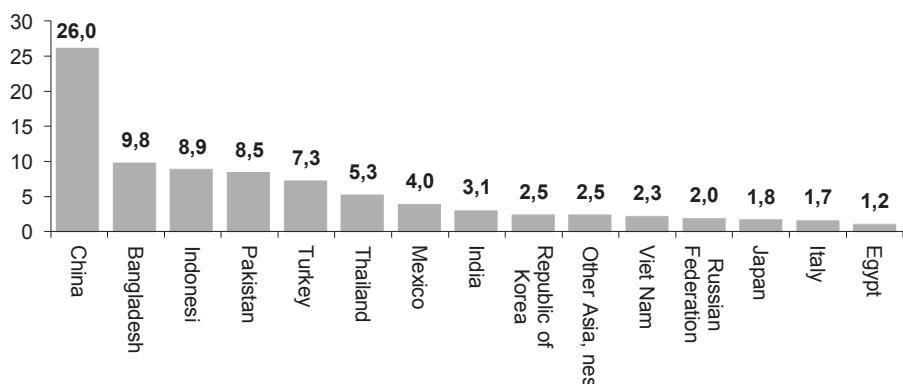
Depending on their production and manufacturing industries, countries tend to define their policies toward the trade of the certain commodities. In the case of cotton, initially we identified China as globally main cotton producer. Therefore, an initial presupposition based on the production volume would be that China is the global leader of the cotton exports. However, our analysis opposes such an assumption, descriptive analysis indicates that China doesn't belong neither in the group of top-ten cotton exporters. In contrary, China is a leading cotton importer (see Figure 8 and 9). Therefore, the logical assumption based on the theoretical framework leads us into the conclusion that China is self-insufficient in the cotton production. Such an outcome could be argued by the fact that cotton produced domestically doesn't meet the demand of the growing cotton industry (textiles, clothes) in China. Adding the low-cost production factors and the comparative advantage, the role of China in the global cotton market is increasing substantially.



**Figure 8** World share of cotton Exports, 2008 (in %)

Source: own elaboration based on the UN Comtrade database

On the other hand, the WCA countries (in 2008) altogether account over 5.5% of total world exports of cotton, positioning the WCA region as the fourth-largest exporters in the world. The world leader of cotton exports is USA accounting for the share of 37% of the world cotton exports, followed by Uzbekistan with 14.2% and India 12.4%. The largest cotton importer is China, estimating for over a quarter of the total cotton imports (see Figure 9). One of the main characteristics in analyzing the structure of the main cotton importers is the positioning of the Pakistan and India (recall them from the part of the leading producers). Both countries, imports over 11.6% of the cotton worldwide. This way, we must empathize that these countries track the Chinese experience of “self-insufficiency” in relation to the cotton trade.



**Figure 9** World share of cotton Imports, 2008 (%)

Source: own elaboration based on the UN Comtrade database

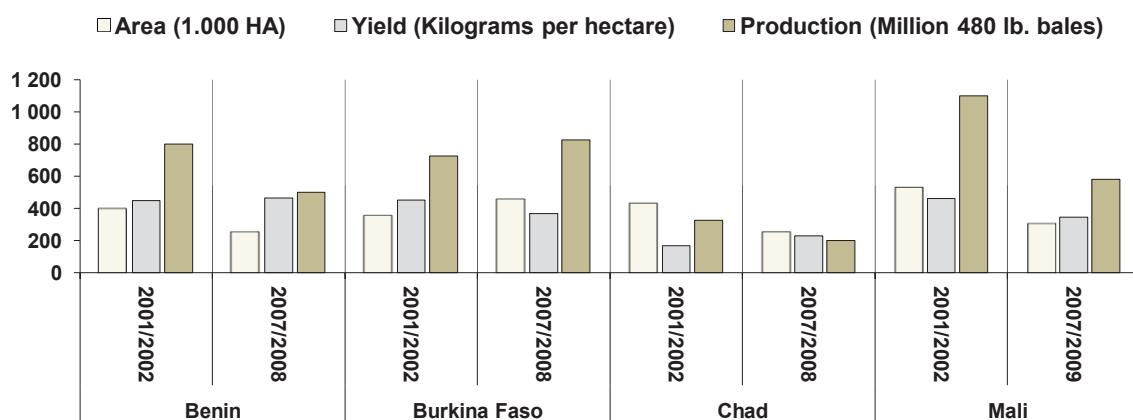
#### 4.5.2. WCA perspective of the cotton production and trade

In the WCA countries, cotton production accounts for 5%-10% percent of gross domestic product. Cotton represents approximately 30%-40% of total export earnings and over 60% of earnings from agricultural exports. Since the early 1980s, cotton production in the WCA countries has noticed a fivefold increase, from 200,000 tons to almost one million tons. At the same time, cotton sector employs about 10 million people.

WCA countries are historically known as the cradle of the cotton production. However, during the recent decades they have been facing difficulties in their ability to cope with the world competitiveness. Such an outcome is primarily derived as the result of heavily subsidized cotton sector in developing countries. According to OECD<sub>b</sub> (2006:20) WCA countries produce low-cost, high-grade cotton, but face unattractive world prices, which have been damped by the provision of substantial subsidies from developed countries.

Another challenging factor for WCA countries is improvement of the production efficiency. The efficient use of the production factors was mainly challenged by their ability to cope with the technological improvements. The closer view into the derived data from the US Department of Agriculture shows us several outcomes related to the WCA countries. First of all, there is a general declining trend of area cultivated with cotton; these indications are more visible in the case of Benin, Chad and Mali, while the Burkina Faso has been oriented to expand the area under the cotton. The influence of the technological improvements had the crucial role in rising up the cotton yield, this way expanding its impact into the higher productivity rates. However, the previous conclusion should serve us in paving the general influence that technology brought in improving productiveness, in the case of WCA the global tendencies didn't had much influences as expected. Indeed, during our observations (2001-2008) we have identified only the slightly low increase of cotton yield in the case of Chad and Benin, while Burkina Faso and Mali has recorded decrease of the cotton yields.

Despite the discouraging outcome related to the yield of cotton, the main factor having a significant impact in the decrease of the quantity of cotton produced was the decrease of the area under the cotton crops almost in all WCA countries.



**Figure 10** Area, yield and production of cotton in WCA countries, (2001/2002 and 2007/2008)

Source: own elaboration based on the Foreign Agricultural Service/US Agricultural Dept.

#### 4.6. Analysis of the gravity model of bilateral trade: WCA export perspective

In total, the model of bilateral trade, explains only 1% of total variability of WCA exports; less than 5% (see *R-squared* in Table 3). Estimations in table 3 are OLS estimations with heteroscedasticity consistent standard errors. The variable *gdp\_ex* (the exporters GDP) increases its total export (it has a positive coefficient) and is statistically significant for models 1, 2 and 3. The variable *gdp\_imp* (importers GDP) also increases exports and is statistically significant for models 3 and 4. However, its positive effect is reduced as the *gdp\_imp\_sq* grows (*gdp\_imp\_sq* is significant and negative in the model 3 and 4)

The variable *dist* (distance between trading partners) increases export if we ignore the square term (*dist\_sq*) (see model 1 and 2). If *dist\_sq* is included in the model (model 3 and 4), exports fall with the increasing distance (*dist* is negative), and the exports value fall is higher, the bigger the distance between partners (*dist\_sq* is positive). In other words the marginal fall in exports increases as the geographical distance between partners (*dist*) increases. This might be explained by the fact that marginal transport costs increase proportionally with the geographical distance between partners.

Other variables included into the model are not statistically significant, like for example trend (*year*), regional trade areas *pta*, and time dummy variables (*dummy\_2001*, *dummy\_2002*,...).

**Table 3** Report and results of the OLS estimation

| VARIABLES         | (1)<br>export             | (2)<br>export            | (3)<br>export              | (4)<br>export              |
|-------------------|---------------------------|--------------------------|----------------------------|----------------------------|
| <i>gdp_ex</i>     | 0.000847***<br>(0.000257) | 0.00153***<br>(0.000535) | 0.00308*<br>(0.00159)      | 0.00109<br>(0.00136)       |
| <i>gdp_ex_sq</i>  |                           |                          | -2.07e-07<br>(1.88e-07)    | 2.66e-08<br>(1.85e-07)     |
| <i>gdp_imp</i>    | -2.93e-08<br>(9.59e-08)   | -2.52e-08<br>(9.56e-08)  | 1.81e-06**<br>(7.38e-07)   | 1.78e-06**<br>(7.43e-07)   |
| <i>gdp_imp_sq</i> |                           |                          | -1.75e-13***<br>(6.38e-14) | -1.73e-13***<br>(6.43e-14) |
| <i>dist</i>       | 0.000257**<br>(0.000120)  | 0.000249**<br>(0.000123) | -0.00117**<br>(0.000524)   | -0.00118**<br>(0.000526)   |
| <i>dist_sq</i>    |                           |                          | 9.03e-08***<br>(3.28e-08)  | 9.10e-08***<br>(3.30e-08)  |
| <i>lang</i>       | 1.312<br>(1.142)          | 1.299<br>(1.137)         | 1.134<br>(1.140)           | 1.123<br>(1.142)           |
| <i>pta</i>        | 1.072<br>(1.280)          | 0.998<br>(1.280)         | -0.819<br>(1.213)          | -0.740<br>(1.219)          |
| <i>dummy_2001</i> |                           |                          |                            | 2.138<br>(1.894)           |
| <i>dummy_2002</i> |                           |                          |                            | 2.108<br>(1.835)           |
| <i>dummy_2003</i> |                           |                          |                            | 2.841<br>(1.868)           |
| <i>dummy_2004</i> |                           |                          |                            | 2.352<br>(1.861)           |
| <i>dummy_2005</i> |                           |                          |                            | 0.495<br>(1.423)           |
| <i>year</i>       |                           | -0.565<br>(0.404)        | -0.493<br>(0.393)          |                            |
| Constant          | -2.002<br>(1.287)         | 1,126<br>(807.3)         | 983.7<br>(785.9)           | -1.215<br>(3.319)          |
| Observations      | 1123                      | 1123                     | 1123                       | 1123                       |
| R-squared         | 0.013                     | 0.014                    | 0.034                      | 0.036                      |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4** Report and results of the fixed effect estimations for export

| VARIABLES    | (1)<br>export          | (2)<br>export          | (3)<br>export           | (4)<br>export           |
|--------------|------------------------|------------------------|-------------------------|-------------------------|
| gdp_ex       | 0.000490<br>(0.000342) | 0.000535<br>(0.000525) | 0.00125<br>(0.00172)    | -0.00503*<br>(0.00294)  |
| gdp_ex_sq    |                        |                        | -9.65e-08<br>(1.97e-07) | 6.11e-07*<br>(3.38e-07) |
| gdp_imp      | 1.37e-06<br>(2.62e-06) | 1.38e-06<br>(2.59e-06) | 5.12e-06<br>(7.46e-06)  | 5.05e-06<br>(7.50e-06)  |
| gdp_imp_sq   |                        |                        | -2.27e-13<br>(3.06e-13) | -2.19e-13<br>(3.07e-13) |
| dist         | (dropped)              |                        |                         |                         |
| dist_sq      |                        | (dropped)              |                         |                         |
| lang         |                        | (dropped)              |                         |                         |
| pta          |                        | (dropped)              |                         |                         |
| dummy_2001   |                        |                        |                         | -0.667<br>(1.888)       |
| dummy_2002   |                        |                        |                         | 0.201<br>(1.580)        |
| dummy_2003   |                        |                        |                         | 2.622**<br>(1.095)      |
| dummy_2004   |                        |                        |                         | 2.951***<br>(0.935)     |
| dummy_2005   |                        |                        |                         | 1.108**<br>(0.431)      |
| year         |                        | -0.0339<br>(0.361)     | -0.0979<br>(0.338)      |                         |
| Constant     | 0.561<br>(1.806)       | 68.28<br>(721.9)       | 193.6<br>(677.0)        | 9.191<br>(6.251)        |
| Observations | 1123                   | 1123                   | 1123                    | 1123                    |
| R-squared    | 0.010                  | 0.010                  | 0.014                   | 0.029                   |
| Number of id | 190                    | 190                    | 190                     | 190                     |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

In the case of fixed effect model variables like as *dist*, *dist\_sq*, *lang*, *pta* are automatically excluded from the model because do not change in time (see Table 4). Now almost all variables are statistically insignificant except for *gdp\_ex* and *gdp\_ex\_sq* in model 4. The variable *gdp\_ex* decreases export but at decreasing rate (*gdp\_ex\_sq* is significant and positive in model 4).

**Table 5** Report and results of the OLS estimations for WCA export

| VARIABLES    | (1)<br>export            | (2)<br>export            | (3)<br>export              | (4)<br>export              |
|--------------|--------------------------|--------------------------|----------------------------|----------------------------|
| gdp_ex       | 0.00172***<br>(0.000450) | 0.00337***<br>(0.000976) | 0.00527*<br>(0.00285)      | 0.00173<br>(0.00249)       |
| gdp_ex_sq    |                          |                          | -2.61e-07<br>(3.27e-07)    | 1.64e-07<br>(3.28e-07)     |
| gdp_imp      | 3.41e-07<br>(3.53e-07)   | 3.38e-07<br>(3.55e-07)   | 4.07e-06***<br>(1.35e-06)  | 4.07e-06***<br>(1.37e-06)  |
| gdp_imp_sq   |                          |                          | -3.79e-13***<br>(1.15e-13) | -3.77e-13***<br>(1.16e-13) |
| dist         | 0.000447**<br>(0.000195) | 0.000424**<br>(0.000201) | -0.00227***<br>(0.000825)  | -0.00222***<br>(0.000817)  |
| dist_sq      |                          |                          | 1.84e-07***<br>(5.53e-08)  | 1.81e-07***<br>(5.49e-08)  |
| lang         | 0.909<br>(1.626)         | 0.723<br>(1.608)         | 0.552<br>(1.578)           | 0.665<br>(1.598)           |
| pta          | 3.030<br>(2.060)         | 2.883<br>(2.050)         | 0.165<br>(1.629)           | 0.380<br>(1.646)           |
| dummy_2001   |                          |                          |                            | 5.974*<br>(3.437)          |
| dummy_2002   |                          |                          |                            | 5.449*<br>(3.208)          |
| dummy_2003   |                          |                          |                            | 6.395*<br>(3.324)          |
| dummy_2004   |                          |                          |                            | 4.980<br>(3.338)           |
| dummy_2005   |                          |                          |                            | 1.275<br>(2.504)           |
| year         |                          | -1.359*<br>(0.728)       | -1.260*<br>(0.696)         |                            |
| Constant     | -4.484**<br>(2.152)      | 2,712*<br>(1,456)        | 2,517*<br>(1,391)          | -5.370<br>(6.048)          |
| Observations | 641                      | 641                      | 641                        | 641                        |
| R-squared    | 0.030                    | 0.034                    | 0.073                      | 0.077                      |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

In total the model explains only a low percentage of total variability of WCA exports; less than 5% (see *R-squared* in Table 5). Estimations in Table 5 are OLS estimations with heteroscedasticity consistent standard errors. The variable *gdp\_ex* (the exporters GDP) increases its total export (it has a positive coefficient) and is statistically significant for models 1, 2 and 3. The variable *gdp\_imp* (importers GDP) also increases exports and is statistically significant for models 3 a 4. However, its positive effect is reduced as the *gdp\_imp* grows (*gdp\_imp\_sq* is significant and negative in model 3 and 4).

The variable *dist* (distance between trading partners) increases export if we ignore the square term (*dist\_sq*) (see model 1 and 2). If *dist\_sq* is included in the model (model 3 and 4), exports fall with the increasing distance (*dist* is negative), and the exports value fall is higher, the bigger the distance between partners (*dist\_sq* is positive); in other words the marginal fall in exports increases as the geographical distance between partners (*dist*) increases. This might be explained by the fact that marginal transport costs increase proportionally with the geographical distance between partners. Trend variable (*year*) is statistically significant but negative i.e. WCA exports tend to fall in time. Dummy variables (*dummy\_2001*, *dummy\_2002*, *dummy\_2003*) are statistically insignificant, as well as other variables included in the model like *lang*, *pta*, and time dummy variables (*dummy\_2004*, *dummy\_2005*).

**Table 6** Report and results of the fixed effect estimations for WCA exports

| VARIABLES    | (1)<br>export          | (2)<br>export          | (3)<br>export           | (4)<br>export           |
|--------------|------------------------|------------------------|-------------------------|-------------------------|
| gdp_ex       | 0.000817<br>(0.000834) | 0.00127<br>(0.00108)   | 0.00188<br>(0.00335)    | -0.0106*<br>(0.00567)   |
| gdp_ex_sq    |                        |                        | -8.02e-08<br>(3.81e-07) | 1.29e-06*<br>(6.59e-07) |
| gdp_imp      | 3.40e-06<br>(6.29e-06) | 3.59e-06<br>(6.29e-06) | 5.91e-06<br>(1.04e-05)  | 6.30e-06<br>(1.06e-05)  |
| gdp_imp_sq   |                        |                        | -3.09e-13<br>(4.46e-13) | -2.42e-13<br>(4.36e-13) |
| dist         | (dropped)              |                        |                         |                         |
| dist_sq      |                        | (dropped)              |                         |                         |
| lang         |                        | (dropped)              |                         |                         |
| pta          |                        | (dropped)              |                         |                         |
| dummy_2001   |                        |                        |                         | -0.915<br>(3.604)       |
| dummy_2002   |                        |                        |                         | -0.395<br>(2.915)       |
| dummy_2003   |                        |                        |                         | 4.627**<br>(2.031)      |
| dummy_2004   |                        |                        |                         | 5.973***<br>(1.930)     |
| dummy_2005   |                        |                        |                         | 2.287**<br>(0.982)      |
| year         |                        | -0.346<br>(0.658)      | -0.383<br>(0.651)       |                         |
| Constant     | 0.832<br>(3.300)       | 692.4<br>(1,316)       | 765.0<br>(1,303)        | 21.14*<br>(11.55)       |
| Observations | 641                    | 641                    | 641                     | 641                     |
| R-squared    | 0.017                  | 0.018                  | 0.019                   | 0.048                   |
| Number of id | 175                    | 175                    | 175                     | 175                     |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

In the case of fixed effect model variables like as *dist*, *dist\_sq*, *lang*, *pta* are automatically excluded from the model because do not change in time (see Table 6). Now almost all variables are statistically insignificant except for *gdp\_ex* and *gdp\_ex\_sq* in the model 4. The variable *gdp\_ex* decreases export but at decreasing rate (*gdp\_ex\_sq* is significant and positive in model 4).

Dummy variables (*dummy\_2003*, *dummy\_2004*, *dummy\_2005*) are also significant.

## 5. Conclusion

The WCA countries constitute the group of low-income economies. Our analysis were showing that the WCA region's average income accounts \$US 730, recording them into the group of the poorest economies globally. The role of agricultural sector remains crucial for the livelihood of this African region. Agriculture accounts for more than a third of domestic production, employs about 60% of the poor rural population, and serves as the main source to improve their limited exporting potential. Rural population is organized in small-holder farms with the limited potential to compete with the rest of the world. Beside the significant signs of transformation, agricultural sector of the WCA region remains underdeveloped and underutilized.

The roots of poverty in the WCA are widespread, although the significant improvement during the last decade. In this paper we evidenced that almost six out of ten WCA inhabitants suffer from the deep poverty. Furthermore, poverty constraints are depressed with a high income inequality.

Theoretical framework highlights the important role that trade plays in accelerating economic growth and reducing poverty. The importance of trade in observed economies was increasing rapidly since the early 1990. In case of Chad, it marked a significant increase (as share of GDP) from 27.2% to 65%. The similar pattern of the trade growth we identified as well in the rest of economies. Findings of the trade show that WCA countries (excluding Chad) are net importers. However, group of investigated countries in this paper have comparative advantage with the rest of the world in producing cotton. Cotton represents a crucial commodity in the total structure of export of these countries. It constitutes 30-40% of the export revenues, and 60% of earnings from agricultural exports. Therefore, the size and importance of cotton exports is crucial for maintaining the economic growth and poverty alleviation.

The WCA cotton producers altogether constitute the fourth largest producer of cotton in the world, but nevertheless they are the price takers in the cotton international trade. The main obstacles in capturing the gains from trade (particularly from cotton exports) were identified in distorting international subsidies. The WCA countries were affected negatively by the low world price of cotton, derived from subsidies to domestic producers in the developed countries. Such distorting subsidies prevented the WCA nations to exploit their comparative advantage in achieving higher gains from the cotton exports. Impact of subsidies influenced in reduction of export revenues, decreasing of the WCA international competitiveness and increasing domestic poverty. Therefore, in order to respond such distorting effects of the cotton subsidies, the WCA countries initiated in WTO the "Cotton initiative" aiming their full elimination.

The main findings of from the implementation of the gravity model show that the WCA exports are affected positively by their GDP and to a lesser extent by the GDP of their trading partners. Moreover, empirical results of the gravity model were indicating that, exports fall with the increasing distance and the exports value fall is higher, the bigger the distance between partners. In other words the marginal fall in exports increases as the geographical distance between partners increases. This might be explained by the fact that marginal transport costs increase proportionally with the geographical distance between partners.

## 6. Literature

- Alston, J. – Sumner, D. – Brunke, H. (2007). Impacts of reductions in US cotton subsidies on West African cotton producers. Washington DC: OXFAM America.
- Anderson, K. and Valenzuela, E. (2008). The World Trade Organisation's Doha Cotton Initiative: A tale of two issues. In D. Greenaway (Eds.), *The world economy: Global trade policy 2007* (pp. 91-114). Oxford: Blackwell Publishing Ltd.
- Baffles, J. – Baghdadli, I. (2007). The cotton sector in West and Central Africa: A success story with challenges ahead. In Baghdadli, I. et al. (Eds) *Strategies for Cotton in West and Central Africa: Enhancing Competitiveness in the "Cotton-4"*. (pp 1-14). Washington DC: World Bank.
- Baffles, J. – De Gorter, H. (2005). Disciplining agricultural support through decoupling. Washington DC: World Bank Publication, World Bank Policy Research Paper 3533.
- Baffles, J. (2005). Cotton: Market setting, trade policies, and issues. In A. Aksoy & J. Beghin (Eds.), *Global agricultural trade and developing countries*, pp. 259-273. Washington DC: World Bank Publications. ISBN 0-8213-5863-4.
- Baffles, J. (2009). Benin, Burkina Faso, Chad and Mali. In K. Anderson & W. Masters (Eds.), *Distortions to Agricultural Incentives in Africa*, pp. 485-506. Washington DC: World Bank Publications.
- Baffles, J. (2011). Cotton subsidies, the WTO, and the 'Cotton Problem'. Washington DC: World Bank, Policy Working Paper No. 5663.
- Bassett, T. (2008). Power relation and price formation in the cotton commodity chains of West Africa. In W. Moseley & L. Gray (Eds.), *Hanging by a thread: Cotton, globalization, and poverty in Africa* (pp. 35-64). Ohio: Ohio University Press & Swallow Press.
- CIA (Central Intelligence Agency). (2010). Distribution of family income: Gini index. [online]. Available at: <https://www.cia.gov/library/publications/the-world-factbook/fields/2172.html>
- Delpeuch, C. (2013). Revisiting the "Cotton Problem" – A Comparative Analysis of Cotton Reforms in Sub-Saharan Africa. In *World Development*, pp. 209-221.
- Egger, P. – Pfaffermayr, M. (2003). The proper panel econometric specification of the gravity equation: A three-way model with bilateral interaction effects. In *Empirical Economics*, Vol. 28, No. 3, pp. 571-580.
- Feenstra, R. (2002). Border effects and the gravity equation: Consistent methods for estimation. *The Canadian Journal of Economics*, Vol. 49, No. 5, pp. 491-506.
- Frankel, J., Stein, E. and Wei, C.J. (1997). *Regional trading blocs in the world economic system*. Washington, DC: Institute for International Economics.
- ICAC (International Cotton Advisory Committee). (2012). Production and trade policies affecting the cotton industry. A report by the Secretariat of the International Cotton Advisory Committee. Available at: <http://icac.org/publications/publication-catalog?pub=pubdetail.php?id=P0000102>
- IMF (International Monetary Fund). (2013). World Economic Outlook 2012. [online]. Available at: <http://www.imf.org/external/data.htm>
- Lee, D. (2013). Poverty and cotton in the Doha development agenda. In R. Wilkinson & J. Scott (Eds.), *Trade, Poverty, Development: Getting Beyond the WTO's Doha Deadlock* (pp. 72-90). London: Routledge.
- Mátyás, László. (1997). Proper econometric specification of the gravity model. *World Economy*, Vol. 20, No. 3, pp. 363-368.
- Minot, N. – Daniels, L. (2002). Impact of global cotton markets on rural poverty in Benin. MSSD Discussion paper no. 48.
- OECD, Saleh and West Africa Club (2006a). *The development dimension cotton in West Africa: The economic and social stakes*. Paris: OECD Publishing.

- OECD. (2006b). *African Economic Outlook 2005/2006*. Paris: OECD Publishing.
- OECD. (2011). *The development dimension trade for growth and poverty reduction: How aid for trade can help*. Paris: OECD Publishing.
- Pokrivčák, J. and Šindlerová, K. (2011). Gravity Model of EU's Bilateral Trade with Different Products. *Acta oeconomica et informatica* 14: 33-37.
- Sumner, D. (2005). Reducing cotton subsidies: The DDA cotton initiative. In K. Anderson & W. Martin (Eds.), *Agricultural trade reform and the Doha development agenda* (pp. 271-292). Washington DC: World Bank Publications.
- UNDP (United Nations Development Program. (2010). Human Development reports. [online]. Available at: <http://hdr.undp.org/en/statistics/data/>
- UNEC (United Nations Economic Commission) for Africa (2010). *Assessing Regional Integration in Africa IV: Enhancing Intra-African Trade*. Addis Ababa: United Nations, Economic Commission for Africa.
- United Nations Statistical Division. (2010). National accounts: Main aggregates database. [online]. Available at: <http://unstats.un.org/unsd/snaama/dnlList.asp>
- United Nations Statistical Division. (2010). Trade of goods. [online]. Available at: [http://data.un.org/Data.aspx?q=trade&d=ComTrade&f=\\_l1Code%3a53](http://data.un.org/Data.aspx?q=trade&d=ComTrade&f=_l1Code%3a53)
- United Nations Statistical Division. (2010). UN Comtrade database. [online]. Available at: <http://comtrade.un.org/db/>
- USDA (United States Department of Agriculture). (2010). Foreign trade database. [online]. Available at: <http://www.fas.usda.gov/data.asp>
- Van Bergeijk, P. and Brakman, S. (2010). The Gravity Model in International Trade Advances and Applications. Cambridge: Cambridge University Press, 374 p. ISBN 978-0-521-19615-4.
- Wang, C. – Wei, Y. – Liu, X. (2010). Determinants of Bilateral Trade Flows in OECD Countries: Evidence from Gravity Panel Data Models. In *World Economy*, Vol. 33, No. 7, pp. 894-915.
- Woodward, A. (2009). The impact of U.S. subsidies on West African cotton production. In *Case studies in food policy for developing countries: International trade policies*, Cornell University Press, pp. 171-182. ISBN 978-0801475566.
- World Bank. (2008). World development report 2008: Agriculture for development. Washington: The World Bank Publications, 365 p. ISBN 978-0-8213-6808-4.
- World Bank. (2013). World Development Indicators. [online]. Available at: <http://data.worldbank.org/data-catalog/world-development-indicators>

# **The income elasticity of households' expenditures on foodstuff in Slovakia with respect to the threat of household risk of poverty rate**

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## **Abstract:**

The aim of the paper is to determine the extent to which consumers are affected during decision making in the food market by the presence of children in household, i.e. dependent household members under the age of twenty six. In the Slovak Republic, households with children confront with higher risk of long-term poverty than rest of the households. The average poverty rate for the years 2005 to 2011, according to EU-SILC methodology, for the childless households is 7.67 %, and for households with children 14.66 %. However, households with three or more children show the highest average poverty risk rate of 28.87 % for the years 2005 to 2011. The paper assumes that response of households with higher risk of poverty will be more elastic to the change in the food market compared to rest of the households in the economy. More elastic is expected for the whole food market. For in-depth and detailed analysis, the food market is divided into seven basic foodstuff categories. Bread and cereals, milk and dairy products, fruits and vegetables, meat and meat products, fats and oils, sweets, fish. Data for the analysis is drawn out from National Accounts of Statistics Office of the Slovak Republic, years 2005 to 2011. Household expenditure on selected foodstuff categories has an upward trend during this period. Expenditures of childless households are higher for all mentioned foodstuff groups. The minor differences in expenditures in both households with children and without children are eminent in the basic foodstuffs category which consists of bread market, market for cereals and dairy products. Markets with fish, fruit, vegetables and meat are dominated considerably disparity between spending of households with children and households without children. Regression analysis is used to determine the impact of changes in income on expenditures on individual foodstuff categories. Estimated regression coefficients are used to calculate the elasticity. The coefficients confirmed assumptions about elasticity and greater impact of changes in income on expenditures of household with children, especially expenditures on bread, milk and dairy products, fruits and vegetables and meat. However, assumptions are not confirmed about expenditures on fats, oils and sweets. Households without children responded with higher elasticity in these markets. The results display that households without children consider these goods as less essential than households with children, thus trying to consume rationally. It might be caused by constant children activities resulted into higher calorie intake, which is also used. This situation is not ideal, as the basic eating habits are formed in childhood. It is therefore important to promote awareness of appropriate eating and the principles of rational nutrition that can be practiced in the majority of households in Slovakia.

## **Key words:**

households with children, childless households, the risk of poverty rate, foodstuff expenditures, income elasticity of foodstuff expenditures

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## **Current situation**

Over the last fifteen years, the economic changes affected the greater part of households, especially changes in the labor market, which act negatively and caused the decline in the living standard of many Slovak households (Strapcová, 2006)<sup>1</sup>. At the beginning of the transformation period, the level of unemployment was low and people were not feeling threatened, when it came to their position in the labor market. According to the OECD, the analysis of the income situation requires more attention (Guio 2005)<sup>2</sup>, especially in countries with ongoing economic transformation (UNDP 2005)<sup>3</sup>. Income inequality of social groups and regions is widening in many of them. Assumptions that have been considering by a number of economic experts, and according to which an internal pension differentiation should reduce parallel with economic growth of countries, are not being fulfilled (Kabat, 2006)<sup>4</sup>.

## **Material and methods**

The main objective of paper was to determine how the risk of poverty affects households in deciding on the food market.

- 1<sup>st</sup> partial objective: To identify development factors of rate of risk of poverty in the V4 countries.
- 2<sup>nd</sup> partial objective: To determine the long-term trend of development of disparity of households in the V4 countries.
- 3<sup>rd</sup> partial objective: To quantify the degree of influence of rate of risk of poverty at the households decision-making in the food market in Slovakia.

For the determination of persons at risk of poverty, the poverty line which is expressed by the population living in poverty was defined by Eurostat. The poverty line is defined as 60 % of median equivalent to disposable income of the inhabitants of the country. It is a relative poverty line, which expresses the extent to which funds are below a median household income limit<sup>5</sup>. The EU SILC data is an important source of data about income, the level and composition of poverty and social exclusion of households, and it allows analyzing of the social situation of households in Slovakia, as well as international comparisons of Slovakia in the European Union<sup>6</sup>. The EU SILC project is theoretically based primarily on the concept of relative poverty measure (Ivančíková 2006). International comparison based on the monetary poverty indicators plays a crucial role. Their definition is based on the existence of income inequality in society. The concept of relative poverty is based on the failure to achieve a certain minimum, which ensures a dignified life in society, or standard of achievement that is customary in a given society<sup>7</sup>.

Regression analysis was used for the econometrical processing of the quantitative data. This analysis allowed us to estimate the function of expenditures for the basic foodstuffs from the selected groups by various models. Further the models were tested and evaluated. The model that was the most significant for the situation on the market with the particular foodstuff was chosen. The estimated parameters of regression equations were used as the input data for the sensitive analysis of the expenditures through elasticity.

<sup>1</sup> STRAPCOVÁ, K.: Vnímanie príčin chudoby na Slovensku. 2006 In: Chudoba v slovenskej spoločnosti a vzťah slovenskej spoločnosti k chudobe. Zborník z konferencie UNESCO MOST, Bratislava 2006, Sociologický ústav SAV, ISBN 80-85544-43-1.

<sup>2</sup> GUIO,A.C.: Income poverty and social exclusion in the EU 25. 2005

<sup>3</sup> UNDP: Development and Rtransition. 2005

<sup>4</sup> L. Kabát: Dôchodková nerovnosť a nedostatočnosť, chudoba a ich meranie. 2006

<sup>5</sup> <http://portal.statistics.sk/files/eu-silc-2011.pdf>

<sup>6</sup> <http://portal.statistics.sk/files/eu-silc-2011.pdf>

<sup>7</sup> Ivančíková, E. : EU SILC 2005 ako zdroj informácií o chudobe a sociálnom vylúčení. 2006

For the selection of the appropriate analytical functions used for evaluation of the relations between dependent variable (expenditures) and independent variables (income) we employed a prior and empirical approach.

*A prior approach:* For choosing the variables that affect the fluctuation of the time series values of the expenditures of a given food item, we used microeconomic theory of the consumer behavior and we supposed that households expenditures of foodstuffs is significantly affected by:

- real income per capita = (nominal income per capita)/ (CPI )\* 100  
and: CPI - consumer price index

We defined the following hypothesis:

- between expenditures  $x_i$  and monthly income per capita are positively correlated (according to type of goods foodstuffs are superior)

*Empirical approach:* Based on the previous experience with modeling of consumer behavior and on the interpretation of estimated regression coefficients, we have chosen equalizing analytical functions, which we assumed to have the least error of estimation the variation of real time series values of the selected types of foodstuffs consumption. We have compared the results of models and selected the optimal one.

Hypothetical regression equation is:

$$\eta = \alpha + \beta_1 x_1 \quad (1)$$

and:  $\eta$  – dependent variable of hypothetical equation

$x_1$  – independent variable

$\alpha_1, \beta_1$  – regression coefficients of hypothetical equation

Empirical regression equation is:

$$y = a + b_1 x_1 \quad (2)$$

and:  $y$  – estimation of dependent variable of hypothetical equation

$x_1$  – independent variables

$a_1, b_1$  – empirical estimation of hypothetical equation regression coefficients

*Empirical linear regression equation of expenditures for food item  $x_i$  is:*

$$Eh_i = a + b_1 RI \quad (3)$$

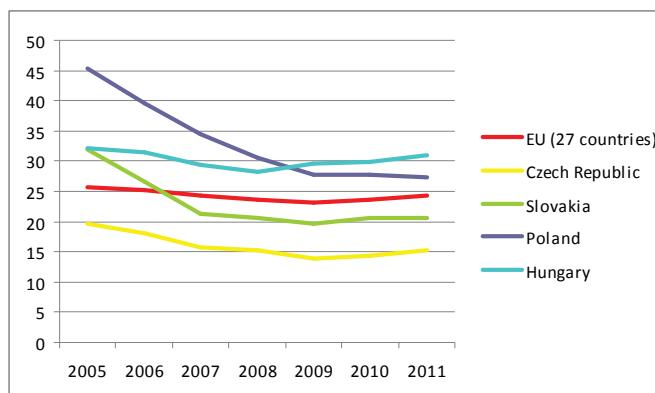
and:  $Eh_i$  – expenditures of food item  $x_i$

$a_1, b_1$  – estimation of intercept and regression coefficients

$RI$  – real monthly income per capita and year in EUR

## Results and Discussion

In the first part we see how the development of rate of risk of poverty in the V4 countries is in comparison to the average development in the EU (27 countries).



**Pic. 1 The development of risk of poverty**

Source: Eurostat

Picture 1 shows the evolution of risk of poverty between 2005 and 2011. It compares the development of the indicator in the V4 countries with average EU 27. The most significant fall in value is visible in Poland. Poverty rate in 2005 was 45 % (higher rate was only in Latvia this year, 45.8 %). During the reporting period, the poverty rate decreased gradually in Poland, in 2011 it was only 27.2 % (which is comparable with Italy, Spain). Detailed view of the development of risk of poverty in Poland is provided by Table 1. In 2011, childless households were about 5 % less at risk of poverty than households with children. Compared to the beginning of the period, it is a significant move towards reducing differentiation between households (in 2005, the difference between them was 12 %). Downward trend of poverty rate of households with children is caused by a slow change in the distribution of population. Contrary to the past, there are fewer households with children in Poland (in 2011, the number of households with children is about 4 % less than in 2005).

This trend is also significant in Slovakia (in 2011, the number of households with children is about 5 % less than in 2005). However, the link with the redistribution of the population in households and the rate of risk of poverty did not confirm in Slovakia. It is mainly caused by major changes in unemployment, which influenced the development of the indicator much more significantly. From 2005 to 2008, the unemployment rate declined annually by about 3 % (the number of unemployed people has decreased annually by an average of 60,000). Since 2008, the number of unemployed people does not change very much, which follows the curve of risk of poverty between 2008 and 2011. In 2011, compared to 2005, the rate of risk of poverty has been reduced by 12 %. In 2005, it was comparable to Hungary. In 2011, after a gradual reduction, the curve is approaching to the rate in France, Germany, Belgium, and Slovenia.

The evolution of rate of risk of poverty is less dynamic in Hungary and the Czech Republic. Hungary together with Poland belongs to countries with relatively higher risk of poverty in the EU. Higher rate is only in Latvia, Lithuania, Bulgaria and Croatia. A different trend of development of this indicator (Table 1) shows the increasing differentiation of households. In 2011, compared to 2005, childless households were exposed to poverty more by 2 %, while households with children less by 1.5 %. The opposite situation occurred in the Czech Republic. Generally, the rate of risk of poverty in the Czech Republic is comparable with Netherland, lower is only in Iceland.

**Tab. 1 Risk of poverty by household type**

| Without children | geo\time       | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|------------------|----------------|------|------|------|------|------|------|------|
|                  | EU 27          | 14.9 | 14.9 | 15.5 | 15.2 | 14.9 | 14.5 | 15.0 |
|                  | Czech Republic | 6.7  | 6.2  | 5.7  | 6.9  | 6.4  | 6.5  | 7.1  |
|                  | Slovakia       | 8.1  | 7.9  | 6.5  | 7.5  | 7.7  | 8.1  | 7.9  |
|                  | Poland         | 13.0 | 12.1 | 11.0 | 11.9 | 13.3 | 14.4 | 14.8 |
|                  | Hungary        | 9.7  | 10.0 | 7.6  | 7.7  | 6.8  | 7.0  | 8.2  |
| With children    | geo\time       | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|                  | EU 27          | 17.6 | 17.9 | 17.8 | 17.7 | 17.5 | 18.2 | 18.6 |
|                  | Czech Republic | 13.8 | 13.2 | 13.2 | 11.1 | 10.5 | 11.4 | 12.4 |
|                  | Slovakia       | 16.6 | 14.1 | 13.5 | 13.2 | 13.4 | 15.0 | 16.8 |
|                  | Poland         | 25.2 | 23.3 | 21.1 | 20.2 | 19.8 | 19.9 | 19.6 |
|                  | Hungary        | 16.8 | 20.5 | 16.0 | 16.1 | 17.0 | 16.6 | 18.8 |

Source: Eurostat

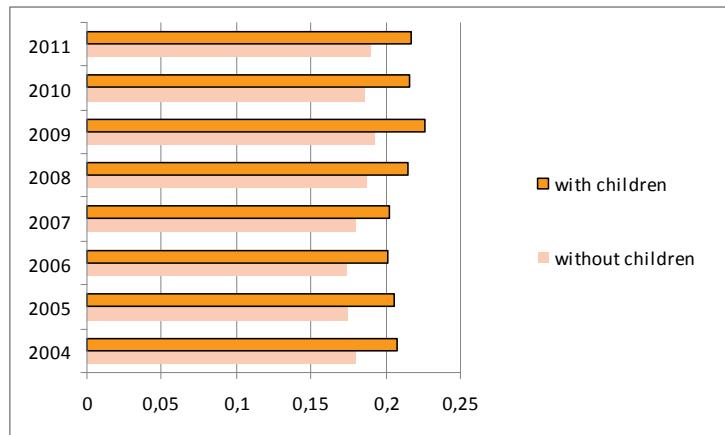
### The impact of risk of poverty on behaviour in the food market in the Slovak republic

The next part of the article deals with the influence of rate of risk of poverty at the household behavior in the food market of the Slovak Republic. The impact is analyzed through correlation and regression analysis. The income of households with children and households without children was the entry into the regression analysis. We quantified how change in income affects their behavior in the market for selected food groups. The results of the analyzes are presented below. Development of income of households with children and households without children was not significantly different during the period. The development of both types of households' income can be described by increasing concave function. The difference between the income has been gradually increasing. While in 2004, an average member of a household with children earned less than 86 € per month, in 2011 it was already less than 139 € per month.

#### Bread and cereals

Bread and cereals are the basic foods of households. Compared with other foods, they are cheaper, thus providing a relatively inexpensive way to saturation with relatively high calorific value. There is a presumption that, if household is more threatened by poverty, it purchases more of these foods. Correlation analysis revealed a moderate correlation between spending on breads and cereals and rate of poverty risk of households with children. Figure 2 provides insight into the evolution of the share of expenditure on breads and cereals in total household expenditure on foods in Slovakia between years 2004 and 2011. The share of expenditure of households with children oscillates around a value of 20 %, while the proportion of childless households spending oscillates around a value of 17 %. Development trend is the same. In 2009, the share of expenditure on bread and cereals was highest and lowest in 2007. Evolution of the expenses was driven by two main streams. First, the stream with lower significance is determined by the increased consumption of pasta, rye flour and groats in 2009. The second stream is related to the distribution of consumer spending. In 2009, an increase in the proportion of expenditure on bread and cereals is determined mainly by a decrease in the share of expenditure on other basic food groups, as discussed below. In its natural expression, in 2009, the households with children's consumption of bread and cereals increased by 1 kg (76 kg per person per year) than in 2007 (75 kg per person per year). In 2009, childless households reduced consumption (50.8 kg per person per year)

than in 2007 (52.33 kg per person per year). Prices in these years did not significantly change.



**Pic. 2 The share of expenditure on bread and cereals in total expenditure on food**

Source: Slovstat

$$Ehwo = 5,52 + 0,021I$$

$$Ehw = 3,75 + 0,024I$$

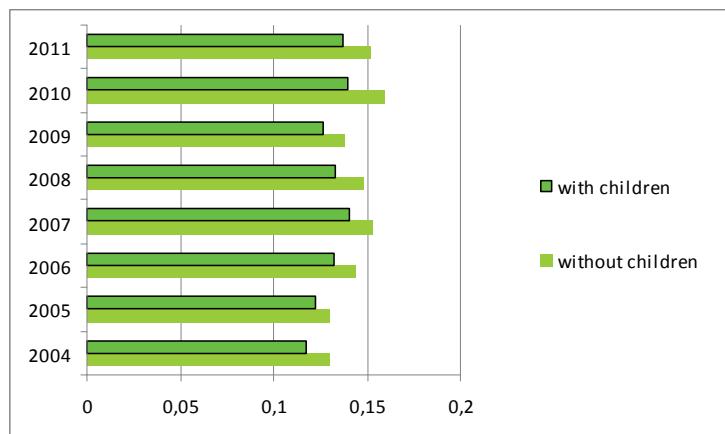
We estimated with regression analysis that, household expenditure on breads and cereals is affected by income level. Estimated linear regression model for households with children describes changes in development of spending for breads and cereals to 95 %. Intercept and regression coefficient is estimated at 0.01 significance level. Income elasticity of expenditure calculated is 0.64, which means that if income households with children increase by 1 %, spending on breads and cereals will increase by 0.64 %. Households with children (greater risk of poverty) react more sensitive to change in income than childless households (income elasticity of expenditure is 0.59). Estimated linear regression model explains the change in expenditure on breads and cereals to 93 %. Intercept and regression coefficient is estimated at 0.01 significance level. The estimate of intercept quantifying the costs, if household income was zero, is interesting,. In this case, households with children would have lower expenditures on breads and cereals (3,75 € per month) than childless households (5.52 € per person per month). If there is an increase of income of households without children about 10 € per month, spending on breads and cereals will increase by 0.21 € per person. At the same change of income, there will be an increase of spending of households with children by 0.24 € per person.

### Fruits and vegetable

Fruits and vegetable are included to foods with an irreplaceable role. They are rich in vitamins, minerals and fiber. However, there is possibility of self-production, because of that there is a presumption that the market for these foods will react more sensitively on changes of income than others. Correlation analysis revealed only a low correlation between spending on fruit and vegetables and risk of poverty. Expenditure on fruit and vegetables of households with children with growth of rate of risk of poverty decline less strongly than spending of households without children.

Figure 3 provides an insight into the evolution of share of expenditure on fruit and vegetables on total household expenditure on food. Households with children (more threatened by risk of poverty) released on fruit and vegetables smaller proportion of expenditure than childless households. The highest proportion of expenditure on fruit and vegetables is in the years 2007 and 2010. The development of share of spending is copying the development of natural consumption of fruits and vegetables very significantly. In 2007, in comparison of other years, Slovak households consumed more potatoes, vegetable products, southern and citrus fruit, as in other years. In 2010, the significant increase in

consumption was drawn by increasing consumption of fresh and other fruits. In 2004, the amount of consumption of southern and citrus fruits was the lowest.



**Pic. 3 The share of expenditure on fruit and vegetables on the total expenditure on food**

Source: Eurostat

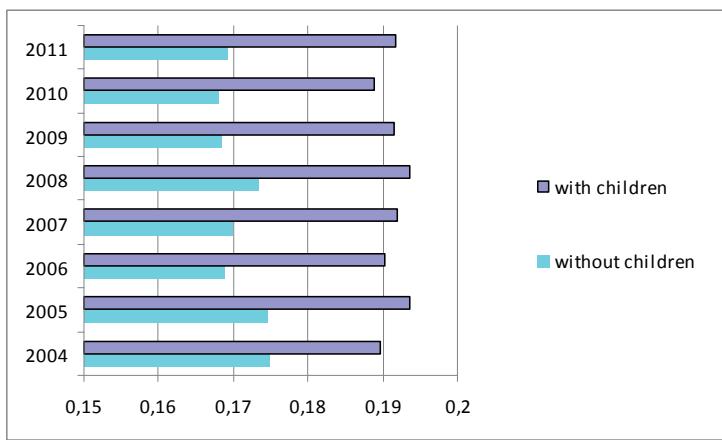
$$Ehwo = 3,01 + 0,02I$$

$$Ehw = 1,61 + 0,02I$$

A linear regression model quantifying the impact of change in income on households expenditure on fruit and vegetables for childless households is estimated with 71 % confidence. Intercept is estimated with 85 % confidence, the regression coefficient with 99 % confidence. A linear regression model of households with children is estimated at 74 %. Intercept is estimated with 80 % confidence, the regression coefficient with 99 % confidence. Intercept will not be interpreted due to the low statistical reliability. According to the estimated regression coefficients, an increase of income by 10 € per person will cause an increase of spending on fruits and vegetable by 0.2 € per person per both types of households. Income elasticity of expenditure calculated show a stronger reaction of households to the change in household income. Households with children are responding slightly elastic (0.76) than households without children (0.72).

### Milk and dairy products

Milk and dairy products are an important part of the diet of minor children. Based on this, it is assumed that the share of expenditure of households with children on these products will be higher. We do not expect big reaction of market to changes of price, income, or other factors, such as milk and dairy products are among the basic food. Correlation analysis revealed a moderate correlation between expenditure of households with children and rate of risk of poverty. The more the household is threatened by poverty, the smaller are its expenditure on milk and dairy products. Households with children had the highest proportion of expenditure on milk and dairy products in 2005, 2008 and 2011. Slightly increased consumption of cheese, cottage cheese and sour milk products contributed with the lower part to this situation during these years. However, consumption of these products constitutes only a small part of the total milk consumption. Therefore, we do not assume that this situation had a significant impact on the development of the share of expenditure of households. Increased prices of milk and majority of dairy products had greater impact in 2005, 2008 and 2011. Market with milk and dairy products is one of the few markets where the proportion of spending of households with children is higher. Our assumptions are thus confirmed.



**Pic. 4 The share of expenditure on milk and dairy products on total expenditure on food**

Source: Eurostat

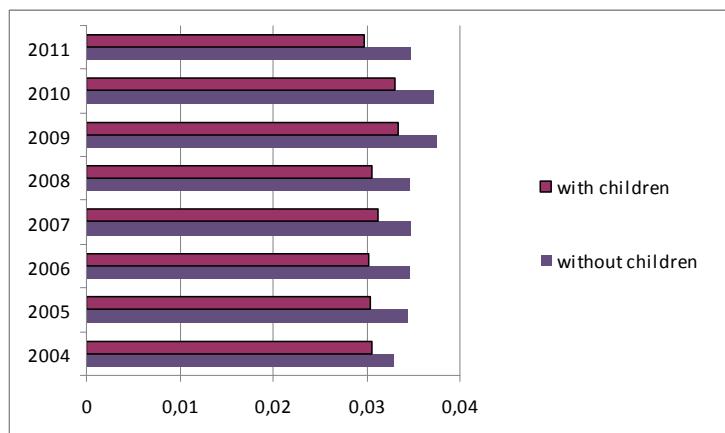
$$Ehwo = 8,57 + 0,011I$$

$$Ehw = 5,49 + 0,02I$$

The second way to analyze the impact of poverty risk for households was regression analysis. A linear regression model estimated for expenditure on milk and dairy products of childless households is explained by changes in the time series with 64 % confidence. The significance level of intercept estimated and regression coefficient is at value of 0.01. We chose the same value of significance level when estimating the coefficients of the linear regression model for households with children. This is suitable with 78 % confidence. Elasticity calculated showed very low elastic behavior of households. Households with children reacted to the change in income more elastic than childless households (less threatened by poverty). This is due to lower income of households with children. Households with children would have about 3.08 € lower expenses for milk and dairy products, as childless households at zero income. If the household income increases by 10 €, households without children would increase their spending about 10 cents, households with children about 20 cents.

### Fish

Fish are an important part of a person consuming healthy food. Therefore, we analyzed expenditure on fish separated from meat and meat products. Fish oil contains precious unsaturated omega-3 fatty acids and many vitamins and minerals. Fish consumption is still very low in Slovakia. However, during the reporting period, consumption increased steadily from 4.4 kg per capita per year to 4.7 kg per capita per year. Maximum reached in 2006 and in 2011 (5.1 kg). Price of fish grew steadily in this period, the average annual price increase is 10 cents. The development of the share of expenditure on spending is not significantly influenced by the other food groups, as expenditure on fish represent only a small proportion of household expenditure on food. Correlation analysis confirmed the mean dependence between the development of expenditure on fish and the risk of poverty of households with children. The more these households are exposed to the risk of poverty, the less they are spending on fish.



**Pic. 5 The share of expenditure on fish on total expenditure on food**

Source: Eurostat

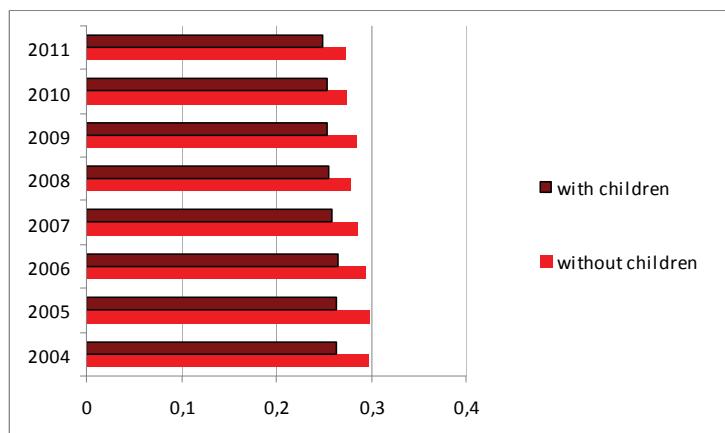
$$Ehwo = 1,12 + 0,004I$$

$$Ehw = 0,72 + 0,003I$$

The linear regression model estimated for expenditures of households without children to fish explains changes in the time series at 92 %. Intercept estimated and regression coefficient are reliable to 99 %, as in the linear regression model for households with children. This explains the changes in the time series of expenditure on fish to 87 %. Income elasticity of expenditure on fish calculated indicate elastic responding households without children. When income increases by 1 %, the households spending on fish will increase by 0.57 %, while expenditure of households with children will increase by 0.55 %. Spending of households without children on fish would be of 0.40 € higher at zero income. If household income increases by 10 €, spending of households without children on fish will increase by 4 cents, spending of households with children by 3 cents.

### Meat and meat products

Meat and meat products are among the more luxurious types of food. We assume that the correlation between expenditure on meat and rate of risk of poverty is significant. Correlation analysis revealed a strong relationship between expenditures of households with children on meat and rate of risk of poverty and slight relationship between expenditure of households without children on meat and rate of risk of poverty. The more households are threatened by risk of poverty, the lower their expenditure on meat and meat products are. We assume more elastic reaction of market with meat to change of income than of market with other types of food. The share of expenditure on the meat and meat products is higher for households without children. The highest proportion of expenditure on meat and meat products was in the period between 2004 and 2005. This was caused by higher prices of pork and beef, as well as by prices of meat products. In this period also consumption of meat was higher. Any further reference year consumption of meat decreased an average of 0.8 kg per capita per year. The most significant reduction in consumption the beef market recorded (45 %) and the veal market (50 %). In the market with poultry and pigmeat there was only a slight decrease in consumption. Consumers have started to prefer more game meat, the consumption increased by 43 %. However, game meat constitutes only a marginal share of total meat market. This is largely pork and poultry.



**Pic. 6 The share of expenditure on meat and meat products of total expenditure on food**

Source: Eurostat

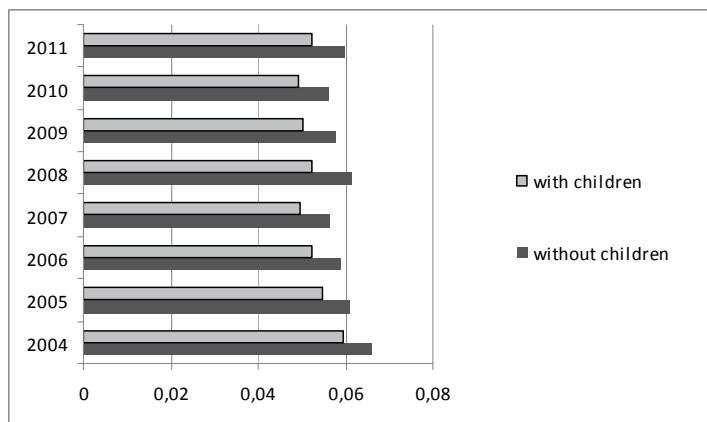
$$Ehwo = 17,37 + 0,01I$$

$$Ehw = 8,95 + 0,01I$$

A linear regression model of expenditure on meat and meat products explains 57 % changes in the time series by changing income of households without children. Intercept and regression coefficient are estimated with 99 % confidence. If households without children have no income, expenditure on meat would represent 17.38 € per person per month. Households with children in the same situation would have spent 8.95 € per person per month. A linear regression model describing their expenditure is reliable to 61 %. Expenditure on meat and meat products will increase by 10 cents with the change of income of 10 € according to the estimated regression coefficients. Income elasticity calculated suggest more elastic behavior of households with children (more threatened by risk of poverty). If income of households without children increases by 1 %, their spending on meat will increase by 0.18 %. If income of households with children increases by 1 %, their expenditure on meat will increase by 31 %.

### Oils and fats

In the studied period, consumption of fats and oils declined. The most significant is consumption of edible vegetable fats and oils, which are also the largest share of total consumption. Butter consumption, which accounts an insignificant share of the total consumption of fats and oils, in this period grew. Prices of all fats and oils rose. The share of expenditure on fats and oils of the total basket of households is very small. It will thus be more influenced by fluctuations in households' expenditure on other food groups. We assume that the rate of risk of poverty will not significantly affect the expenditure on fats and oils. Correlation analysis confirmed our assumptions. We assume that the change in households' income will be an important determinant of expenditure on fats and oils.



**Pic. 7 The share of expenditure on fats and oils of total expenditure on food**

Source: Eurostat

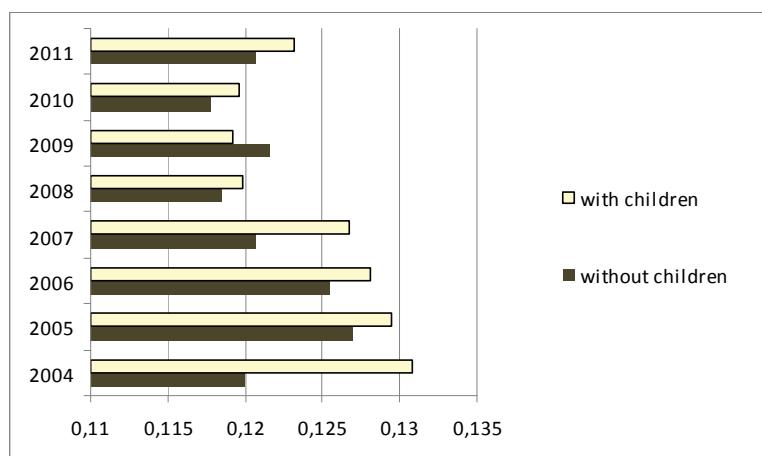
$$Ehwo = 3,50 + 0,002I$$

$$Ehw = 2,12 + 0,002I$$

The regression models for expenditure on fats and oils estimated come as inconclusive, therefore they will not be further interpreted.

### Sweets

Market for sweets is one of the few markets where the proportion of spending of households with children is bigger than the share of expenditure of households without children. This reflects the fact that children incline more to sweets than adults. The development trend of the share of expenditure of household with children on sweets is decreasing. Prices and consumption of sugar, honey and confectionery should have a growing trend in this period. The development of the share of expenditure on this group of food was therefore pushed by development of expenditure on other food groups. We assume a negative correlation between the evolution of the share of expenditure on sweets and risk of poverty. The results of correlation analysis confirmed only slight dependence of development of the share of expenditure on sweets of households with children of their total expenditure on food.



**Pic. 8 The share of expenditure on sugar, jam, candy, and other foods of total expenditure on food**

Source: Eurostat

$$Ehwo = 6,35 + 0,007I$$

$$Ehw = 4,56 + 0,006I$$

The chosen model explains 69 % of changes in the time series of expenditure on sugar, jam and sweets thanks to change of income of households without children according to the corrected index of determination. Intercept estimated and regression coefficient are 99 % reliable. The estimate of intercept of chosen model of expenditures on sugar, jam and sweets of households with children is equally reliable. According to this model, expenditure on group of food mentioned above is changing with changing of income with 51 % confidence. The regression coefficient is 98 % reliable. According to the estimated regression coefficients, if income increases by 10 €, expenditures of households without children will increase by 7 cents and expenditures of households with children will increase by 6 cents. According to the income elasticity of expenditure on sugar, jam and sweets calculated households without children are more sensitive to change in income. If income increases by 1 %, expenditure on sugar, jam and sweets will increase by 0.41 %. (households with children only about 0.27 %). Distorted result of elasticity could be due to an insufficient statistical model os expenditure of households with children.

## Conclusion

The objective of this paper was to determine the extent to which households are affected by the risk of poverty in deciding on the food market. We asked ourselves three partial questions, which represented three possible ways of solving the problem.

The first partial objective was to ascertain the evolution of rate of risk of poverty in the V4 countries and determine the possible causes of development. We found out that the rate of risk of poverty is in a downward trend during the studied period. In the Czech Republic and Slovakia, this rate is lower than the EU average (27 countries). The development rate of risk of poverty in Slovakia is significantly influenced by the rate of unemployment. Rate curve of risk of poverty literally followed the development in the labor market. In Hungary and Poland, the rate of risk of poverty is significantly higher than the EU average (27 countries). The inhabitants of these countries are among the most vulnerable in the EU.

The second partial objective was to determine how the rate of poverty risk is developing after the division of households of V4 countries at home more and less threatened by risk of poverty - i.e. households with children and households without children. Differentiation of households let us to follow whether there are greater disparities between households, or their long-term conditions as consumers are clearing. The biggest change we have observed was in Poland. Disparity of households significantly reduced. The difference between households also reduced in the Czech Republic. In Ireland, the development of rate of risk of poverty is similar to the average development in the EU (27 countries). Disparity of households was slightly increased.

The third partial objective was to determine how rate of risk of poverty affects the decisions of households on food market in Slovakia. One way to determine the effect was the correlation analysis. Through it, we investigated whether the expenditures for individual food groups of households with and without children affects rate of risk of poverty. The results of our analysis demonstrated a very weak dependence of these two factors. For these reasons we decided to use regression analysis. We quantified how households' income affects the expenditure on each food group. We assumed that the amount of income is also a factor that will allow households to differentiate more and less vulnerable to poverty. Expenditure and household income were analyzed separately for households with children and households without children to maintain connections between the various analyzes. We quantified the income elasticity of expenditure on different food groups from the estimated regression models. This let us compare the reaction of households with and without children on the one hand, and the reaction between the food groups on the other hand. Households responded in the most elastic way to the market for fruit and vegetables. The differentiation of households has no significant shown on the elasticity of expenditure on fruit and vegetables. The same reaction we have seen in other markets (market for milk and dairy products, breads and cereals, fish). Surprisingly low was the income elasticity of expenditure on meat.

However, the coefficients of elasticity of expenditure on meat and meat products sufficiently explain the disparity between households. It is well known that the more is consumer secure, the more he buys meat and meat products. If income of households without children increases by 1 %, expenditure on meat and meat products will increase by 0.18 %. Households with children will increase their spending by up to 0.31 % (0.13 % more). For households with children meat and meat products are more luxurious than for households without children that this group of foods perceived as essential. The opposite situation occurs on market for sugar, honey, candy. This group of foods perceived more luxurious households without children. The difference in response to a 1 % change in income between households is 0.14 %. Actual consumption in physical units is higher in households without children. The difference is only in the seeing of food groups in consumers' mind.

## **Resources**

1. CHEN, S. and RAVALLION, M., 1997: What Can New Survey Data Tell Us about Recent Changes in Distribution and Poverty? *The World Bank Economic Review*, 11(2)
2. KRAAY, A., 2003: When is Growth Pro-Poor? Evidence from a Panel of Countries. *The World Bank, Policy Research Working Paper No. 3225*
3. KUZNES, S. 1971.: *Economic Growth of Nations: Total Output and Production Structure*.
4. GUIO,A.C.2005: Income poverty and social exclusion in the EU 25, Eurostat, Statistics in focus, 13/2005, European Communities.
5. UNDP: Development and Transition, London School of Economics.
6. STRAPCOVÁ, K.: Vnímanie príčin chudoby na Slovensku. 2006 In: Chudoba v slovenskej spoločnosti a vzťah slovenskej spoločnosti k chudobe. Zborník z konferencie UNESCO MOST, Bratislava 2006, Sociologický ústav SAV, ISBN 80-85544-43-1.

# Socio-economic development of regions in the Czech Republic

Iva Živělová<sup>1</sup>

## **Abstract:**

The paper is focused on development of disparities in quality of life among regions of the Czech Republic in years 2007 – 2011. The quality of life is evaluated according to social aspects that relate to population of region, its age-structure, possibilities of assertion oneself in job and to security of inhabitants concerning ensuring of health care. The attention is also paid to the civic and technical amenities and to the level of traffic infrastructure. The region is in accordance to the available statistical data defined by the district.

## **Key words:**

Region, Quality of Life, Social Aspects, Population of Region

## **Introduction**

The strategy of regional development of the Czech Republic in years 2007 – 2013 considers one of the main aims in limitation of disparities among regions. Disparities are in the economic, social and environmental sphere. The strategy of regional development of the Czech Republic respects aims of the regional policy of EU. Applying of appropriate instruments can lead to the reduction of regional disparities. Consequently, the rigorous analysis of life quality in individual regions is important as well as detection of factors that influence the creation of regional disparities.

The paper has arisen within the thematic section 05 „The socio-economic consequences of the sustainable multifunction agriculture and the acquisitions of the agrarian and regional policy“ of the research project of Mendel University in Brno, MSM 6215648904 „Czech economy in the process of integration and globalization and the development of agrarian sector and sector of services in new conditions of European integrated market“.

## **Goal and methodology**

The goal of the paper is life quality analysis in regions of the Czech Republic concerning social aspects. It is related to population of the region and to conditions that influence the life quality in the region. The total number of population, the population density, the share of townspeople and also the population growth characterize population of the region. The quality of life in the region is evaluated by unemployment rate, number of applicants per one vacancy, number of doctors per 1000 inhabitants. Consequently, number of completed flats per 1000 inhabitants and length of road network is monitored for evaluation of disparities among regions in civic and technical amenities and in level of traffic infrastructure.

The mentioned indicators of social development are monitored in regions of the Czech Republic. The development is tracked in years 2007 – 2011.

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## Results and discussion

In the social area there are the basic strategic aims of sustainable development of the Czech Republic such as stabilization and growth of number of the population, improving its age structure, reducing of unemployment, people motivation to participating in work activities and support of all intentions that lead to increases in the quality of population life.

Not all regions contribute to achieving of these aims alike. It is also caused by quality of life in the particular regions. The quality of life influences the attraction of region as for inhabitants and as for investors who create proper job opportunities.

The Czech Republic with its number of population has the thirteenth place in Europe. The number of population has been essentially stagnating. Natural increment of the population, though very small, expressed as late as in the year 2006. By contrast with natural increment, the decrease of population expressed since 1994. Development in individual regions of the Czech Republic differs from this trend. Movement of population is measured by total increment that is given by sum of natural increment and move increment. The data are obvious from the Table 1.

**Tab. 1 Basic characteristics of population of the Czech Republic**

| Region            | Number of the population | Number of the population per 1 km <sup>2</sup> | Share of townspeople % | Total population growth ‰ | Average age |
|-------------------|--------------------------|--|------------------------|---------------------------|-------------|
| Czech Republic    | 10 453 313               | 133  | 73,4                   | 1,58                      | 40,7        |
| Capital Prague    | 1 230 219                | 2 497  | 100,0                  | 4,78                      | 41,7        |
| Central-Bohemia   | 1 236 003                | 113  | 54,6                   | 8,94                      | 40,7        |
| South-Bohemian    | 635 540                  | 63   | 64,4                   | 1,74                      | 40,7        |
| Plzeň             | 567 665                  | 75   | 66,9                   | 1,78                      | 41,0        |
| Karlovy Vary      | 306 589                  | 93   | 80,8                   | 0,78                      | 40,2        |
| Ústí              | 831 951                  | 156  | 79,5                   | 0,92                      | 39,8        |
| Liberec           | 436 844                  | 138  | 78,1                   | 1,56                      | 40,2        |
| Hradec Králové    | 553 340                  | 117  | 68,0                   | 0,60                      | 41,1        |
| Pardubice         | 515 092                  | 114  | 61,3                   | 1,10                      | 40,6        |
| Vysočina          | 513 802                  | 76   | 58,0                   | 0,14                      | 40,5        |
| South-Moravian    | 1 149 625                | 160  | 63,2                   | 0,18                      | 40,9        |
| Olomouc           | 640 915                  | 122  | 57,7                   | - 0,90                    | 40,7        |
| Zlín              | 590 376                  | 149  | 61,2                   | - 1,44                    | 40,9        |
| Moravian-Silesian | 1 245 242                | 229  | 76,7                   | - 1,96                    | 40,4        |

Source: Czech Statistical Office and personal calculations

The biggest regions according to the number of population (except the capital) are Central-Bohemia, South-Moravian and Moravian-Silesian region. In the Central-Bohemia region there is significant favourable location near the capital and also heavy traffic network. It expresses in the population increment that is the highest in the whole Czech Republic. Increase in population growth is discoverable especially in late years. For example, the total increment was 11,3 % in the year 2011. Especially continuous move increment shares in the total increment and equalizes the natural decrease of population. The South-Moravian region also belongs to regions with high number of population but average increment in the analysed years is not so expressive. The Moravian-Silesian region is the most populous region of the Czech Republic, but number of population goes permanent down. With regard to high number of population and area, that represents the sixth place in the republic, it is the region with high population density. It is also influenced by geographical variety of this region. By contrast, the smallest region (according to number of population) is the Karlovy Vary region that belongs to the smallest regions also because of its area. The number of population increases gently and it is caused by natural increment. By moving the number of

population would go down. Most inhabitants of this region live in towns, which is connected with the fact that this region is especially typical by spa-activities (balneology).

The quality of life in the particular region is very closely associated with its economic development. Important indicator in this field is a development of labour market. The fundamental characteristics are such as rate of registered unemployment in %, number of job applicants, number of vacancies in region and also number of job applicants per one vacancy. The data about these aspects are shown in the Table 2.

**Tab. 2 Indicators of employment according to regions**

| Region            | Rate of economic activity | Rate of registered unemployment in % | Number of job applicants | Number of vacancy | Number of job applicant per 1 vacancy |
|-------------------|---------------------------|--------------------------------------|--------------------------|-------------------|---------------------------------------|
| Czech Republic    | 58,5                      | 9,14                                 | 536 379                  | 32 504            | 16,5                                  |
| Capital Prague    | 62,1                      | 3,90                                 | 31 959                   | 7 239             | 4,4                                   |
| Central-Bohemia   | 59,7                      | 7,27                                 | 51 485                   | 4 748             | 10,8                                  |
| South-Bohemian    | 58,5                      | 7,94                                 | 27 842                   | 1 813             | 15,4                                  |
| Plzeň             | 59,3                      | 7,81                                 | 25 792                   | 2 281             | 11,3                                  |
| Karlovy Vary      | 60,9                      | 10,76                                | 18 902                   | 889               | 21,3                                  |
| Ústí              | 57,5                      | 13,48                                | 60 003                   | 1 978             | 30,3                                  |
| Liberec           | 57,6                      | 10,41                                | 25 071                   | 1 466             | 17,1                                  |
| Hradec Králové    | 57,6                      | 7,94                                 | 23 412                   | 1 441             | 16,2                                  |
| Pardubice         | 57,6                      | 9,30                                 | 25 936                   | 2 196             | 11,8                                  |
| Vysočina          | 57,7                      | 10,14                                | 27 860                   | 866               | 32,2                                  |
| South-Moravian    | 57,8                      | 10,42                                | 66 003                   | 2 923             | 22,6                                  |
| Olomouc           | 56,4                      | 12,01                                | 40 443                   | 1 032             | 39,2                                  |
| Zlín              | 57,1                      | 10,31                                | 32 210                   | 1 362             | 23,6                                  |
| Moravian-Silesian | 57,0                      | 11,89                                | 79 459                   | 3 370             | 23,6                                  |

Source: Czech Statistical Office and personal calculations

Rate of economic activity indicates the share of total labour force to number of all persons older than 15 years of age. The highest values of this indicator have the Capital Prague and Karlovy Vary region. Prague is the economic centre of the Czech Republic and also the biggest regional labour market. It offers job opportunities not only for inhabitants of capital city but also for job applicant from the wide surrounding. Number of vacancies is markedly higher than in other regions. It means low number of job applicants per one vacancy. The low unemployment is characteristic of the labour market in the capital. It is stable rate in late years.

The Karlovy Vary region belongs to regions where is the high rate of unemployment that drop gently down in the last year of analysed time period. It went badly to reduce the rate of unemployment because few vacancies are offered and number of job applicants increased till year 2010.

Ústí and Moravian-Silesian regions are regions with the highest rate of unemployment. In the Ústí region there it is caused by business restructuring, decline in coal mining and inhibition of agriculture production. In the Moravian-Silesian region there is social development influenced by similar problems as Ústecký region. There are especially problems sequent to reduction of coal mining and heavy industry.

But it is possible to evaluate the development of monitored indicators as very positive. The rate of registered unemployment decreases in all regions as well as number of job applicants and number of offered vacancies has increased since 2011 – in all regions as well.

Average monthly wage, as one of the main incomes of population, is usually monitored in connection with employment of inhabitants. E.g. in the Capital Prague it increases from 20 364 CZK to 30 842 CZK in 2010. The average monthly wage in Prague is much higher than in other regions of the Czech Republic because the average in the Czech Republic was 23 123 CZK in 2010. Also in the other regions wages increase. Accordance with the last available data, it means data of the year 2011, monthly wages in the other regions varied from 19 700 CZK in the Karlovy Vary region to 22 654 CZK in Central-Bohemia region. Farming workers receive the lowest wage; their average monthly wage in the Czech Republic is 17 693 CZK.

The development of the region is connected with level of civic amenities of the region. Housing construction has important part in this area. Data in the Table 3 show its level.

**Tab. 3 Housing construction according to regions**

| Region            | Initiated flats | Modernized flats | Completed flats per 1000 inhabitants |
|-------------------|-----------------|------------------|--------------------------------------|
| Czech Republic    | 36 263          | 17 424           | 3,5                                  |
| Capital Prague    | 5 205           | 4 091            | 5,3                                  |
| Central-Bohemia   | 7 505           | 2 270            | 6,1                                  |
| South-Bohemian    | 2 261           | 641              | 3,5                                  |
| Plzeň             | 2 064           | 493              | 3,5                                  |
| Karlovy Vary      | 708             | 543              | 2,1                                  |
| Ústí              | 1 558           | 447              | 1,3                                  |
| Liberec           | 1 272           | 135              | 2,9                                  |
| Hradec Králové    | 1 790           | 611              | 3,0                                  |
| Pardubice         | 1 787           | 684              | 3,2                                  |
| Vysočina          | 1 407           | 442              | 3,1                                  |
| South-Moravian    | 4 206           | 2 591            | 4,1                                  |
| Olomouc           | 1 743           | 2 351            | 2,7                                  |
| Zlín              | 1 455           | 536              | 2,5                                  |
| Moravian-Silesian | 3 102           | 1 589            | 2,1                                  |

Source: Czech Statistical Office and personal calculations

Housing construction declined in all regions of the Czech Republic, especially by number of initiated flats. The highest decrease is obvious in Capital Prague and in Central-Bohemia region. Number of newly initiated flats culminated in both regions in 2005. At that time construction of 8 124 new flats were started in Capital Prague and even 9 565 flats in the Central-Bohemia region. It is possible to mention Karlovy Vary region where number of newly initiated flats has decreased since 2004. Housing construction develops in South-Moravian region but the rate of increase is not as high as in Prague or in Central-Bohemia region.

In the South-Moravian region there is the second highest number of modernized flats; the first is Prague. Olomouc region and Central-Bohemia region follow. Trend in number of modernized flats is different in individual regions. The highest fluctuation is in South-Bohemian region where number of modernized flats change greatly in every year. By contrast, stable trend in number of modernized flats is evident in Karlovy Vary region, Ústí region, Pardubice region, Zlín region and Moravian-Silesian region.

The highest number of completed flats is evident steady in Central-Bohemia region. Housing construction in Prague was higher only in 2006. In South-Bohemian region, analogous to another regions, there was the maximum of number of completed flats in 2008. Since this year the number has decreased. Individual housing construction has substantial share in completed flats in Plzeň region. It has relatively steady tendency. Certain revival of housing construction is possible to observe in Pardubice region where are finished especially flats in family houses.

Region attraction for inhabitants is connected also with availability of health care. It is monitored by the help of indicators such as total number of doctors, number of doctors per 1,000 inhabitants and number of inhabitants per 1 doctor. It is also added average sickness leave in the individual region. This indicator is calculated on the basis of statistical data finding and it is defined as share of number of calendar days of sickness leave (because of illness and injury) to average number of employees who have health insurance. This share is multiplied by number of calendar days of year. Data are presented in the Table 4.

**Tab. 4 Chosen indicators of health care according to regions**

| Region            | Total number of doctors | Number of doctors per 1 000 inhabitants | Number of inhabitants per 1 doctor | Average sickness leave in % |
|-------------------|-------------------------|---|------------------------------------|-----------------------------|
| Czech Republic    | 45 061                  | 4,3                                     | 270                                | 4,675                       |
| Capital Prague    | 9 070                   | 7,3                                     | 136                                | 3,514                       |
| Central-Bohemia   | 3 889                   | 3,2                                     | 317                                | 4,486                       |
| South-Bohemian    | 2 524                   | 4,0                                     | 252                                | 5,317                       |
| Plzeň             | 2 547                   | 4,5                                     | 223                                | 4,704                       |
| Karlovy Vary      | 1 203                   | 3,9                                     | 255                                | 4,311                       |
| Ústí              | 2 880                   | 3,5                                     | 289                                | 4,440                       |
| Liberec           | 1 591                   | 3,7                                     | 275                                | 4,962                       |
| Hradec Králové    | 2 486                   | 4,5                                     | 223                                | 4,525                       |
| Pardubice         | 1 934                   | 3,8                                     | 266                                | 4,564                       |
| Vysočina          | 1 795                   | 3,5                                     | 286                                | 4,666                       |
| South-Moravian    | 5 433                   | 4,8                                     | 212                                | 4,614                       |
| Olomouc           | 2 759                   | 4,3                                     | 233                                | 4,794                       |
| Zlín              | 2 176                   | 3,7                                     | 272                                | 5,325                       |
| Moravian-Silesian | 4 774                   | 3,8                                     | 261                                | 5,228                       |

Source: Czech Statistical Office and personal calculations

The Capital Prague has significant position in the area of health care. There are concentrated specialized workplaces that provide their services for citizens from the whole Czech Republic. That is why total number of doctors and number of doctors per 1 000 inhabitants exceed highly average of the republic. In comparison with other regions there is possible to notice of high number of inhabitants per 1 doctor in Central-Bohemia region. In other regions there are not big differences.

The next important factor for development of business activities and so for employment ensuring is traffic availability. It is influenced by quality of road network and also by traffic services in the region. Of course, the centre of motorways and international rail junction is the Capital Prague. The heaviest traffic network has also Central-Bohemia region (except Prague) because there are main rail and road transit network. The position of this region is extra advantageous. The increase in traffic volume is evident also in South-Bohemian region. The main traffic availability is ensured by road network and railway service but the region is not yet attached to motorway network of the whole republic. Ústí region has important traffic position because it has important international road and rail alignment. We can recognize good traffic services also in Pardubice region with wide road and rail network. Vysočina region is part of road and rail network but it misses quality connection among individual centres of this region. South-Moravian region has considerable road, motorway and rail traffic volume. In Olomouc region there are traffic services also ensured by heavy rail and road network. But its quality is significantly lower. Moravian-Silesian region wrestles with worse ensuring of traffic services. This situation is caused by absence of the connection with motorways network.

## **Conclusion**

The choice of appropriate instruments of regional policy contributes to reducing of regional disparities and to efficient usage of natural resources in region leading to optimal allocation of economic subjects and to economic growth of the region. It influences also employment in the region and social development that is connected with employment. Social development is conditioned not only by employment and incomes but also by total quality of life in the individual region. The paper focused on chosen factors that substantially influence the attraction of the region not only for employers and investors but also for region inhabitants. Only through analysis of life quality and analysis of causes in life quality differences in individual regions can become the foundation for choice of appropriate regional policy instruments.

## **References**

- Kolektiv autorů. *Úvod do regionálních věd a veřejné správy* (2004). Plzeň: Vydavatelství a nakladatelství Aleš Čeněk, s.r.o. ISBN 80-86473-80-5
- Živělová, I., Jánský, J. (2007). Metodologické přístupy k hodnocení ekonomické výkonnosti regionu. Sborník z mezinárodní vědecké konference „Účetnictví a reporting udržitelného rozvoje na mikroekonomické a makroekonomické úrovni“. 1, 215 - 220. ISBN 978-80-7194-970-1