# INVESTIGATING TRADE OPPENESS AND ECONOMIC GROWTH IN SOUTH AFRICA

# BY

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# Abstract

The purpose of this thesis is to investigate the relationship between trade openness and economic growth in South Africa. This paper examines this by investigating the relationship between real GDP per capita, exports and imports. In terms of methodology, we used time series data from a period of two decades (1987-2012) using econometrics models under the framework of co integration and VAR analysis. The results of the model show that causality between real GDP per capita and imports exists and causality between exports and real GDP per capita doesn’t exist. Furthermore co integration analysis show that the is a short-run among the variables

Keywords: Economic growth, trade openness (liberalization), imports, exports

# CHAPTER 1

## Background Study

Trade liberalization implies any change which leads to a country’s trade system towards neutrality in the sense of bringing its economy closer to a situation which would prevail if there we no government interference in the trade system and encourage free trade, reduce tariffs and quotes

## 1.2 Introduction

Trade liberalization has been a key policy debate in the development literature since the early 1970s. The centrepiece of this debate has placed a particular emphasis on the role of openness on economic growth and productivity as part of development strategy. The evolution of this debate has also been reinforced by the accumulation of evidence that confirmed positive correlation between export growth and GDP growth in countries with more open trade regime as opposed to those countries which embraced import substitution and inward looking policies under the wall of tariffs and non-tariff barriers, (Krueger, 1997),(Edwards, 1998)

The eradication of apartheid in South Africa in 1994 has increased its trade with other nations in the sub-Saharan Africa and the rest of the world. Without taking into account African countries, South Africa’s principal international trading partners comprises Germany, United States, China, United Kingdom, Japan and Spain. Virtually 90 % of South Africa’s exports to the rest of Africa go to the SADC. South Africa is rich in mineral resources. It acts as the world’s largest producer and exporter of platinum; is a significant producer of gold, manganese, chrome, vanadium, and titanium; and also exports to other nations a significant volume of coal. Exports amounted to 24% of GDP in 2010 financial year. South Africa as a trading country is an affiliate of the Southern African Custom Union (SACU) 11th of December 1969 and the South African Development Community (SADC) formed in Zimbabwe, Lusaka on the 1st of April 1980. During August it signed a regional trade protocol agreement with its SADC partners. The agreement was confirmed in December 1999 and the implementation commenced in September 2000. It provided duty-free treatment for 85% of trade in 2008 and aimed for 100% by 2012.A U.S-SACU Trade, Investment and Development Agreement was signed in June 2008. The agreement reached reduced tariffs and export subsidies, loosened exchange controls, cut the secondary tax on corporate dividends, and improved enforcement of intellectual property laws. South Africa is also a member of the World Trade Organisation (WTO). United States goods and services qualify for South Africa’s most-favoured-nation tariff rates. Previous studies have shown that trade plays a little role in the contribution of a country’s GDP. The trade policy by department of Trade and Industry is stated to support industrial development and upgrading, employment growth and improved value-added exports. South Africa’s trade and industrial policy is shifting away from an extremely protected, inward looking economy to an internationally competitive economy. (Enclopedia, 2013)

According to World Bank South Africa is classified as an upper-middle income economy. It has the biggest economy in Africa, and has a comparative advantage in the production of agriculture, mining and manufacturing products relating to these sectors. Since the commencement of the new millennium the South African economy has been growing at a faster rate, International trade can be seen as a stage for the coming out of multinational firms specializing in diverse markets and also creating a wide range of goods and services available for consumers. (Nations, 2013)

Sanctions and boycotts affected South African foreign trade and investment, this occurred during the 1980s and early 1990s. These sanctions and boycotts faced then explain some of the reasons the country did not actively openly participate effectively in the past. For the period of the twentieth century, South African economy depended a lot on foreign trade and this sustained even when the country was pressurised by international sanctions and recession. Gold was its main exports to a point that even the South African government back then occasionally intervened to promote non-gold exports. The price of gold directly affected the worth of the rand and the prices at which exports were traded overseas, This happened during the 1970s and the 1980s. Due to the fluctuating price of gold and the rise and fall of exchange rate of the rand export revenues responded accordingly. With these uncertain conditions to the economy, a few numbers of domestic manufacturers were prepared to risk great investments to increase their export capacity. As international sanctions were lifted in 1990s foreign trade delegations started arriving in South Africa, among its utmost dramatic turnabouts, South Africa extended a delegation to Moscow in 1991 to consider strengthening foreign trade conditions, and that was for the first time, South African firms took part in a trade fair there.

During the 1960s and 1970s, South Africa’s trade regime was characterized by high tariffs and extensive import controls, including through formal import quotas. In response to the perception that growth through import substitution was being exhausted and in the wake of declining manufacturing production and trade, attempts were made to mitigate the anti-export bias of the system. Formal import quotas gave way to import licensing, but the focus, however, was on export promotion measures. Beginning in 1983, the first systematic attempt was made to eliminate import licensing which then covered 77 percent of imports. In 1985, South Africa switched from a positive list of permitted imports (i.e., imports not subject to licensing) to a negative list of prohibited imports covering about 23 percent of imports so that more than three quarters of imports were exempt from licensing (GATT, 1993)

## 1.3 Motivation

This study is motivated by the on-going debate, which investigates the effectiveness of trade liberalization policies in South Africa under the umbrella of multilateral institution, notably the IMF and the World Bank. South Africa’s trade and industrial policies were aimed primarily at encouraging import substitution industrialisation. Trade liberalization initiatives have been pursued from country to country level among groups of neighbouring countries and the South African government have cooperated on a variety of efforts to reduce or eliminate import restriction and export subsidies. They have been motivated by the conviction that deregulating. Trade liberalization would increase the volume of trade, promote growth and improve living standards in South Africa. The year 1994 signalled an important shift in South Africa’s development strategy, from export promotion with import controls to greater openness through tariff liberalisation. Hence, this study seeks to draw out some implications of trade liberalization policies relevant to the structure of production in South Africa.

## 1.4 Problem statement

Openness to trade increases poverty is a statement made by anti-globalisation advocates. They argue that trade liberalisation is the systematic dismantling of trade barriers, which leads to high unemployment, less economic growth and high food prices. Through the dismantling of trade barriers such as tariffs and quotes, government revenue through tax tariffs will decrease hence government expenditure will fall resulting in decrease in government spending. If developing countries have industries that are relatively new, than at that moment these industries would struggle against international competition. Trade liberalisation may often lead to a shift in the balance of payment there may be structural unemployment from industries closing.

## 1.5 Objective of the study

The main objective of this study is to carry out an in-depth examination on the role of trade and trade liberalization policies in South Africa. The specific objectives of this study are three fold:

1. To examine the impact of trade liberalization on export and import growth
2. To investigate whether trade liberalization has increased or decrease economic growth, price elasticity of demand for exports and imports, respectively.
3. To examine the timing impact of trade reforms

## 1.6 Hypothesis

The main hypothesis of the study is to carry out econometric modelling to find the significance of the research in South Africa:

The first assumption is that there is no relationship between trade and economic development contrary to the alternative hypothesis that trade and the latter are positively linked.

# CHAPTER 2

## 2.0 Introduction

This chapter reviews both theoretical and empirical literature on the impact of trade openness\liberalization and growth. South Africa has made significant strides towards trade liberalization since its readmission to the international community after successful free elections in April 1994. This followed years of international isolation imposed on the country due to its racially motivated apartheid policies. Trade liberalization has been accompanied by responsible monetary and fiscal management

## 2.1Literature Review

### 2.1.1 Trade openness and growth

The connection between trade liberalization and economic performance is one of the oldest topics in the field of international trade and development and it has invariably been polarized into two major schools of thoughts: those who favour free trade (i.e., neo-classical) on the one hand, and those who favour state intervention on the other. Both theoretical and empirical grounds have been offered to defend the position of each school of thoughts.

The neo-classical trade theory is based on the principle of comparative advantage. This principle postulates that the expansion of trade is beneficial to all trading partners. The implication of neo-classical trade theory is that the overall economic growth would be maximized when a country rescind trade barriers against trading partners. The doctrine of comparative advantage, however, does not guarantee equitable distribution of the gains from trade. The gains from trade depend on exchange rate between trading nations, terms of trade, and on whether the full employment of resources is maintained as economic resources are reallocated as countries specialise. In extreme situation, one country may become absolutely worse off if the real resource gains from trade are offset by a decline in the terms of trade. This is situation is known as immisering growth, (Bhagwati, 1958)

Besides, developing countries are generally not in favour of liberalization policies as a move to protect their nascent industries for at least two reasons. The first one is the famous “infant” industry argument which maintains that during the temporary period when domestic costs in an industry are above the product’s import price, a tariff is a socially desirable method of financing the investment in human resources needed to compete successfully with foreign producers, (Baldwin, 2002)

### 2.1.2Trade and Macroeconomic Policy

South Africa’s trade policy is driven largely by the Department of Trade and Industry. According (Bell, 1992, 1997), South African trade policy was broadly geared towards import substitution between 1925 and the 1970s. By the 1960s, manufacturing growth had begun to slow down. As well, there was dissatisfaction with the continued dependence of the economy on gold for foreign exchange reserves. According to (Thoburn, 2002) this failure of import substitution to enhance growth and diversify the economy away from gold is what triggered a change in trade policy direction away from import substitution beginning in the 1970s. In the 1980s there were renewed attempts to reform the trade regime. Quantitative restrictions continued to be reduced throughout. According to Belli et al. (1993) the 1980s as a whole ended up being highly protective as South Africa ended up with not only the highest tariff rates but also the widest tariff range. Tariff dispersion had become very high. In 1990 there were renewed attempts to increase exports through the General Export Incentive Scheme (GEIS). In the mid-1990s with political change gripping the country, there was a review of macroeconomic and industrial policy regimes that marked the start of the process of fully-fledged trade liberalization. In 1994, a decision to phase out the GEIS that was considered to be inconsistent with General Agreement on Trade and Tariffs (GATT) and the World Trade Organisation (WTO) rules was reached, and eventually they were terminated in 19974

### 2.1.3 Trade protection and wages

The key feature of a perfectly competitive labour market is that workers are compensated according to their opportunity cost, which is a function of accumulated human capital and working conditions. Job characteristics which do not directly affect the utility of the worker should not affect the level of wages, which equally productive workers receiving compensation packages that provide equal levels of utility. If an employee’s industry is a significant factor in determining wages after controlling for the quality of labour and working conditions than one must look for alternative explanations that go beyond the standard competitive theory framework (Summers, 1988).

(Thaler, 1989) identifies four industry characteristic that appear to be associated with the level of compensation: (i) firm size, (ii) ability to pay, (iii) capital intensity and (iv) union density.

**Firm size** – Both plant size and firm size have significant positive influences on the wage rate, even after controlling for workers characteristics and the working conditions for the job.

**Ability to pay –** The second factor that has been found to be positively correlated with industry pay level if the ability to pay as measured either by the market power.

**Capital intensity**- industries with high capital labour ratio tend to pay higher wages.

**Union density-** The final factor that has been shown to be correlated with industry wage rate is the union density. Most studies find that the unionization ( the percentage of the workers in an industry who belong to a union) increases wages for both union members and the non-union members in an industry.

### 2.1.4 The impact on trade liberalization on South Africa agricultural productivity

According to the (Agriculture, 2005) agriculture is regarded as one of the means to reduce poverty, firstly through its contribution to total GDP and employment, and secondly because its 240 000 small farmers provide a livelihood to more than 1 million family members and to another 500 000 occasional workers. Furthermore, there are an estimated 3 million farmers, mostly in the communal areas of the former homelands, who produce food primarily to meet their families’ needs and almost all of the productive and social activities of rural towns and service centres are dependent on primary agriculture and related activities (DoA, 2005). In addition, agriculture utilises the largest portion of South Africa’s land and therefore forms the backbone of the rural economy. It is therefore clear that agriculture is regarded as one of the means through which Government can reach its growth objectives as articulated in the Integrated Rural Development Strategy and ASGISA.

Over the past decade, major changes in the agricultural business environment have taken place. These changes have affected agriculturalists and others who are either directly or indirectly involved in agricultural activities. The introduction of free trade has resulted in price fluctuations, which brought about a whole new dimension of risk. South Africa’s agriculturalists were not always prepared to manage the resulting external competition (Taljaard, 2007)

### 2.1.5 The Heckscher-Ohlin Model

Ricardo explained trade patterns among countries on the basis of comparative advantage, which he believed was the consequence of different labour productivities among countries. Conversely, he did not explain what caused these different labour productivities. The effects of factor endowments on international trade were examined early in the twentieth century by two Swedish economists, Eli Heckscher(1919) and Bertil Ohlin (1933). The Heckscher- Ohlin (H-O) theory is more advanced than the Ricardian theory in acknowledging that there exists, at least, some commodities that can be produced with various production techniques. This assertion suggests that it is not only the relative abundance of a resource that will be significant in determining the comparative advantage of a country, but also the intensity of the use of resources in producing the commodities across different countries that will determine the pattern of trade. This analysis makes a number of simplifying assumptions such as that there are two countries, two homogenous goods, and homogenous factors of production whose initial levels are fixed and assumed to be relatively different for each country. The two commodities have different factor intensities, and the respective commodity factor intensities are the similar for all factor price ratios.

In addition, the H-O model makes assumption that production is characterised by constant returns to scale for both commodities in both countries and also that technology is fixed in both countries. Perfect competition exists in both countries. Different factor endowments refer to the fact that nations differ in the volume of productive resources they possess. For instance, some nations have a relative abundance of capital thus capital will be relatively inexpensive. Relative factor abundance may be explained in two ways, the physical definition and the price definition. The physical definition describes factor abundance in terms of the physical units of two factors, for example labour and capital available in each of the two countries. According to the physical definition one country would be capital abundant if its ratio of capital to labour is greater than the ratio of capital to labour in another country. The price definition relies on the relative price of capital and labour to determine the kind of factor abundance characterising the two countries. One nation would be capital abundant as long as the ratio of the price or rental rate of capital to the price of labour is less than in another country.

The theory proposes that with identical technology in both countries, constant returns to scale, and a given factor intensity link between final products, the relative differences in factor possessions between countries form a basis for trade. However, it is the relative abundance or scarcity of a resource that will determine lower or higher factor costs, thereby implying varying prices for the goods. The foremost assertion of the theory is that a country should export the commodity that uses relatively intensively the relatively abundant factor of production, and import the commodity which uses relatively intensively the relatively scarce resource. For this reason, a country with abundant capital will be able to produce relatively more of the capital intensive good, while a country with abundant labour will be able to produce relatively more of the labour intensive good. Likewise, this model also has limitations which are mentioned below:

A strong hypothesis in the H-O model is that tastes and preferences are identical in the trading countries. It is no longer possible to forecast the pre-trade autarky prices and thus the structure of trade. The reason is that each nation’s tastes and preferences could cause it to value the products in very diverse way. While demand patterns seem to be similar all the way through the world, especially among similar socio-economic income classes, differences in tastes and preferences certainly exist. A second critical assumption of the H-O conclusions is that a commodity is always intensive in a given factor irrespective of relative prices (the strong-factor-intensity assumption). The degree of substitution between the two factors (labour and capital) is sufficiently different among industries. Labour and capital can be replaced for each other more easily in the production of one good, say cloth than in the production of the other good, say steel so that we cannot warrant that a given product will always be intensive in the same factor. Thus, a prediction that trade flows in a two country case is problematic because of factor-intensity reversal. Factor intensity reversal follows when a commodity has different factor intensities at different relative factor prices. With one country exporting cloth for example, and the other exporting steel in actual trade, one of them will match the H-O expectation, but the other will not. Factor-intensity reversal can interfere with factor price equalisation, since one of the two countries can end up exporting the good that intensively uses its relatively scarce factor.

A third assumption significant to the H-O analysis is the presence of perfect competition. This assumption was necessary to guarantee that product prices and factor prices would equalise with trade. In the real world, imperfect information and barriers to entry lead to imperfect competition of many different forms. Other assumptions, such as constant returns to scale and identical technology are not appropriate to the real world.

## Empirical evidence

One of the issues that have dominated the international economics literature has centred on the relationship between trade policy and economic growth. More specifically, empirical analysis has focussed on identifying a link between trade policies and long-run economic performance – measured in either per capita or productivity growth. Over time, the availability of more reliable data and more sophisticated econometric techniques have resulted in numerous studies analysing the impact of government policy on economic growth. However, based on the evidence to date, it is fair to say that there is still much disagreement on the empirical relationship between trade policies and economic growth (Baldwin, 2003)

One of the recent studies to emphatically question the alleged positive relationship between openness and economic growth is (Levine & Renelt, 1992)They use different measures of trade policies; yet find no positive relationship between openness to trade and economic growth in the long run. However, their work does find a positive correlation between investment and trade shares, thus leading them to the conclusion that the benefits of trade reform may be enhanced resource accumulation rather than a more efficient allocation of resources.

The effects of foreign trade have been seen as a major factor for economic growth(Grossmann & Helpman, 1991) et.al; furthermore Sachs and Warner(1995) found that the growth rate of the economies with free trade regimes is higher than the closed economies. Edwards (1998) examined the relation between foreign trade and total factor productivity in 93 nations and made a conclusion that total factor productivity growth is faster in more open economies. The size of the relationship between international trade and growth by not just considering its statistical significance but also regarding its economic significance, and revealed that a one percentage point increase in growth of exports leads to a one-fifth percentage point increase in economic growth (Lewer & Berg, 2003). Based on a study by Balassa(1985), the simplest measures of trade orientation are based on actual trade flows, such as imports divided by GDP, exports divided by GDP and net export as share of GDP.

(Balassa, 1971)(Pritchett & Sethi, 1994); (Krugman, 1994); (Rodrik, 1995), however, argue that average tariff does not represent a good proxy for openness since it underestimates the exact level of protection.2 Indeed, tariff is argued to be relatively weak measure of trade policy especially when tariff and non-tariff barriers are used simultaneously, Edwards, (1997). Non-tariff barriers also do not distinguish between goods with either the highest or the lowest levels of restrictions. Moreover, theoretical framework in earlier studies failed to articulate the exact transmission mechanism through which the export expansion spurs economic growth.

The (Sachs & Warner, 1995)study finds a positive relationship between the growth rate of per capita GDP and the openness measure. (Edwards, 1998) considers nine measures of openness and finds that six of these measures are significant determinants of total factor productivity growth. However, all of these studies have been criticised by (Rodriguez & Rodik, 1999; 2001). They prove that these studies have methodological, conceptual and statistical deficiencies, which lead to doubts about their main result, namely, the existence of a strong positive relationship between trade openness and growth.

In another development, a study by the World Bank (1987) classified a group of 41 developing countries according to their trade orientation in order to evaluate the performance of countries with different degrees of outward/inward orientation. Four categories of countries were classified. The first group consisted of strongly outward oriented countries in which there are very little trade or foreign exchange controls and trade and industrial policies do not discriminate between production for the home market and exports, and between purchases of domestic goods and foreign goods. The second group consisted of moderately outward oriented countries, in which the overall incentive structure is moderately biased towards the production of goods for the home market rather than for export, and favours the purchase of domestic goods. The third group consisted of moderately inward oriented countries in which there is a more definite bias against exports and in favour of import substitution. The fourth group consisted of strongly inward oriented countries where trade controls and the incentive structures strongly favour production for the domestic market and discriminate strongly against imports. The conclusion from that study is that economic performance of the outward oriented economies (i.e., real gross domestic product, real GNP per capita, gross domestic savings, incremental capital output ratio, inflation, manufactured exports) has been broadly superior to that of inward-oriented economies. A serious limitation of this indicator is that it is subjective in the sense that the researchers that constructed it used their own judgement to classify different countries in the alternative openness regime, (Edwards, 1992) Notably, majority of African countries fall in the moderately and strongly inward oriented categories whose performance is generally not impressive in all respects. However, African countries are not a homogeneous group since some countries outperform others. Thus, a detailed case study would be essential. In the 1990s, the interest to ascertain the connection between

The basis of statistical finding that increase in exports and increased growths are generally positively related(Baldwin, 2000). The increase in exports may be result of trade policy changes, other non-trade policy actions, or forces unrelated to a government’s policy actions. But at the same time it is noteworthy as pointed by the writer that the export increase also may be the consequence of economic growth rather than the cause. Additionally, the use of exports as an openness measure has the drawback of being a component of GDP, the usual measure of economic growth. Although a negative correlation exists between trade imbalances and economic growth, but the relationship is not strong and that imbalanced trade values have little influence on economic growth rates, once taken into account the fundamental determinants of economic growth(Gould & Ruffin, 1996)

The study by (Papageorgiou, et, & al, 1991)) report growth-enhancing effects for 36 liberalization episodes in 19 developing countries.3 In each country of study, the degree of liberalization is defined by assigning to each year a mark for performance on a scale ranging from 1 to 20. While a mark of 20 would indicate virtually free trade, or perfect neutrality; a mark of 1 would indicate the highest possible degree of intervention. The indices provide a rough measure of liberalization as perceived by the authors in each country reflecting, for instance, assessment of nominal and effective rates of protection, the restrictiveness of quota and the gap between the formal exchange rate and equilibrium exchange rate. More importantly, these indices are subjective and idiosyncratic to each country studied and are incomparable between countries.

The conclusion from this study, however, has been criticized by (Greenaway, 1993) on the grounds that the underlying measure of liberalization is flawed. In addition, the timing of liberalization is difficult to establish across countries and overtime. In particular, Greenway (1997) looks specifically at the timing of (Papageorgiou, et, & al, 1991) episodes and fails to find systematic evidence between trade reforms and growth. These results, according to Greenaway *et al* (1997) are supported by the fact that the study by (Papageorgiou, et, & al, 1991)) did not take into consideration the dynamic issues in econometric modelling

The study (Dean, et, & al, 1994)investigates the extent and character of trade reform in 32 countries in South Asia, East Asia, Africa, and Latin America. Changes in tariffs, non-tariff barriers, foreign exchange controls, and export impediments between the mid-1980s and 1992/93 are discussed. Data are presented on changes in the level, range, and dispersion of tariffs, and coverage of quantitative restraints. Similarities and differences both within and between regions are evaluated. Trade liberalization was most rapid in both Latin America and East Asia. In Africa, however, little progress towards a liberalized regime was realised. In some African countries, reduction in import barriers was substituted for increase in other impediments. Although it is highly cited in policy and academic dialogues, this study did not evaluate the impact of liberalization on economic performance.

Taylor (1998) and Wacziarg (2001) both find that investment is a key link and thus imply that poor investment policies could undermine the benefits of trade liberalisation.

I return to other policies below, but two methodological points might usefully be made at this stage. Brock and Durlauf (2001), in a fairly complex discussion of the the statistician’s concept of exchangeability, argue that growth theory is too open to be adequately tested with the economists’ traditional regression tools.

Baldwin (2002), who argues that the quest to isolate the effects of trade liberalisation on growth is misguided. He argues that trade liberalisation has never been advanced or implemented as an isolated policy so that the only useful question is how it fares as part of a package including, say, sound macro and fiscal policies. Baldwin concludes that, in this context, openness is a positive force for growth.

Openness encourages the efficient and effective distribution of resources through comparative advantage, allows the dissemination of knowledge and technological progress, and encourages competition in domestic and international markets. One focuses on the causality relationship between international trade and economic growth to study whether economic growth is prompted by international trade or vice versa. Even though the size and distribution of the welfare gains from trade may be disputed, there is strong consensus within the economics profession of a positive relationship among international trade and aggregate national income. Similar degree of consensus does not appear to hold for the growth effects of global trade. Various empirical analyses estimate positive growth effects of trade liberalization, but the size of these effects is often rather small, and the empirical methods used to estimate the effects have been subject to substantial criticism. (Chang, Kaltani, & Loayza, 2005)

While many of the above mentioned economists found a positive relationship between trade and growth, there are those who have found no relationship, insignificant or even a negative relationship between trade and growth. The relationship between imports and productivity growth is often negative; this is associated with negative economic development. Studies by (Krugman, 1994) and (Rodrick & Rodriguez, 2001) make inferences that the effect of openness on growth is suspicious, they caution that their main objective is to challenge the over-enthusiasm on the questionable outcomes of many researches showing strong positive correlation between openness and growth rather than to convey the message of trade protection is good for development. Furthermore (Syrquin & Chenery, 1989) in their study revealed an insignificant link between growth and outward orientation index. (Jung & Marshall, 1985) Analysed the association between GDP and export of 37 developing countries in 1950-1981, and the result was that there is no causal relationship except for Israel.

Donald (1995, in Grimwade, 2000) believed that both the Heckscher-Ohlin and Ricardian models were still relevant in explaining intra-industry trade. He developed the Heckscher-Ohlin- Ricardo model, which showed that, even with constant returns to scale, the intra-industry trade could still occur under the traditional setting. The Heckscher-Ohlin-Ricardo model explained that countries of identical factor endowments would still trade due to differences in technology as this would encourage specialisation and therefore trade, in exactly the same manner that was set out in the Ricardian model.

According to Polder (2000), exporting and importing countries are the main objects in a gravity model, the Gravity model is presented graphically and shows the potential supply and demand (determined by the sizes of the economies) to predict the potential trade flow between the trading partner countries. This flow is subject to certain trade resistance factors that are improved by trade arrangements. As Kang (2003) stated in his study, the GDP of the exporting and importing countries and the distance between the trading partners can be presented as economic size and trade barriers, respectively.

Studies show how the effect of trade openness on economic growth depends on complementary reforms that help a nation take advantage of global competition (Chang, Kaltani, & Loayza, 2005). They further presented certain panel evidence on how the growth effect of openness depends on a variability of structural characteristics. They use non-linear growth regression description that interact a proxy of trade openness with proxies of educational investment, financial depth, inflation, stabilization, public infrastructure, governance, and labour-market flexibility, ease of entry and exit of a firm. They find that the growth effects of openness are positive and economically significant if certain complementary reforms are undertaken.Trade liberalisation and export growth appear to be positively linked, and exports act as an engine of growth. How strong is the engine, conversely, depends on the production and demand characteristics of the goods produced and exported. Countries specialising in the production and export of primary products do not perform as well as countries specialising in the production and export of mass-produced goods. This advances the issue of whether regional trade agreements and unilateral tariff reductions by themselves are sufficient to secure structural change in underprivileged countries. (Thirlwall, 2000) .

The *OECD Economic Review of South Africa* (OECD, 2008) emphasised the need for South Africa to address major labour market issues relating to low-skilled employment and the equity and other gains that would ensue from doing so. This report has shown that while South African trade performance has been good in recent years there is significant room to liberalise further as an adjunct to labour market reforms. Further trade policy liberalisation would result in efficiency and real income gains which are important to South Africa irrespective of the outcome of the Doha Round. Multilateral trade liberalisation has the potential to ease the transition to freer trade for South Africa but there are other options. The objective is to reduce unemployed resources and to get resources into their most valuable use.

South Africa‘s endowments in particular mineral resources have provided a major starting platform in tradeables for over a century. There is a long literature that has been concerned with the long term growth prospects of natural resource based exporters. Recent empirical work in this area has been conducted by Lederman and Maloney (2007). They have surveyed a number of natural resource based exporters and conclude that ―natural resources are neither curse nor destiny‖. A natural resource base certainly provides a platform for growth but the destiny of a resource rich country, in developmental terms, usually requires major parallel investments in human and physical capital. The composition of South Africa‘s trade reflects these developments in education, social services and research and development and the concomitant broadening in comparative advantages over many years. As outlined in the recent review of the South African economy (OECD, 2008), the major challenges facing South Africa are to improve investments in these areas of human capital and infrastructure in the new political environment

In figure, most empirical studies support the positive effects of trade on economic growth; one such a study showed Export and Import substitution has positive influence from Trade liberalization (Pinheiro, 1990). From the comprehensive literature, both static and dynamic benefits from trade could be found. The static benefits from international trade refer to the enhancement in output or social welfare with fixed amount of input or resource supply. They are mainly the results from the rise in foreign reserves and national welfare. Firstly, openness offers an opportunity to trade at international prices rather than home prices. This opportunity provides a benefit from exchange, as domestic consumers can buy low-cost imported goods and producers can export goods at higher foreign prices. Additionally, there is a gain from specialization. The new prices established in free trade encourage industries to reallocate production from products that the closed economy was producing at a relatively high cost (comparative disadvantage) to goods that it was producing at a relatively low cost (comparative advantage). By utilizing its comparative advantage in foreign trade, a country could result in an increase the total output and social welfare.

Another long-term advantage of trade is the dynamic gain. This refers to the transformation in production structure thanks to the adoption of new technologies from out of the country and an increase in the production scale. Primarily, international trade sectors based on comparative advantage continually enjoy the economies of scale through the expansion in production stimulated by the massive demand from the international market. This results in the declination of production costs, a large sum of accumulation of capital and increase in employment. Furthermore, international trade is one of the channels supporting technological spillovers between countries which results in a favourable influence on the productivity level (Saggi, 2000). Endogenous growth of a trading country is achieved through “learning-by-doing” which exhibits diffusion of technology across goods and countries. International trade, which conveys knowledge internationally, could increase the absorptive capacity of trading countries by encouraging technological advancement. Increased productivity is also achieved through practice and innovation. Lastly, international trade leads to robust institutional changes. International trade not only facilitates exchange of goods and services, but also ideas on market mechanisms. Developing countries are learning to apply market power more resourcefully with less intervention from government to increase openness. Particularly in bilateral and multilateral trade, participants should fulfil their commitments to international rules and regulations to bridge the gap between industrialized countries.

Mehrotra (1990) provided some empirical insights that support the idea discussed above. After reviewing a number of case studies on the effects of India’s BPAs with centrally planned economies (CPEs) through the late 1960s and 1970s, he concluded that these BPAs raised India’s export volume and improved its terms of trade. He also claimed that during the 1970s and 1980s, India’s exports to the CPEs had an additional character to trade with market economies so that these agreements might have caused little or no trade diversion from hard currency markets. Similarly, our results imply a positive relationship between BPAs and growth. Thus, they provide some evidence for the idea that trade barriers may be beneficial for countries. Moreover, we also use a binary variable that measures restrictions on payments for current account transactions in the growth regressions. Negative but insignificant coefficients for this variable provide little support for the view that trade barriers are detrimental for growth.

Rodriguez and Rodrik (2001) suggested, partly it is an attempt to deal with the measurement error problem that is very common in this literature. These indices received a great deal of attention from the economics profession and multinational institutions. Rodriguez and Rodrik examined the recent empirical literature, including Dollar (1992), Sachs and Warner (1995),7 Harrison (1996), Edwards (1998), and Frankel and Romer (1999) that investigated the effects of trade policies on growth and concluded that the empirical literature is mostly ‘‘uninformative’’ on the growth effects of trade policies.

The weak empirical evidence on the link-between trade liberalization and growth can also be due to problems of incorrect specification. In particular, the impact of trade liberalization may appear only with a lag. In the short run, liberalization may have negative effects, particularly by undermining local production because of competitive import, retarding growth. Therefore, to the extent that these negative short-run effects and the expected delayed positive effects occur consecutively, growth would exhibit a J-curve of response to trade openness (Greenaway, 2002) et.al. Therefore, empirical studies may reveal questionable and even wrong results if these dynamic and counter balancing effects are not fully taken into consideration.

# CHAPTER 3

## 3.0 Analytical Framework

The primary aim of this economic research paper is to arrive at an inference that is supported both empirically and statistically. The economic theory makes statement or assumes hypothesis that are either quantitative and or qualitative in nature and as such, herein a quantitative research design is employed, since data used is countable and measurable. Economic theory and some empirical research argue that openness will definitely lead to economic development while others opened that the relationship between the two is ambiguous. In order to contribute empirically to this argument, this study will employ econometric method as the research technique. The choice of method is necessitated by the nature of the study which in this case is an analysis of relationship among variables. The data used will be that of South Africa’s imports, exports and per capita GDP for two consecutive decades from 1987 to 2012 and is extracted from the World Bank website.

## 3.1 Econometric Model

In this study various methods are employed, first to test the normality Jarque- Bera test is employed, followed by methods of time series econometrics such as Augmented Dickey-Fuller (ADF) unit root test, Johansen co integration test and Granger causality test under the broader framework of Vector Autoregressive (VAR) model. The composition change in exports and imports of the country is analyzed by using some descriptive statistics in order to observe how foreign trade pattern of the country changed in twenty five years of time and how it would have likely affected the development of the South African Economy

In this paper, we used the following log-log model in order to estimate the parameters properly:

= ++ +

Where:

RGDPP = Real GDP per capita

IM = Imports

EX = Exports

T = time series

U = Error term

# CHAPTER 4

## 4.0Data Analysis and regression results

To assess the country effect of growth on liberalization, various method are employed, first we employ the jarque bera test of normality, secondly followed by the time series econometrics of Augmented Dickey-Fuller unit root test, the Johansen co integration test and the granger causality test under the framework of the ordinary least square(OLS) and the econometric models are used the examine the explain the relationship between trade liberalization(openness) and economic growth in South Africa

## 4.1 Normality test

4.1.1 normality test for Real GDP per capita

Test results

The histogram for real GDP per capita is skewed to the right showing a positive skew, with a kurtosis value of 2.347 and a skewness of 0.63.The Jarque-Bera value of 2.18 is less than the 5.99 the assumption of the residuals that are normally distributed and with high probability value of 33%.

4.1.2 Normality test for Exports

Test results

The histogram for exports is skewed to the right which a positive trend and a skewness value of 0.72 with a kurtosis value of 1.98 which is less than 5.99 the assumption of the residuals and a probability value of 18%

4.1.3 normality test for Imports

Test results

The histogram for imports is skewed to the right which a positive trend and a skeweness value of 0.0004 and a kurtosis value of 1.7 less the 5.99 residual assumption and with a probability value of 44%

# 4.2 Augmented Dickey-fuller (ADF) Test

Hypothesis

: Time series is non-stationary

Time series is stationary

4.2.1 Unit root test for real GDP per capita

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(INRGDPP) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=5) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -3.583987 | 0.0141 |
| Test critical values: | 1% level |  | -3.737853 |  |
|  | 5% level |  | -2.991878 |  |
|  | 10% level |  | -2.635542 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |

Test results

The test statistic of real GDP per capita is 3.58 which is greater than the critical value of 2.99 at 5% level of significance in absolute values at 1st difference test with a probability value of 0.014 therefore we can reject the null hypothesis and accept the alternative hypothesis that real GDP variables are stationary and is no unit root.

4.2.2 Unit root test for imports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(INIM) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 4 (Automatic - based on SIC, maxlag=5) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -4.340116 | 0.0032 |
| Test critical values: | 1% level |  | -3.808546 |  |
|  | 5% level |  | -3.020686 |  |
|  | 10% level |  | -2.650413 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |

Test results

The test statistic of imports is 4.34 which is greater the critical value of 3.02 at 5% level of significance in absolute values and at 1st difference test, therefore we can reject the null hypothesis and accept the alternative hypothesis that imports variables are stationary and the is no unit root.

4.2.3 Unit root test for exports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(INEX) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=5) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -4.125882 | 0.0041 |
| Test critical values: | 1% level |  | -3.737853 |  |
|  | 5% level |  | -2.991878 |  |
|  | 10% level |  | -2.635542 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |

Test results

The test statistic of exports is 4.125 which is greater than the critical value of 2.99 at 5% level of significance in absolute values at 1st difference test, therefore we can reject the null hypothesis and accept the alternative hypothesis that exports variables are stationary.

# 4.3 Johansen Co integration test

The co integration model is to test whether long-run relationship exist between the variables

Hypothesis

: The is no co integration relationship

: The is at most 1 co integration relationship

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date: 11/26/14 Time: 09:59 | | |  |  |
| Sample (adjusted): 1989 2012 | | |  |  |
| Included observations: 24 after adjustments | | | |  |
| Trend assumption: Linear deterministic trend | | | |  |
| Series: INRGDPP INIM INEX | | |  |  |
| Lags interval (in first differences): 1 to 1 | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None | 0.484362 | 27.01313 | 29.79707 | 0.1013 |
| At most 1 | 0.356877 | 11.11673 | 15.49471 | 0.2044 |
| At most 2 | 0.021542 | 0.522660 | 3.841466 | 0.4697 |
|  |  |  |  |  |
|  |  |  |  |  |
| Trace test indicates no cointegration at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |

Test results

If the probability value is less than 5% than we can reject the null hypothesis and confirm that the is co integration. The computed results show that all probability values are more than 5% and we accept the null hypothesis and concur that the is no co integration between the variables.

# 4.4 Granger causality test

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 11/26/14 Time: 10:01 | | | |
| Sample: 1987 2012 | | |  |
| Lags: 1 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| INIM does not Granger Cause INRGDPP | 25 | 0.95060 | 0.3402 |
| INRGDPP does not Granger Cause INIM | | 0.51045 | 0.4825 |
|  |  |  |  |
|  |  |  |  |
| INEX does not Granger Cause INRGDPP | 25 | 2.38657 | 0.1366 |
| INRGDPP does not Granger Cause INEX | | 0.30364 | 0.5872 |
|  |  |  |  |
|  |  |  |  |
| INEX does not Granger Cause INIM | 25 | 0.15541 | 0.6972 |
| INIM does not Granger Cause INEX | | 1.46601 | 0.2388 |
|  |  |  |  |
|  |  |  |  |

Test results

* We can accept the null hypothesis that imports does not granger cause real GDP per capita.
* We can accept the null hypothesis that exports does not granger cause real GDP per capita.
* We can accept the null hypothesis that exports does not cause granger cause imports.

# 4.5 VAR Analysis

## Real GDP per capita as dependent variable

+ – +

From the results employed above, a 1% increase in real GDP per capita in the previous year leads to a 0.64% rise in real GDP per capita in the current year. A 1% increase in imports in the previous year leads to a 0.10% decline in real GDP per capita in the current year and a 1% increase in exports in the previous year leads to a 0.31% rise in real GDP per capita in the current year.

## Imports as dependent variable

A 1% increase in real GDP per capita in the previous year leads to a 0.107 rise in imports in the current year, a 1% increase in imports in the previous year leads to a 0.97% rise in imports in the current year and a 1% in increase in exports in the previous year leads to a 0.058% decline in imports in the current year.

## Exports as dependent variable

A 1% increase in real GDP per capita in the previous year leads to a 0.009 increase in exports in the current year, 1% increase in imports in the previous year leads to a 0.18% rise in exports in the current year and a 1% increase in exports in the previous year leads to a 0.87% rise in exports in the current year

# 4.6 Limitation of the research

My main aim of this research paper was to examine the casual relationship between economic growth and trade, trade and economic development are affected by other variables such as foreign direct investments, labor productivity, inflation, interest rates and etc and they were exclude from the model because my primary objective was to investigate economic development and trade openness, therefore I used only imports and exports variables

# CHAPTER 5

## RECOMMEDATIONS AND CONCLUSION

## 5.1 RECOMMEDATION

Due to the fact that South Africa is a developing economy and trade openness does promote economic development. South African government should put in sanctions or policies to reform illegal trade or unrecorded transactions such as drug trafficking and smuggling, which can have a negative effect on trade and growth.

Technological innovation has a positive effect on productivity and output which in the long run can benefit developing countries indulging in trade, since South Africa’s technological innovation is relatively low comparing to other nations. South African industrial firm should invest more in capital intensive inputs which in the long run may increase the volume of trade.

Investing in human capital is essential importance of economic development such as education and training which can help alleviate poverty and shortage skill and create import and export promotion.

## 5.2 CONCLUSION

This research paper suggests that greater trade openness as a favourable effect on economic growth of South Africa. Both imports and exports have increased with greater openness. Trade shares, export shares, and import shares in GDP are widely used in the literature and are found to be significantly and positively correlated with growth in South Africa since 1987 to 2012.

The results of the vector autoregressions reported in this paper suggest that the causality between openness and growth runs in both directions. Although more open trade policies do precede higher growth rates, it is also true that higher growth rates lead to more open trade regimes.

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