MACROECONOMIC DETERMINANTS OF EMIGRATION FROM UGANDA

By

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2017/HD06/1259U

A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN QUANTITATIVE ECONOMICS

MAKERERE UNIVERSITY

MAY, 2020

DECLARATION

I hereby declare that this is my original work and has not been submitted anywhere for the degree award or an equivalent.

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APPROVAL

This is to certify that this thesis has been submitted as a fulfillment of the requirements for the award of Degree of M.Sc. of Makerere University with my approval

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DEDICATION

This Research is dedicated to my late father Robert Bamwesigye – Riino who set my

education foundation, my ever – loving mother Mrs. Katushabe Getrude Bamwesigye and my

mentor Mr. Tumusiime Michael Baketunga.

ACKNOWLEDGEMENT

LIST OF ACRONYMS AND ABBREVIATIONS

AU	African Union
BOU	Bank of Uganda
CEPII	Centre d'Etudes prospectivesetd' Informations Internationales
CMP	Common Market Protocol
COMESA	Common Market of Eastern and Southern Africa
COMTRADE	Commodity Trade
EAC	East African Community
EU	European Union
FE	Fixed Effects Model
GDP	Gross Domestic Product
GLS	Generalized Least Squares
GoU	Government of Uganda
IOM	International Organisation of Migration
NPA	National Planning Authority
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
RE	Random Effects Model
SACU	South African Trade Union
SADC	South African Development Community
UBOS	Uganda Bureau of Statistics
UN CTAD	United Nations Conference on Trade and Development
UN DESA	United Nations Department of Economic and Social Affairs

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ABSTRACT

Globally, in 2017, there were around 258 million international migrants, approximately 3.4 per cent of the world population (UNDESA, 2017a). At the same time, migration has emerged in the last few years as a critical political and policy challenge in matters such as integration, displacement, safe migration and border management. International movement is becoming more feasible partly because of digital revolution, distance-shrinking technology and reduction in travel costs, IOM, (2017). Main push factors for leaving Uganda surround socio-economic factors, such as population growth and youth unemployment, which encourage Ugandans to search for job opportunities abroad, especially in the service sector. Well-managed migration can yield benefits to both countries of origin and destination especially in terms of labor migration, which can offset labor shortages in destination countries, and generate remittances targeted towards national development in the countries of origin. Therefore, the study went ahead to determine the macroeconomic factors influencing emigration from Uganda and how Uganda can reap more benefits from increased mobility of labour in the East African Community (EAC) owing to signing of the Common Market Protocol (CMP) in 2010 among partner states.

The data used in this study was drawn from different sources and compiled to suit the analysis, panel data. Data on Number of Emigrants from Uganda was extracted from Uganda Bureau of Statistics (UBOS) migration tables for period of 8 years (2010 – 2017). Data for macroeconomic variables was taken from World Bank Development indicators (WDI) database and for any missing value in WDI was filled using International Monetary Fund (IMF). Distance for each country pair was extracted from distance calculator website. Gravity Model variables were taken from CEPII dataset.

A modified gravity model is specified and adjusted to include macroeconomic variables specific to the origin and destination in both static and dynamic panel data using RE. This is because panel data techniques combine both time-series and cross-section observations and thus allowing for individual and time effects for each country pair.

Results indicate that GDP per capita and GDP for source country (Uganda) and inflation rates were the major macro-economic determinants of emigration from Uganda. Further, results show that having a colonial relationship with Uganda has a significant effect on the emigrants from Uganda. Finally, for countries sharing a trading relationship with Uganda i.e., EAC were found to attract more emigrants from Uganda as compared to others. In a special way, the results reveal the current past trend of emigration to ASIA to be positive and highly significant.

Emigration from Uganda is mainly increased by deteriorating levels of economic growth, high inflation rates in Uganda and former colonial relationship between Uganda and destination country. It was recommended that Uganda should design strategies to enhance movement within the major trading blocs such as East African Community and COMESA trading bloc, and with emergence of ASIA as a major player in Uganda's economy and trading relations. Streamlining labor and movements agreements between Uganda and ASIA would see the country reap more from increased migration patterns to Asian and East African Countries in the recent past.

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CHAPTER ONE

INTRODUCTION

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1.0 Background to the Study

Migration is not a new phenomenon as it started after the creation of humans. History of mankind is completed with the examples of people migrating from a country to another country either for permanent settlement or for a short duration in search of better social and economic life. History of migration showed that there were few checks on the movements of the people leaving one country for another owing to the reason of better quality of life. But the present migration between the countries is not open-ended. There are strong state interventions usually in the form of statutory and regulatory measures both in the country of origin and destination of migrants (Chiswick and Hatton, 2002). In the modern era, emigration and immigration continue to provide States, societies and migrants with many opportunities IOM, (2017). At the same time, migration has emerged in the last few years as a critical political and policy challenge in matters such as integration, displacement, safe migration and border management.

Globally, in 2017, there were around 258 million international migrants, approximately 3.4 per cent of the world population (United Nations Department of Economic and Social Affairs, 2017a). Literature (Cohen & Soto, (2007), Massey et al., (1993), OECD, (2006)) also shows that up to 15% of the individuals with tertiary education from some less developed countries reside abroad (usually in an industrialized country) and this segment has become increasingly more mobile than the rest of the population

There are many push and pull factors of migration that exist in the literature. According to Lee, (1966); Datta, (1998), (2002); Solimano, (2002) and Borjas, (2001), Massey et al., (1983, 1990, 1993), push factors include lack of job opportunities, primitive conditions,

desertification, famine, persecution, forced labour, poor medical care, loss of wealth, natural disasters, death threats, bullying, discrimination and poor chances to marrying. Pull factors include job opportunities, better living condition, freedom of religion, freedom of enjoyment, education, better medical care, attractive climates, security, friends and family links, industry and better chances to marrying.

International movement is becoming more feasible partly because of digital revolution, distance-shrinking technology and reduction in travel costs, IOM, (2017). It's therefore, important to understand international migration and its various forms and reasons behind its manifestations in order to adequately and effectively address evolving migration dynamics, while at the same time adequately accounting for the diverse and varied needs of migrants.

1.1 Migration Patterns in East Africa

While the integration process of the East African partner states is reaching some of its benchmarks, migration within the EAC is becoming a central issue in both practice and policy implications (Kanyagonga, 2010). In recent years, cross-border labour migration has become intense within the EAC countries (Odipo et al., 2015). Migration of East Africans is driven by several factors, including the search for economic opportunities, high unemployment rates, political instability, regional climate variability, armed conflict and the pursuit of education and family visits (IOM, 2015b). Eastern Africa has the second largest number of migrant stocks next to West Africa on the African continent. Member States within the EAC are source countries, transit countries for migrants heading to Southern Africa as well as destination countries for migrants from EAC Member States as well as Central and Western Africa.

With its booming economy and being a regional hub, Kenya is attractive to neighbours and many other African countries in search for economic opportunities, education and trade

(IOM, 2015c; Regional Mixed Migration Secretariat, 2013; Oucho et al., 2013; Masinjila, 2009). The majority of the migrants in Kenya (79% of the total) come from sub-Saharan African countries, and Uganda contributes about half (23% of the total), (UN DESA, 20015a)

Uganda has been faced with dynamic and complex patterns of migration in and out of her borders. Migratory patterns in Uganda have existed within diverse social, political and economic contexts (IOM, 2015b), and have been driven by political factors, poverty, rapid population growth and the porosity of the international borders (Mulumba and Olema, 2009). Uganda is 12th of 15 sampled non-organizations for OECD countries with the highest percentage of highly skilled expatriates in OECD countries. According to World Bank migration data, (UN DESA, (2013)), a large portion of the population of the Ugandan emigrants since 1960 has greatly been located in Africa. This can be partly attributed to less migration cost and ratification of the Africa Migration Policy Framework allowing easy migration of labor, (African Union, 2006a). The Top destinations of Uganda's emigrants include; United Kingdom and United States of America. Asia is second largest recipient of the emigration stock from Uganda followed by Europe, America, Caribbean, Australia and the Pacific in that respect.

However, of recent there has been an upward trending emigration of Ugandans to the Middle East (Gulf of Cooperation Council; GCC)[1] especially, Dubai, Jordan and Saudi Arabia, (Atong et al., 2018). And according to UN DESA, (2013), further identifies the Uganda – Kenya border as a top migration corridor as illustrated in the figure 1.1 below;

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[1] GCC consists of countries; Kuwait, Bahrain, Qatar, Saudi Arabia, United Arab Emirates, Jordan and Oman
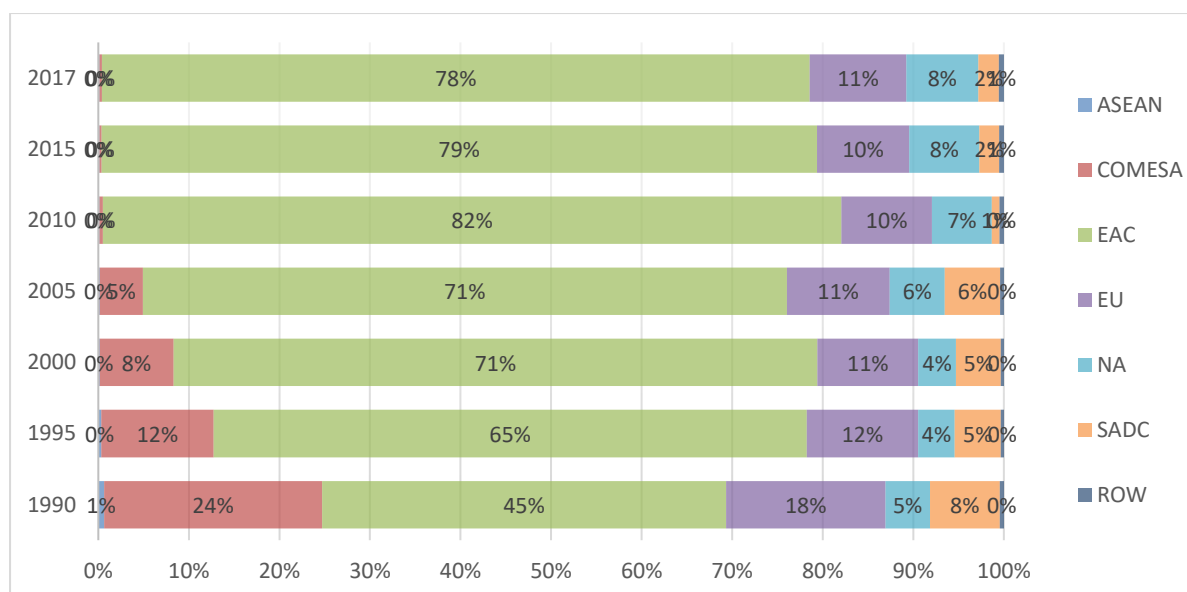
Notes: ROW is the Rest of the World; NA is North America; Trading Blocks are as per WTS (World Integration Trade Solutions) Data Base
Source: World Bank Migration Data Base (1990-2017)
Figure 1.1: Distribution of Ugandan Emigrants in the Diaspora, 1990 – 2017 (%)

The World Bank migration database shows that 77 per cent of the Uganda emigrants went to African countries in 1990. This share increased to 84 per cent in 2000 but gradually decreased over the years to 81 per cent in 2017. Europe was the second most important destination, followed by Americas (including the Caribbean) and last Asia. These statistics underscore the importance of South-North migration compared to South-South migration. In addition, the World Bank database shows that, there was a significant reduction in the number of Ugandans who migrated to the rest of the world compared to other African countries

Within Africa, Kenya, Rwanda and Tanzania account for the bulk of Ugandan migrants as shown in figure 1.2 below. This has been consistent over the years, although in the year 2000, there was an unusual increase in the number of migrants to these countries. This according to Odipo et al., (2015); Atong et al., (2018) might be attributed to the liberalization of their economies in 2000. This is also perhaps due to the recent signing of the Eastern Africa Common Markets Protocol, which has witnessed an increase in the flow of persons, goods

and services in the region (Odipo et al, 2015). This is also commensurate with the remittance's receipts Uganda harvests in Africa as seen in figure 1.3 below;
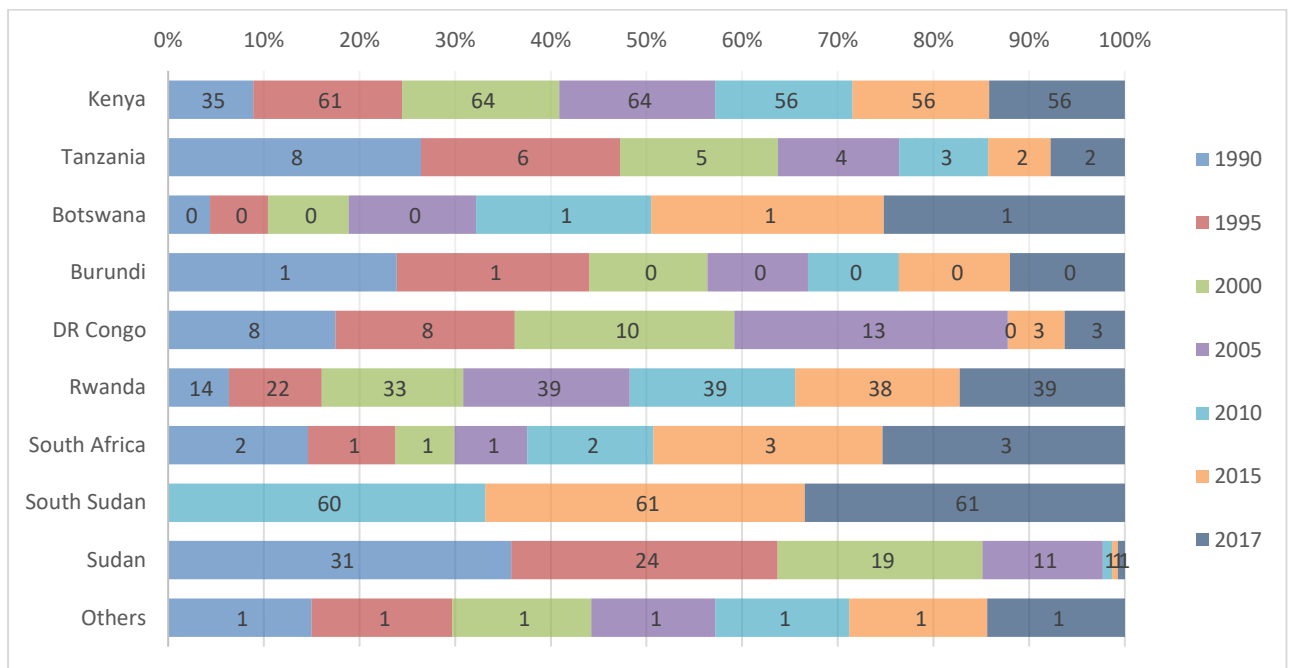
Figure 1.2: Distribution of Uganda's Emigrants in Africa, 1990 – 2017 (%)
Source: World Bank Migration Data Base (1990-2017)

Figure 1.3, depicts that the majority of Uganda's remittances receipts are from within African countries (45%), followed by America (21%), Europe (21%) and lastly Asia/Middle East at 12%. This shows that most of Ugandan emigrants are located within Africa; which, is consistent with Crush's (2011a) observation that Africa itself is the lead destination for African emigrants
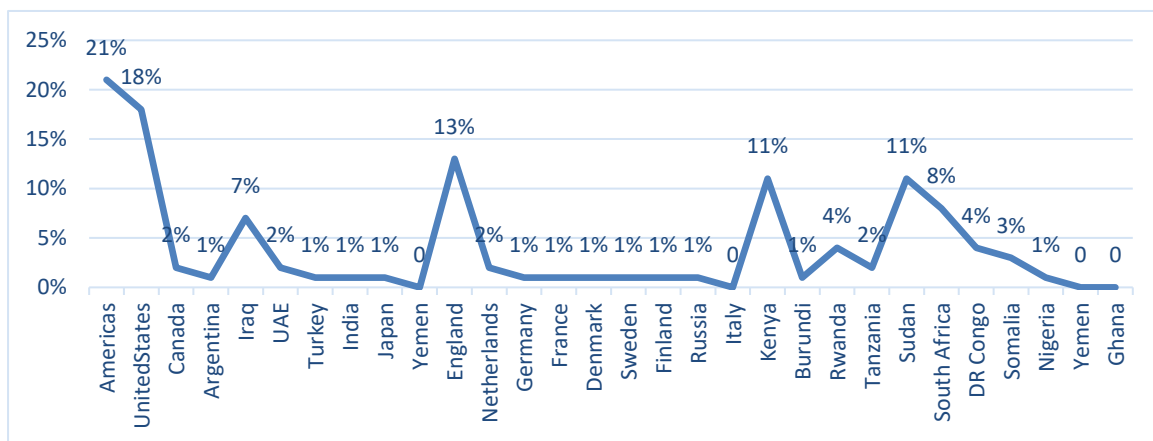
Figure 1.3: Remittance Receipts from Top Destinations of Uganda's Emigrants in 2010
Source: BOU, Household Remittances Survey, 2010.

Although migration contributes significantly to remittances flows in East Africa and particularly Uganda, data and information on the nature of international migration, the macroeconomic factors that influence migratory patterns and its effect on economic and social behaviors of emigration is still scanty in Uganda. Given the levels of immigration and emigration, the three East African countries are in the process of developing national migration policies and diaspora policies (African Union, 2016). The study therefore will help in informing the process on what economic factors influence emigration from East Africa and particularly Uganda. Also, Uganda is among the top ten countries in Africa with high emigration rates (African Union, 2016) hence its significant population is in the diaspora calls for consideration. Secondly, most emigrants from Uganda experience brain waste in developed countries thus creating a drive to focus on Uganda. In addition, a survey by Bank of Uganda in 2010, found out that 39 % of Ugandans had a relative living outside Uganda, this is a significant population for consideration. It's also noted that the government has tremendous interest with its diaspora and there exists evidenced network of interest of Ugandans abroad on development efforts in Uganda.

1.2 Problem Statement

In the modern era, emigration and immigration continue to provide States, societies and migrants with many opportunities IOM, (2017). Well-managed migration can yield benefits to both countries of origin and destination especially in terms of labor migration, which can offset labor shortages in destination countries, and generate remittances targeted towards national development in the countries of origin.

Migratory patterns in Uganda have been driven by economic reasons, poverty, rapid population growth and the porosity of the international borders (Mulumba and Olema, 2009). Main push factors for leaving Uganda surround socio-economic factors, such as population growth and youth unemployment, which encourage Ugandans to search for job opportunities abroad, especially in the service sector (Muscoda, 2006, NPA, 2010).

Existing studies carried out in other countries have yielded inconclusive findings on macroeconomic determinants of emigration (Ombaire, (2016), Nwajiuba, (2005), Jennissen, R. (2003), Mendoza (2006), Mayda (2010), Balderas and Greenwood, (2010), Ivan (2008), Lewer and Van den Berg (2008), Ullah, (2012)).

However, many African countries have had challenges in managing migration issues owing to poor collection and management of data; lack of capacity to handle migration issues as well as limited knowledge about migration-related issues and scanty information about the reasons for its manifestations, (African Union, 2016a).

Efforts have been made to address the issue of emigration through providing an environment for investors and multinationals to establish branches in Uganda. Therefore, the study went ahead to determine the macroeconomic factors influencing emigration from Uganda and how Uganda can reap more benefits from increased mobility of labour in the East African

Community (EAC) owing to signing of the Common Market Protocol (CMP) in 2010 among partner states (Odipo et al., 2015).

1.3 Conceptual Frame Work

In this study, migration is broadly conceptualized as a function of the macro level variables, rather than micro variables as identified in literature.

Figure below shows the key features of the contextual analysis and the interrelationship between migration and macroeconomic variables at the different levels of aggregation analyzed in this study.
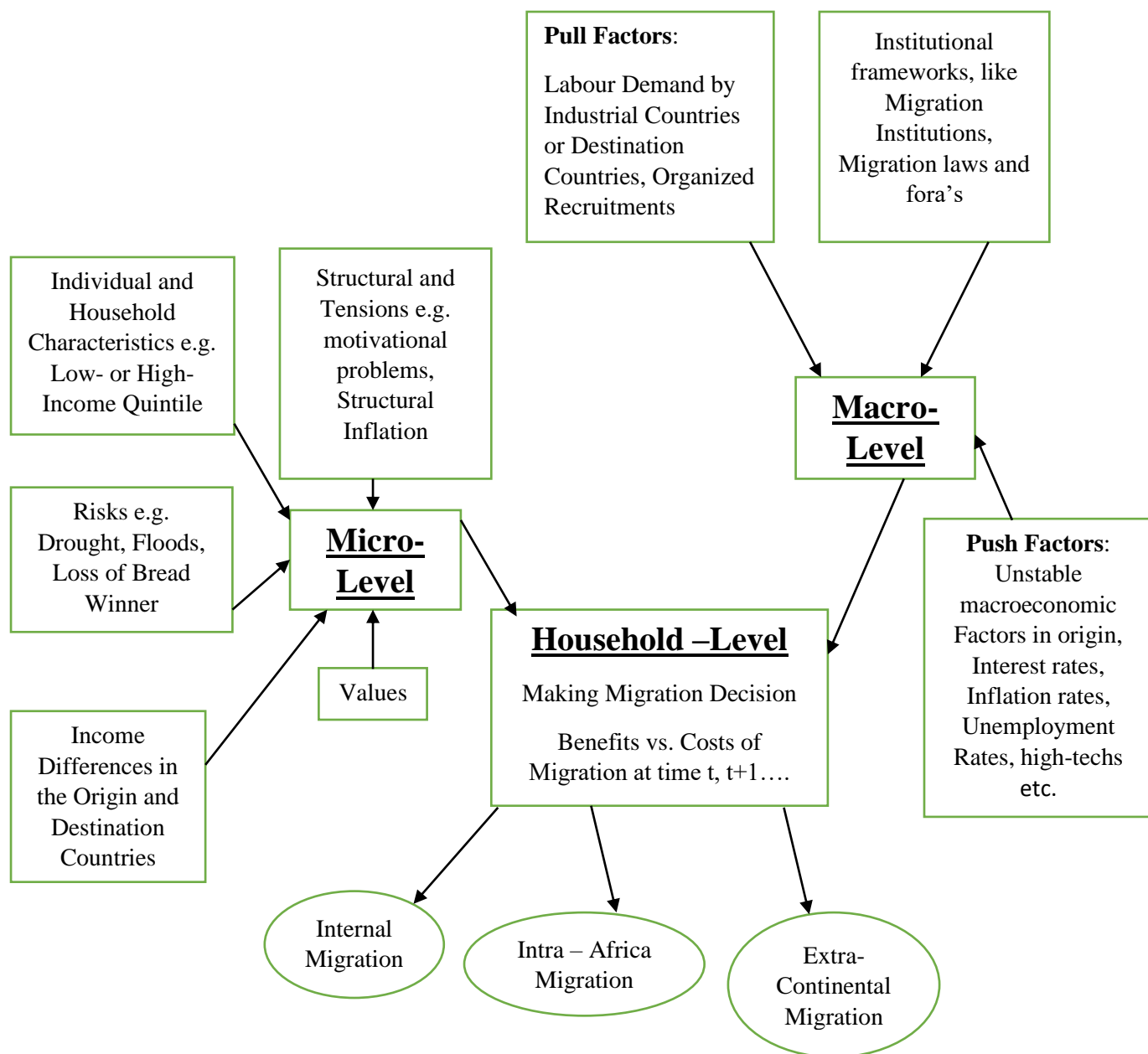
Figure 1.4: Conceptual Frame Work
Source: Adopted and modified from UNCTAD, 2018

1.4 Objectives of the Study

The general objective of the study is to establish the key macroeconomic determinants behind the increased emigration of Ugandans.

The specific objectives of the study are:

i. To analyze the relationship between GDP per capita and emigration from Uganda.

ii. To analyze the effects of Exchange Rate on the propensity to emigrate from Uganda

iii. To examine the relationship between inflation rate in Uganda and emigration

1.5 Hypotheses

Below are the testable hypotheses that were empirically carried out in the course of this study.

1. There is no significant relationship between the emigration and GDP per capita in Uganda.

2. There is no significant relationship between the emigration and Bilateral Exchange rate in Uganda.

3. There is no significant relationship between emigration and Consumer price index in Uganda

1.6 Significance of the Study

Empirical evidence clearly shows that studies focusing on Uganda's emigration patterns are still scanty and limited. Even the few studies which have been undertaken point to a need for further investigation of the factors that have continued to lure Ugandans to emigrate, notwithstanding the reforms to address some of the push and pull factors. Most of the evidence in regard to factors that encourage Ugandans to emigrate have largely focused on social, political factors and these studies have often led to inconclusive findings. It is also

apparent that a few studies on Uganda only focus on impact of remittances and migration on the household level (Mushomi et al, 2011). With the Common Market Protocol and the common East African passport in use by Kenyans, Ugandans, and Tanzanians, and visa-free movement of persons within East Africa partner states occurring (Adepoju 2005). This will go a long way in policy design and handling migration issues so as to reap more from the East Africa Community in terms of more increased job opportunities, skill enhancement, innovation and remittances flows for Ugandans. This study will help shed more light on the macroeconomic factors of emigration from Uganda.

1.7 Scope of the Study

This study covers the country level macroeconomic characteristics that contribute to emigration from Uganda to the EAC, COMESA among other trading blocs and includes in total 48 (forty-eight) countries which are most destinations of emigrants from Uganda according to IOM, (2013) and World Bank fact book (2005). The study covers a period of eight (8) years. That's 2010 to 2017 and the study considers this period as crucial as Uganda has been engaged in several international relations with in the region and other countries outside the region. A case in point is in 2005 and 2011, the East African countries signed the Common Market Protocol and The Customs Union Treaty respectively; these treaties have seen the mobility of labor in the region increase as compared to earlier periods. The study used panel data over the time period from 2010 to 2017, as it has several advantages over cross sectional and time series analysis. According to Martinez-Zarzoso and Nowak-Lehmann (2003), it is possible to capture the relevant variable relationships over time and panels enhance monitoring the possible unobserved country-pair individual effects.

1.8 Limitations of the Study

The study focuses at the macro level but more intriguing studies in the future could delve more at micro level like at a level of individuals and households. This is because more and reliable data could not be easily obtained at micro level like individuals per household living abroad among other factors at the time of the study. Emigration data are particularly problematic because migrants may not notify the population register of their movement or may produce statements that are based on intentions during cross border surveys. (Raymer & Guy, 2008). In particular, Flahaux and De Haas, (2016), argue that when flow data are based on population registers; they are not always comparable because the registration criteria (duration of stay) can vary considerably across countries. Thus, the study only considered a period of eight years for which emigration data was readily available and complete with no missing values

1.9 Thesis Outline

The rest of the dissertation is organized as follows: Chapter I is the Introduction, Chapter II provides the theoretical framework of analysis and empirical literature review. Chapter III delves into the methodology used in the study. Chapter IV presents and discusses the results of the estimation of Gravity Model Equation. Finally, chapter V presents the discussions and conclusions, and policy implications and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter presents the reviewed literature and theoretical framework for the analysis. Different theories of migration are presented in a comparative way pointing out what is most relevant for this study. Also, the different definitions and interpretations of migrants and emigrants and how migrants and emigrants are recorded is explained. Finally, empirical cases are given with emphasis on macroeconomic determinates that influence emigration from one country to another over time. The chapter ends with review of relevant other factors that influence emigration from one country to another.

2.1 Meaning and Motivation to move

The United Nations (1998) defines a migrant as "any person that changes his or her country of usual residence". This broad definition implies a movement from one location to another, the concept that is most relevant for economic analysis. However, official records are kept according to many different definitions as to what constitutes an international migrant. Most common criteria are based on; country of birth, country of citizenship, purpose of visit or visa type, place of last permanent residence and duration of stay.

The two main definitions of migration – being born in or being a citizen of a foreign country – are the most consistently used ones over time and across countries (Özden et al, (2005)). They are also among the most common ways people identify themselves. Citizenship is important for determining an individual's legal rights, regarding obtaining employment, voting and access to public services. The place of birth definition, on the other hand, is superior in terms of determining a physical movement from one place to another. Destination countries typically publish migration figures by either category, mainly based on their

migration and citizenship laws. Historically, countries in the Americas and Oceania favor the country of birth definition of migration whereas countries in Asia, Africa and Europe traditionally adopt a mix of both definitions

According to Özden et al, (2005), differences in definitions may cause the same individual to be reported as a migrant and a non-migrant simultaneously by the same country, thereby leading to discrepancies in the data. This situation may occur under several different scenarios. First, many destination countries grant citizenship to foreign-born people who are family members of citizens or who satisfy certain legal and residence requirements. Such 'naturalized' people continue to be recorded as migrants under the 'foreign-born' definition but not under the 'foreign citizen' definition. Second, many destination countries (for example the United States) grant citizenship to people automatically if they were born within its territories regardless of their parents' citizenship status. Yet others, such as Japan, require at least one parent to be a citizen for their children to acquire citizenship even if they were born within its borders. These children will be recorded as 'foreign citizens' but not as 'foreign born'. As a result of these differences in citizenship and naturalization laws, the numbers of migrants will be significantly higher in the United States if the foreign-born criterion is used and the opposite will be true in Japan. In this study the country of birth is used because of; first, the country of birth definition is more appropriate in analyzing physical movements and in handling the cases of former colonies and dependencies. Second, while nationality can change over one's lifetime, one's place of birth cannot. Third, and the rates of naturalizations vary enormously across destination countries. Differences in destination countries' laws regarding granting citizenship, either to migrants or their children (born in the destination country), leaves data based on place of birth unaffected. Fourth, when migrants cannot be assigned to a specific origin, they are often recorded under an aggregated umbrella heading, (Özden et al, (2005)).

2.1.1 How are emigrants recorded?

Emigration is usually defined as a change of usual residence to a different country (United Nations, 1998). Destination countries employ a wide range of tools to enumerate emigrants. These include population censuses, population registers and registers of foreigners, border statistics, and worker and residence permit[2]**.** In the data compiled by World Bank and remittances fact book, the most used sources of data are upon census and population register records. These are widely conducted, have the greatest geographical coverage and include similar questions, thereby yielding more standardized responses. As such they constitute the vast majority of primary sources of the data used in this study.

2.2 Migration theories

Up to date migration research witnessed development of several theories explaining the nature and reasons of the phenomenon, but at the same time it is probably difficult to name the single theory which could provide comprehensive ground for detailed analysis (Massey et al., 1993), but the underlying theory used in seeking answers to migration often has its shortcomings. Thus, different theories are presented here, in a comparative way.

2.2.1 Economic Theory of Migration

According to Borjas (1989), one of the three questions that the economic theory of migration addresses is "What factors determine the direction, size and composition of immigrant

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[2] The majority of countries, especially Australia, Austria, Canada, Denmark, Iceland, the Netherlands, New Zealand, Poland, the Slovak Republic, Sweden, the United Kingdom and the United States define immigrant population by country of origin or country of birth, some countries like the Czech Republic, Finland, Greece, Italy and Norway define immigrant population by citizenship and finally some countries like Belgium, France, Hungary, Germany, Japan, Luxembourg, Portugal, Spain and Switzerland define immigrant population by self-reported nationality. For example, Belgium, Germany, Luxembourg, the Netherlands, Switzerland and the Scandinavian countries use data based on population registers. The majority of Southern and Eastern European countries use data based on issuing residence permits, Australia, Canada, New Zealand and Poland use data from censuses, some countries like Greece, the United Kingdom and the United States use labour force surveys and others have information based on social security systems or other sources

flows?" The analysis in this study is part of this literature and focuses on the relationship between local macroeconomic conditions and emigration from Uganda.

From a macroeconomic perspective, although each economy has a distinct growth path, the most common feature is that, as economic growth takes place, labor moves out of the agriculture sector towards the manufacturing and services sectors, leading to higher levels of urbanization and internal migration. Traditional views of migration and trade are defined as a reallocation of production factors across agriculture, manufacturing and services that underpin economic growth (Kuznets, 1973; Lewis, 1954).

Almost all economics models of migration rely on the underlying premise that "Differential characteristics of sending and receiving regions provide potential incentives for moving, and individual and/or family traits help condition the response to utility differences that may arise from these different characteristics." (Greenwood, 1997, p.658). However, the types of regional characteristics that are taken into account vary across different theories:

2.2.2 Neoclassical Theories of Migration

In basic neoclassical models, such as those presented by Sjaastad (1962), Todaro (1969), and Borjas (1994), the decision to migrate is based on the net value of the expected wage differential, which in turn is related to relative wages and employment and unemployment rates, between the home region and the prospective destination. In these models, individuals who can expect a financial gain from their move that exceeds the (financial and non-financial) migration costs move. According to Greenwood (2014), the focus on the impact of these economic factors however already predates formal micro economic models and can be traced back to Ravenstein (1985,1989), who stated that among other reasons, people move to find better paid work, Hicks (1932), Thompson (1936), and Kuznets and Thomas (1957).

The expected effect of wages is that higher relative wages in one area would encourage migration to that area (and conversely, lower relative wages would encourage out-migration) (Pissarides and McMaster, 1990). However, very low-income levels can also make it difficult for prospective migrants to raise the required funds (Fidrmuc, 2004), and the relationship between average wages and migration may thus be of an inverse u-shape rather than a downward straight line. Massey et al., (1993) and Todaro and Smith (2015) state that most theoretical approaches to migration offer different but complementary hypotheses. However, the neoclassical theory of migration remains dominant, underpinned by assumptions of migration driven by rational economic considerations and financial decisions but also psychological (Todaro and Smith, 2006, 2015). Others, such as Arango (2000) and Gheasi and Nijkamp (2017), question this on empirical and theoretical grounds. There is a complexity of flows encompassing labour shifts from less developed to developed economies as a function of more affordable and accessible information and communications technologies, transportation, migrant networks and government policies, in an era of rising globalization and, in East Africa, deeper regional integration. Moreover, as the costs of migration are often high, it is not the poorest persons who migrate nor the poorest countries that send the most labour abroad (Massey et al., 2005; De Haas, 2008; Flahaux and De Haas, 2016).

In some neoclassical models of migration, movement is determined by expected earnings, not necessarily actual earnings, weighted by the probability of employment (Fouarge and Ester, 2007). Many studies of Intra-Africa migration are rooted in neoclassical frameworks of migration, which propose wage differentials as the key determinant of migration (Hicks, 1932; Lewis, 1954). Although wage and income differentials play a role in influencing the decisions of migrants, it is unlikely that this proposition adequately accounts for most migration, especially when migration occurs between countries with similar living standards and wage differentials.

Finally, extensions of the neoclassical basic model allow for non-economic factors to be included in the evaluation of the attractiveness of different locations. For example, Morrison (1993) and Morrison and May (1994) argued that the frame work of expected income maximization can be replaced with one of expected utility maximization, and this utility can then depend on both economic and non-economic characteristics (such as, in their case, safety).

2.2.3 Lee's Push-Pull Theory (1996)

A variant of the neoclassical theory is the push–pull dichotomy that emphasizes the economic context of migration, with push factors typically being poverty, unemployment and inequality and pull factors being potential for employment, greater wealth and political stability. It is argued that more rapid economic growth in the origin country reduces the observed rate of outmigration; a hypothesis termed the migration hump (Martin and Taylor, 1996). In addition, the higher the gap between the real wage at home and abroad, the greater the rate of emigration.

This model affirms that for every migration pattern there is often a repelling factor from the sending country and an attracting one from the receiving destination. Lee, further notes the existence of intervening obstacles, these are factors that exist between the push and pull causes and they include; transit costs and migratory regulatory restrictions and these may have three probable outcomes: reducing the migration, increasing it or even preventing it, especially a cross border travel bans for citizens of a given country.

There are two major criticism of this theory; Due to its rather simplistic portrayal of the determinants of migration, it fails to reveal the dominant push and pull migration factors (De Hass, 2008). Second, Mabogunje (1970), criticizes it on the basis that despite having no prior reason of not adopting this theory to a micro-level, its applicability in investigating causes of

rural urban migration is limited. In addition, De Haas (2011), Flahaux & De Haas, (2016) state that migration is a function of people's aspirations and capabilities to migrate, and emphasizes that people only migrate when they have the ambitions and resources to make it happen, a factor that is ignored in push–pull models. Clemens, 2014, De Haas, 2010 & Skeledon, 1997, critique the theory of push – pull models, that it ignores the level of development and globalization, in particular, they emphasis that in poor societies, development increases rather than decrease the levels of emigration and immigration.

2.2.4 New Economics Theory of Migration (NELM)

Mutual interdependence and not individual independence in decision choice to migrate is emphasized by this approach (Stark, 1991). An individual's decision to migrate isn't determined by such a person's instinct but rather through a combination of factors and other peoples' perspective. Massey et al., (1993), posits that unlike the human capital position where the decision to migrate is determined by a person's anticipation to maximize individual utility, in this new approach households respond to foregone risks of income and other failures in the market.

According to Stark (1991), failure to consider the rationality of individuals doesn't justify irrationality of a household but it gives room for consideration of other variables of deprivation, level of risk averseness and risk minimization of household income. It's argued that a relatively poor household will be willing to send a member abroad due to the anticipated gains that will alleviate the status of such household in the aftermath. Taylor (1999), applauds this model since it considers remittances as a significant income loss reduction way through its diversification of the risk, at the same time, it connects causes and consequences of migration. Just like the neoclassical theory this model is static in analyzing household changes and it's heavily future oriented.

2.2.5 Dual Labor Market Theory

This approach was developed by Piore in 1979. The main tenet of this model is that despite existence of capital intensive and labor-intensive sectors, the determinant of migration is affected by the demand for labor but not its supply. This theory explains the essence of international migration which stands on different path in comparison with the other theories discussed above.

The Dual Labor Market theory doesn't consider individuals and households as the main forces in the origination of migration processes and turns its attention to aggregate demand established in developed nations. Michael J. Piore[3] was the biggest supporter of this theory underline that international labor migration is not caused by push factors like unemployment or low wages in sending nations, but by the pull factor as in the permanent demand for a foreign working force in destination countries (Massey at al., 1993). Piore (1979) states that, industries in developed countries recruit foreign labor force for those types of work for which there is no demand from native laborers and incoming migrants come only for short and limited time period in order to save money and then return home.

This approach has two major limitations: It fails to consider sending destination and it places greater concern on recruitment practices that are formal in nature and it appears to be unrealistic by generalizing that there are countries in the world with similar economic structures therefore the formal recruitment procedures should be equal. However, this approach doesn't justify the existence of emigration differentials in such countries

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[3] Michael J. Piore is a labor economist, best known for the development of the concept of the internal labor market and the dual labor market hypothesis, and more recently for work on the transition from mass production to flexible specialization. He has worked on a number of labor market and industrial relations problems including low income labor markets, the impact of technology upon work, migration, labor market segmentation, and the relationship between the labor market, business strategy and industrial organization. The central theme in Piore's work is the social, institutional, and cognitive dimensions of economic activity.

2.2.6 World Systems Theory

This approach focuses on the linkage of migration determinants to world market structural changes and perceived interconnectedness of migration to globalization, interdependence of economies and invention of new ways of production (Sassen, 1988). Basically, it focuses on the supply side of labor. In most developing countries that have resorted to export-oriented production and agriculture value addition, often attract a large share of Foreign Direct Investment. This influences the pattern of migration in such a way that people move to the areas from which the investments originate.

This approach regards capital as a fundamental factor in its analysis. According to Kurekova (2011), origin of capital often becomes the receiving destination of labor migrants. Bijak (2006), critiques this approach to being too descriptive as Favell (2008) recognizes its failure to derive testable postulates.

2.2.7 Network Concepts Migration Theory

At some point in time there seems to be inexistence of wage differentials and formal recruitment process that may influence emigration of persons, in such a situation one will look at what perpetuated the mobility rather than what initiated the migration. Building on Vertovec (2003), diaspora existence of networks often perpetuates the choice of destination of emigrants during decision making. This diaspora networks aren't evenly distributed across origin countries thereby making the migration propensity to vary at different periods. "Network theory tries to explain why international migration is an ongoing phenomenon. International migrants change the ethnic composition in receiving countries. As a result of large inflows of international migrants, migrant networks may be formed. These networks enhance the probability of employment and a decent income" (Jennissen, 2004). These networks also provide migrants access to needed information on migration techniques on the

way and upon arrival in host countries. Such information by lowering costs and risks of migration attracts wider range of individuals to migration process (Zanowiak, 2006).

A closely related theory to this approach is the system theory, developed by Magobunje (1970). It has its origin in geography and inclines on the socio-cultural, economic and institutional impact that migration has. Transnational migration is another closely related form to networks theory. This kind of migration reveals that a migrant who has influence in the receiving and sending destination in various facets of development be it political, economic and social (Bretell and Hollified, 2008).

The major distinction drawn is between theories explaining the initiation and consequences of international migration, which are often summarized as "classical migration research" in the literature and theories explaining the perpetuation of migration. However, in all theoretical concepts, aspects can be found to better understand migration processes.

According Smith, (2007), International migrations is often explained by a basic push and pull model, economic conditions, demographic pressure and unemployment in the sending countries, work in coordination with higher wages, demand for labor and family reunification in the receiving countries. Thus, in conclusion, in examining the macroeconomic factors that propagate emigration from Uganda to other countries in this study, is conducted under the framework of push and pull model as proposed by Lee (1996)

2.3 Empirical studies

2.3.1 Unemployment Rate and Wage Rates in the Economy

Unemployment levels are among the primary causes of Ugandan emigration (Muscoda, 2006). Ugandans also migrate because employers fail to offer attractive employment packages (NPA 2010). Empirical study findings from a survey conducted on Mexican households show that schooling hardly affect incentives to international migration from rural

Mexico, however it has positive effects on internal migration incentives (Mora and Taylor, 2006), Jerome (1926), by observing the number of emigrants from Europe for over a period of 100 years before US immigration quotas were imposed in the 1920s, he resolved that the main pull factor was the economic conditions. In addition, according to Kelly (1965), in his observation of the causatives of the Britons migrating to Australia, his finding was similar to Jerome, he singled out employment to be the main economic factor accelerating the mobility between 1865 and 1935. Myburgh (2004) finds a positive correlation between emigration from South Africa to the United States, the United Kingdom, Australia and New Zealand and the gap in average annual wages between origin and destination countries, from 1987-99. Nevertheless, barriers to immigration make it difficult to estimate the relationship between income differentials and the (unconstrained) supply of emigrants. This issue is overcome through surveys like, Majuba (2005), in his study of finding out reasons why Nigerians were migrating he found out that economic factors accounted for 80% and 18% accounted for education of the total pull factors. In Wentzel and Bosman (2001) investigation of the cross-border pull factors for the Zimbabweans and Mozambicans to South Africa, revealed that macroeconomic variables were significant They found out that South Africa granted the emigrants fair prospects of employment, relative better wages and the South African currency was more stable than for the two nations. Wouterse and Van Berg (2004) study of the factors influencing Burkinabes to migrate found out that better wages and surety of employment opportunities often compelled the country's poor to cross borders. On the other hand, oversee countries are a preserve of the wealthy who have the desire to accumulate more wealth.

2.3.2 GDP per Capita

Jennissen (2003), in delving the economic determinants of net migration in western Europe for the time period spanning from 1960-1998 and by taking GDP per capita, unemployment and average education level as the explanatory variable found out that GDP per capita had

positive correlation while unemployment had negative effect on individual country net migration.

Investigating the macroeconomic determinants of increased Mexican emigrants to the US, Mendoza (2006), by using a cross sectional database at the regional level to weight a least square regression did find that GDP per capita had a negative effect while unemployment rates and permanent migrant stocks showed positive effect on migration growth rates.

A study conducted by Cuaresma, et al (2013), to evaluate the determinants of global bilateral human mobility through the use of a gravity model for external migration revealed that the model was able to be explained by GDP differentials, distance and bilateral population.

Mayda, (2010) estimated the determinants of bilateral flows of international migration for OECD countries by taking time period 1980 to 1995. The results of panel data regression were due to pull factors income of destination countries will improve which will cause increase in emigration and due to push factors, level of per worker GDP will decline.

Ivan (2008) investigated the macroeconomic determinants of interregional migration in Italy during the period 1996-2002. The study found that per capita GDP acts as both a strong push and pull factor. Unemployment rates appear to be an important determinant as well.

Cebula (2005) investigated the impact of economic and non-economic factors on gross state in-migration during the 1999 to 2002 period. The empirical estimates indicate that gross state in migration was an increasing function of per capita income and a decreasing function of the average cost of living. However, the interstate unemployment rate differentials according to results did not influence gross migration.

Carlos (2002) explored the roles of population, average earnings and employment rates in the sending and host countries on international migration. The empirical analysis examines international migration from the Philippines to 26 non-Middle Eastern countries in the period

1981-1995, by using fixed effects panel data regression method to determine the impact of the economic variables in the sending and host countries. According to the study's findings, the population growth in the Philippines has raised the probability of migration, while average domestic earnings have reduced it.

2.3.3 Exchange Rates and Inflation Rate

Ahmed et al. (2008), in investigating the macroeconomic determinants of international migration, he took a time series data of 1973-2005 and used inflation rate, real remittances, real wage rate and unemployment rate as the explanatory variables. He found out that all except real wage rate had positive relationship with migrant workers. Another study by Karemera et al, (2000) between USA and Canada found out that Migration flows was sensitive to inflation rates in the host countries, however no such study has been conducted in the context of Uganda.

Ullah (2012) was first to use this variable and showed that depreciation of local currency results in higher streams of income from remittances, which in fact causes higher rates of emigration.

Could an increase in average wages in destination countries pass through relative prices of non-traded goods and in turn affect real exchange rate movements? While studies show that the elasticity of domestic wages to real exchange rate ranges from .15 to .40 depending on the level of barriers to labor mobility Mishra and Spilimbergo (2011), little is known on the reverse causality of this channel and this seeks to shed more light on this relationship.

In another study conducted by Bandyopadhyay, D., & Binning, A. (2016), they found out that the real exchange rate is linked to migration through the interaction of the goods and labour markets in a small open economy. However, this has been refuted on grounds that some goods are never traded in markets involving exchange of currencies.

Dungan et al. (2012) employ a macro-econometric forecasting model to simulate the effect of a hypothetical increase in immigration on the Canadian economy simulations suggest a positive impact of immigration on a number of variables including gross domestic product (GDP), aggregate demand, investment, productivity, government expenditures, taxes and net government balances. The results with regard to the exchange rate however, are mixed. They argue that remittance outflows partially offset the appreciation caused by the funds brought into Canada. There is also a literature which also shows that remittance inflows lead to an exchange rate appreciation (Lopez et al., 2007, Acosta et al., 2009, Caceras and Saca, 2006) and attracts more nationals to immigrate to other countries. Barajas et al. (2010) on the contrary show that evidence of an exchange rate appreciation in response to increased remittance flows and emigration rates is in general quantitatively small.

The literature on exchange rates therefore, suggests that different types of capital flows by emigrants have different effects on the exchange rate. In contrast to existing studies, their study thought add literature by examining if the money brought into a host country, namely Canada, by immigrants, affects the exchange rate.

2.3.4 Real Remittances flow and Emigration

The economic importance of international migrants has been demonstrated by international remittances that are sent to families in the migrant's home countries. Official international remittances in 2004, stood at $ 75 billion per year and are about as twice as large as the level of official aid-related inflows to developing countries (World Bank, 2004). Literature showing the link between Real Remittances flows and migration is still scanty in the region

2.4 Other Determinants of Emigration

Apart from the macroeconomic factors other factors have been found to influence the stock of migrants as in the case of Beyene (2011), found that for international migration wealth and networks factors were found to be positive pull factors. The study aimed at estimating factors influencing internal and international migration to rural and other urban areas in Ethiopia.

There are also a number of literary works that assess the non-economic determinants to emigration and they often indicate that they dominate the economic factors.

Bach (2003), in his investigation on the determinants of increased emigration of South African nurses to Britain found out that nurses' associations and diaspora networks in the receiving countries were the key pull factors. Tsegai and Plotnikova (2004) delve that increased emigration of Ghanaians is enhanced through better education, in other words, the more educated an individual is the greater the prospect of migrating.

Beine and Parsons (2002), by incorporating climatic factors to evaluate determinants of international migration they used panel data for 226 sending and receiving countries for a time span from 1960-2000. They noted that short run factors as evidenced by natural disasters and varying climatic conditions as manifested by unstable temperatures and rainfall, accelerated movement of people from rain-fed agricultural areas to developing countries.

By using the gravity model to investigate panel data of migration from Bangladesh to 23 receiving countries for a duration between1995-2009, Ullah (2012), found out that cultural factors, social demographic and economic factors had a positive effect on the decision to migrate to the other destinations.

Tabassum (2014), in estimating the determinants of emigration, by administering questionnaires for 465 random households of Pakistan found out that environmental factors had an influence on migration majorly for the areas relying on agriculture for livelihood.

2.5 Emerging Issues from the Literature Review

Overall, empirical review for this research provides back ground information of the economic determinants of migration in general and concentrates on the macroeconomic determinants of emigration from one country to another. There is ample evidence of comprehensive account of economic determinants of emigration in developed countries and a few of the African ones, but less, scanty and limited literature on the macroeconomic determinants of emigration from Uganda signifying the requirement for further research.

This study therefore seeks to contribute on existing literature in following ways. First, this study investigated the relationship between emigration, GDP per capita, inflation and bilateral exchange rates. Before this, there is not a single study in Uganda that has checked the impact of GDP per capita, inflation and bilateral exchange rates on emigration collectively. Second, this study differentiated the long run and short run relationship between the variables under study using both static and dynamic panel data model using the Gravity Model analysis. Finally, robustness of results was examined by using dynamic panel estimator and compared with the results of GLS, OLS. This has not been done in most studies reviewed above.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Chapter three provides a detailed description of the conceptual frameworks, models, methods and data sources that the study used to answer the stated objectives. The first model gives a theoretical description of the gravity model and migration. This is followed by a conceptual framework that details the description of the model used to investigate the macroeconomic determinants that influence emigration from Uganda. The final conceptual framework is the log linearized model that estimated the macroeconomic factors of emigration from Uganda.

3.1 Gravity Model Foundations on Migration

The idea of applying a physics law to population movement between two locations was first formally advocated for by John Q. Stewart who established the 'social physics' school of thought (Stewart, 1950). However, the gravity-like properties of internal migration flows had already been confirmed much earlier by Ravenstein (1885, 1889). There is of course no reason to expect that spatial interaction operates *exactly* as the gravity law of physics would dictate and Zipf (1946), already established that for US intercity movement of persons the flows were inversely related to distance and *not* to distance squared.

Drawing on the success of the gravity model to explain international trade developed by Tinbergen (1962), Ravenstein, (1885;1889), Isard, (1960), Borjas (1989; 1993). According to Blij H, (1987), the gravity model is a flow model capable of evaluating the migration policies, factors and reasons of sending and receiving countries[4].

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[4] Early detailed account, derivation and application of Gravity Model Equation to study the context of migration in developed economies (USA) is by Isard. W (1960), chapter 11.

3.2 Data Sources

The data used in this study was drawn from different sources and compiled to suit the analysis. Data on Number of Emigrants[5] from Uganda was extracted from Uganda Bureau of Statistics (UBOS) migration tables for period of 8 years (2010 – 2017). In this respect, 48 major destination countries of emigrants from Uganda were considered. Also, according to IOM, (2013) these countries were major destinations of Uganda's emigrants. These countries were further categorized into the trading blocs/regions of EAC, COMESA, EU, ASIA and the rest of the world to facilitate analysis of migration effect between trading blocs or regions of the world and the effect of globalization and trade on migration.

Data for distances was extracted from the distance calculator website[6]. The distance is defined as direct distance from Kampala to the capital city of the destination country without taking into consideration the actual routes by either form of transport (*"as the crow flies"*).

Data for macroeconomic variables used in the study, that's GDP, GDP per capita, bilateral exchange rate, rear interest rate, rear effective exchange rate, inflation, unemployment rate, and population data for Uganda and the major destination countries were taken from the World Bank Development Indicators for the forty-eight countries considered in the study.

The data on whether, a country is land-locked or not, is an island or not, borders Uganda or not and has the same official language or not was extracted from the Centre d'Etudes

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[5] Data on number of emigrants' flows is taken in absolute values and not net emigration. Note that, if there are large differences with respect to out-migration behaviour for the different emigrant groups, the net migration flows may be very different from the gross flows. Unfortunately, I am not able to distinguish whether emigrants are job- or study – related people, tied movers in relation to family reunion or refugees and asylum seekers.

[6] *http://www.timeanddate.com/worldclock/distanceresult.html?p1=115&p2=17* *(accessed on: 02/02/2019)*

Prospectivesetd' Informations Internationales (CEPII) gravity dataset[7]. The trading blocs and regions are constructed from existing information on Regional Trade Areas from the World Trade Organization.

3.3 Description of Variables and Data Analysis

The dependent variable is number of emigrants leaving Uganda and independent variables are; population, bilateral exchange rates, inflation rates, unemployment rates, GDP per capita, distance between Uganda and destination countries and the variable of GAP_{ijt}– Relative difference in GDP per capita between destination and the origin at time, t, was computed from GDP per capita of each destination with respect to Uganda. This variable has not been empirically tested by most studies reviewed in literature review section above. The data was coded and analyzed using Stata version 15.

Due to anticipated reverse causality, the lagged number of emigrants' variable in the model of macroeconomic determinants of emigration from Uganda was introduced among explanatory variables. The endogeneity along with heterogeneity arising from country specific effects underlying the traditional economic reasons of migration renders the empirical analysis unsuitable for Ordinary least Squares (OLS).

Other than the dummy variables capturing the country specific effects, the rest of the variables used in the study were taken in natural logarithms. The natural logarithms transformations enable the regression to yield elasticities that are interpreted as percentage changes (Karagoz, 2009). The linearized variables also help to reduce skewness and kurtosis among variables. Goodness of fit was determined by observing the chi square and the level of explanatory power of each empirical model determined by the Adjusted R Squared ($\mathbf{R}^2_{adj}$).

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[7] CEPII make available a "square" gravity dataset for all world pairs of countries, for the period 1948 to 2006. This dataset was generated by Head et al. (2010).

All variables were subjected to unit root tests, serial correlation and co-integration with in panels.

3.4 Theoretical Frame work and Analytical Methods

This study uses the concept of immigrant market and Borja's gravitational behaviour to examine the macroeconomic determinants of emigration from Uganda. The study adopts the theoretical frame work as used by Karemera et al; (2000), (Karemera et al; (2000), Lewer and Van den Berg, (2008)) to model the context of migration patterns.

Economic theory suggests that individuals behave in ways that maximize their well-being. Potential migrants compare all feasible alternatives and choose a country which provides the best opportunities. Migrant flow to a chosen country depends on a set of factors relevant to the source, destination country and characteristics of the migrants themselves

The supply and demand for migrants can be linked systematically to the size of respective countries' populations, the size of national income or per capita income (Wadycki, 1973; Greenwood, 1975; Schultz, 1982; Borjas, 1987, 1989)

Denoting the *origin country i* and *destination country j*, the migrant flow from *i to j* will depend on potential supply factors, S_i. These factors are a function of income *y,* which represents the capacity to migrant, population *n,* and endowments.

Therefore, $S_i = b_o \, yj^{\,b1} \, ni^{\,b2}$

Potential Demand factors D_j are likewise a function of income and population, representing the pull factors in the receiving country.

Thus, $D_j = c_o \, yj^{\,c1} \, ni^{\,c2}$

The exponents in the equations above and below represent the migration elasticities.

Combining $S_{i \text{ and}}$ D_j, yields a migrant flow equation as;

$$F_{ij} = \frac{a_o \, Si^{a1} \, Dj^{a2}}{Rij^{a3}} \quad i = 1, \ldots, N_1, \, j = 1, \ldots, N_2 \quad\quad\quad \textbf{(1)}$$

Where Rij represents factors aiding or restraining migrant flows from i to j, such as distance as a proxy of transport costs. $\mathbf{a_0}$ is the gravitational constant and $Dist$.is migration distance in kilometers, $\mathbf{a_{1,2,3}}$, show the variables' specific coefficient.

The multiplicative term $S_i D_j$, is similar to Forber and Verdoorn (1962). This implies a constant elasticity of the size of migrant flows with respect to supply and demand factors rather than a constant propensity. Taking logs both sides of equation 1 and replacing the terms by their equivalents, yields the basic migration model as:

$$\boldsymbol{mij} = \alpha o_+ \alpha 1 ni + \alpha 2 nj + \alpha 3 yi + \alpha 4 yj + \alpha 5 cij + z(.), \quad i = 1, \ldots, N_1, \quad j = 1, \ldots, N_2$$

(2)

where $\boldsymbol{mij}$ is the migration flow between countries i and j; $ni(nj)$ is the population of origin country i (destination country, j); and $yi(yj)$ is the income of origin i (destination country, j) ; cij represent distance between two countries and z(.) is the error term. The $\alpha's$ are the estimable parameters. The term z(.) is described by Schultz (1982) as a function of additional attributes of the sending county, i and receiving country, j, including all factors facilitating/ restraining movement between two countries.

Equation 2, in its simplest form, where z(.) is just an error function, is the gravity model of migration proposed by Sjaastad (1982), Neiladeorn and Becheolt (1969), Greenwood (1975) and Borjas (1987, 1989). A migration flow from country, i to country, j is a negative (positive) function of income in home (host) country, a negative (positive) function of population size of the host (home) country, a negative (positive) function of the monetary and psychic costs of moving to the host country.

To empirically estimate Equation 2 in its most general form, arguments of z(.) have to be identified. Greenwood (1975, pp389-399) and Borjas (1989, p461) describe possible arguments of the function. They focused on indicators of domestic economic activities such as price inflation, unemployment rates, rear interest rates, rear effective exchange rates among others.

Equation 1 can further be modified to include the macroeconomic factors under consideration that may affect migration from country *i (Uganda)* to *j (destination country)* as can be provided in the extended version of Lowry (1966) gravity model as shown in equation 3 below**;**

$$\mathrm{m}_{ij} = \frac{\beta o \, Xi^{\beta 1} \, Xj^{\beta 2}}{Distij^{\beta 3}} \, (Zij)^{\beta 4} \qquad \qquad \textbf{(3)}$$

Zij represents the macroeconomic pull and push factors like inflation, exchange rate, unemployment rate and interest rate for the destination countries and other bilateral factors.

For this study *i* is Uganda and *j* are the emigrant recipient countries, β_0 is the gravitational constant and *Dist*.is migration distance in kilometers, $\beta_{1, 2, 3}$, 4 show the variables' specific coefficient.

For proper analysis of emigration flows and to empirically test model (3), panel data techniques were used. Panel data analysis techniques combine time series and cross-section observations of migration flows. This is because the analysis of a single cross -section would not be able to separate cross country migration effects from time effects. Application of the modified model to panel greatly improves efficiency of the results (Hsiao, 1986). Thus, the econometric model (3) parametrizes and models emigration behaviour over time and across countries. Equation 3 in time series and cross – section form is specified as follows;

$$Mijt = Zijt \, B + Uij + \gamma t + Vijt \hspace{3cm} \textbf{(4)}$$

Where $Mijt$ is the migration observation from i $(i = 1,…, N_1,)$ to j $(j = 1,…, N_2)$ at time t $(t = 1, 2,…,T)$; $Zijt$ is the corresponding matrix of migrant flow macroeconomic determinant vectors; Uij is the migrant flow effect associated with the pair i and j; γt is the time specific to a particular **year**; and $Vijt$ is an error term. Equation 4 is a typical time- series cross – section model and it has an advantage of allowing for individual and time effects for each country pair.

3.4.1 Macroeconomic Determinants of Emigration from Uganda

Empirical analysis was conducted using the modified gravity equation 4, and all variables were log-linearized.

This yields equation 5 below as an extended model of emigrants from Uganda to other countries.

Hence the model specification was run as below;

$lnEmig_{ij,t}$ $=$ $\beta0$ $+ \beta1lnGdp_{i,t}$ $+$ $\beta2lnGdp_{j,t}$ $+$ $\beta3lnGdp\_pc_{i,t}$ $+$ $\beta4lnGdp\_pc_{j,t}$ $+$ $\beta5lnInfln_{i,t}$ $+$ $\beta6lnInfln_{j,t}$ $+$ $\beta7lnUnempl_{i,t}$ $+$ $\beta8lnUnempl_{j,t}$ $+$ $\beta9lnBil\_ExchRate_{ij,t}$ $+$ $\beta10lnBil\_Remit_{ij,t}$ $+$ $\beta11lnREER_{i,t}$ $+$ $\beta12lnREER_{j,t}$ $+$ $\beta13lnGAP_{ij,t}$ $+$ $\beta14lnDist_{ij,t}$ $+$ $\beta15Comlang_{ij,t+}\beta16lnPop_{i,t+}$ $\beta17lnPop_{j,t+}\beta18Colony_{ij,t+}\beta19(EAC)_{ij,+}$ $\beta20(COMESA)_{ij,+}$ $\beta21(SADC)_{ij,+}$ $\beta22(EU)_{ij,+}$ $\beta23(ASIA)_{ij,+}\beta24(ROW)ij + \varepsilon_{ij,t}$ $\hspace{2cm}$ **(5)**

where

- $lnEmig_{ij,\,t}$ is the total number of emigrants from Uganda i (source) to the destination country j (host) in year t.

- $lnGdp_{i,\,t}$ is the GDP of the origin country i(Uganda) expressed as a constant 2010 US Dollars

- *lnGdp$_{j,\,t}$* is the GDP of the destination country j expressed as a constant 2010 US Dollars

- *lnGdp_pc$_{i,\,t}$* is the domestic real per capita GDP for origin country (Uganda) in year t in billions of US Dollars obtained by dividing the real GDP by population standardized in billions of people.

- *lnGdp_pc$_{j,t}$* is the domestic real per capita GDP for destination country in year t in billions of US Dollars obtained by dividing the real GDP by population standardized in billions of people.

- *lnInfln$_{i,\,t}$* and *lnInfln$_{j,\,t}$* is inflation rate calculated as annual percentage change in the Consumer Price Index (CPI) for origin and destination country at time, t.

- *lnUnempl$_{i,\,t}$* is the rate of unemployed people in the source country i(Uganda) for the working age (15-49) years to the total working population at time t

- *lnUnempl$_{j,\,t}$* is the rate of unemployed people in the destination country (j) for the working age (15-49) years to the total working population at time t

- *lnBil_ExchRate$_{ij,\,t}$* is the inter country exchange rate for each one (1) unit of their currency in year t.

- *lnBil_Remit$_{ij,\,t}$* is total remittances from host country(j) to origin country(i) (Uganda) in year t in billions of US Dollars

- *lnREER$_{i,t}$* is the rear effective exchange rate for origin country i(Uganda) in year t

- *lnREER$_{j,t}$* is the rear effective exchange rate for destination country (j) in year t

- *lnGAP$_{ij,\,t}$* is the ratio of GDP per capita of the emigrant source country and destination country at time, t. It is obtained by dividing the *Gdp_pc$_{i,\,t,}$* by *Gdp_pc$_{j,\,t,}$* for period t, under consideration. *lnGAP$_{ij,\,t}$* is also referred to as relative difference in GDP per capita between destination and the origin at time, t, was computed from GDP per capita of each destination with respect to Uganda

- *lnDist$_{ij, t}$* is the distance between the capital cities of each pair of countries. That's distance between capital city of origin i(Uganda) and capital city of destination country (j) at time t.

- *lnPop$_{i, t}$* is the total population of source country in millions of people at time t.

- *lnPop$_{j, t}$* is the total population of destination country in millions of people at time t.

- *Comlang$_{ij, t}$* is the dummy variable for language proficiency and equals 1 if the source and destination country same a common language such English as a medium of communication and equals 0, otherwise.

- *Colony$_{ij, t}$* is the dummy variable for colonial relationship between source country and destination country and equals 1 if the source country is a colony of destination country and equals 0, otherwise.

- *EAC$_{ij}$* is the dummy variable for East African Community Membership between source country and destination country and equals 1 if the destination country share membership with destination country and equals 0, otherwise

- *COMESA$_{ij}$* is the dummy variable for COMESA trading bloc between source country and destination country and equals 1 if the source shares membership to COMESA with the destination country and equals 0, otherwise

- *SADC$_{ij}$* is the dummy variable for SADC trading bloc between source country and destination country and equals 1 if the source country share membership with destination country and equals 0, otherwise.

- *EU$_{ij}$* is the dummy variable for European Trading Bloc between source country and destination country and equals 1 if the source country share membership with destination country and equals 0, otherwise.

- *$ASIA_{ij}$* is the dummy variable for Asia continent between source country and destination country and equals 1 if the destination country is ASIA and equals 0, otherwise

- *ROW_{ij}* is the dummy variable for countries not classified by any of the dummy variables list above[8].

- $\varepsilon_{ij,\,t}$ is the error term

Equation 5 is characterized as a gravity model since it contains the standard gravity variables namely population and distance. The model includes population in its analysis to take into account the migration that occurs mainly because of the increase in the natural growth of the population in a region. The study used *population* as explanatory variable since it requires less parameter restrictions.

A priori expectation would be as follows, *$lnEmig_{ij,\,t}$* is positively linked to size of respective destination countries' populations, the size of national income *$lnGdp_{ij,t}$* and per capita income *$lnGdp\_pc_{ij,t}$* and transportation costs approximated by $\ln(Dist)$ (Wadycki, 1973; Greenwood, 1975; Schultz, 1982; Borjas, 1987, 1989). Economic development measured by (log) GDP per capita in destination and source countries (which are supposed to catch relative income opportunities in the two countries). The hypothesis is that higher (lower) level of economic development in the destination will lead to higher (lower) immigration rates because potential immigrants expect to experience better (worse) income opportunities[9]. The effect of GDP per capita growth in the source country may be non-linear. Earlier studies in developed countries have found an inverted "U" relationship between source country GDP and emigration, see Hatton and Williamson (2002).

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[8] These are Countries in continents of Australia and The Pacific Oceans, and New Zealand itself

[9] The causality may also run the other way around, i.e., more immigration implies increased growth. **Mayda (2004)** analyses whether this type of reverse causality is important and rejects that it is of any significant size.

Effects of domestic economic activities such as inflation rates $lnInfln_{i,\ t}$ $_{and}$ $lnInfln_{j,\ t}$ and unemployment rates $lnUnempl_{i,\ t}$ and $lnUnempl_{j,\ t}$ on migration flows. The hypothesis is that increase in inflation rates in the country of origin i (*Uganda*) is an indication of economic malaise, which could lead to high emigration rates. On the other hand, the higher the rate of inflation in the receiving country j *(destination country)*, the less economically attractive it is to potential immigrants.

The unemployment rate is included to identify the relationship of the relative impact of labour migration unemployment on the size and composition of migrant flows. It is expected that rising unemployment rate in the source or origin country i (Uganda), leads to an increase in emigration, while increasing unemployment rate in the receiving country j (destination country) discourages inflow of migrants.

The language proficiency variable was also used to model the effect of common language and cultural similarity on the size and composition of emigrants from Uganda. Its hypothesized that existence of commonality factors encourage emigration to the country of cultural similarities.

The study grouped countries into trading blocs. These trading blocs are identified by four dummy variables; $EAC_{ij,t}$ (= 1 if destination country is East African Community Member; 0 otherwise); to avoid overlapping membership, Kenya was counted in COMESA trading bloc; $COMESA_{ij,t}$ (= 1 if destination country is a member of COMESA trading bloc; 0 otherwise); $EU_{ij,\ t}$ (=1 if destination country is a member of EU trading bloc; 0 otherwise); $ASIA_{ij,t}$ (=1 if destination country belongs to ASIA continent; 0 otherwise); and $SADC_{ij,t,\ t}$ (=1 if destination country is a member of SADC ; 0 otherwise);

These dummy variables are used to estimate the emigration effect of alternative trading blocs or regions. If the destination country share membership with Uganda, it's hypothesized that

more Ugandan emigrants would desire to stay and work within such country, and thus expected to be positive as compared to countries who don't share a common trading membership. The study expect that the business ties represented by the volume of trade could have (positive) effects on international migration between Uganda and her trading partners. Moreover, trade volume[10] (trading relationship) is often considered as an indicator of globalization. Except dummy variables, all other variables were expressed in logs, so that estimated coefficients represent impact elasticities.

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[10] P.J. Pedersen et al. (2008) used Trade Volume expressed as total Import and export values in nominal US dollar prices to analyze the effect of trading relationship or partnership on international migration in 22 OECD countries.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Hausman Test

To choose between the Fixed Effects (FE) and Random Effects (RE) models, the Hausman[11] test was used. The choice is made by running the Hausman test where the null hypothesis is that the preferred model is RE versus the alternative FE model. It tests whether the unique errors (ui) are correlated with the regressors. Since the *P-value is 0.0742,* we fail to reject the null hypothesis that the preferred model is the Random Effects (RE) against the alternative the Fixed Effects (FE) Model

4.1 Breusch-Pagan LaGrange Multiplier (LM) Tests

The Breusch-Pagan LaGrange Multiplier (LM) was conducted to decide between a RE regression and a simple OLS regression. The null hypothesis says that the variances across entities are zero implying that there is no significant difference across units, that is, no panel effect in which case OLS suffices. The results show a very significant difference (*P-value 0.0000*) in which case the null hypothesis was rejected and concluded that RE is the appropriate model to estimate. There is a strong evidence of the significant difference across the countries and therefore cannot run a simple ordinary least squares (OLS).

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[11] A Hausman test doesn't reject the assumption of zero correlation between explanatory variables and destination country-specific effects. Note that the problem with the hausman command in Stata gives incorrect statistic as it assumes that RE estimator is fully efficient, usually not the case. i.e., as it assumes that the error component (random effect) and the idiosyncratic error component are *iid-an invalid assumption*, if the cluster -robust standard errors for RE estimator differ substantially from the default standard errors. To check for consistent of hausman test results, a panel bootstrap of the Hausman test as proposed by Wooldridge (2002) was used as a robust version of Hausman test. The results are not presented as they are the same as ordinary command in Stata.

4.2 Macroeconomic determinants of emigration from Uganda

Results of the two models estimating macro-economic determinants of emigration from Uganda using Random effects Model, Dynamic RE are as presented in Table 4.3. For both Models of Dynamic RE and static RE, the coefficients of lagged emigrants, GDP, inflation rate carried the expected signs and are highly statistically significant.

Table 4.1: Results for the macroeconomic determinants of emigration from Uganda 2010-2017 (Random, and Dynamic Random Effects)

VARIABLES	Static RE	Standard Errors	Dynamic RE	Standard Errors
Dependent Variable: *lnEmigij*				
lnlaglnEmigij			0.667***	0.097
lnGdpi	43.253**	19.759	88.125***	14.539
lnGdpj	26.329	21.988	2.106	11.005
lnGdp_pci	-157.702***	51.754	-306.777***	50.692
lnGdp_pcj	-25.993	21.962	-1.864	10.994
lnInflni	2.988***	0.874	3.737***	0.953
lnInflnj	-0.429***	0.131	-0.392***	0.136
lnPopj	-26.215	21.939	-2.01	10.973
lnReal_Interesti	0.222	0.957	1.155**	0.451
lnREERi	-0.926	12.139	6.224	6.393
lnREERj	0.809	0.674	0.382	0.562
lnBil_Remitij	0.097	0.083	0.013	0.052
lnBil_ExchRateij	0.2	0.185	0.141	0.094
lnUnemplj	0.109	0.219	0.124	0.122
lnDistij	-0.395	0.295	-0.06	0.179
Colonyij	2.386***	0.860	0.899	0.656
Comlangij	0.075	0.654	-0.129	0.327
EACij	1.721***	1.089	0.585**	0.343
Euij	-0.295	0.897	-0.82	0.533
COMESAij	2.008***	1.046	-0.11***	0.439
SADCij	0.525	0.808	0.062	0.390
AMERICASij	-0.868	0.823	-0.987*	0.548
ASIA	1.767***	0.661	0.054	0.371
ROWij	-0.146	0.472	-0.577**	0.233
Obs	140		120	
Overall	0.4492		0.4188	
Between	0.6294		0.9348	
Within	0.5621		0.8007	

Variables such as distance, GDP per capita and population are known as gravitational demographic variables. The results above show that distance impairs migration flows from Uganda to others destination countries. An increase in the distance between country i (Uganda) and j (destination country) discourages migration. This is because costs, logistics needs increase with distance and thus reduce propensity to emigrate. This result supports the classical theory of spatial equilibrium. (Borjas, 1989; Karemera et, 2000)

The estimated elasticity coefficients on destination country population has the expected sign though not statistically significant in the model. The GDP per capita is used as a proxy for level of economic development and absorption capacity in the destination country. It can also be used as a proxy for stage of development and a pull/push factor for the origin county. The results from both the static and dynamic model have expected signs and are highly statistically significant for Uganda. The elasticities of migrant flow for receiving countries are greater than 1.0 which suggests that emigrants from Uganda are sensitive to the level of development and the absorption capacity of the receiving countries. The negative elasticity coefficient with respect to GDP per capita of Uganda and highly significant. This result implies that sustained economic development of the source countries (Uganda) could lead to a decrease in the number of emigrants to other countries in search of better opportunities. These results co-occur with the reported results of Mendoza, (2006), Cuaresma, et al (2013), Mayda, (2010).

The coefficients on the variables of inflation in both the origin and destination countries have expected signs and are highly statistically significant. The magnitude of the elasticity for the origin and destination countries is also greater than 1.0 indicating that migration flows between a pair of countries considered in the study is sensitive to inflation rates both in the source and destination countries. The positive sign on inflation rates of the source country

(Uganda) is indicative of economic malaise and high costs of travel. These results are similar to those found out in studies like Karemera, et al (2000) and Ahmed, et al (200).

The estimated coefficients on the unemployment rate have the expected sign though not statistically significant and its magnitude is less than 1.0 implying that gross emigration from Uganda is not too sensitive to domestic unemployment rate

The variable of Colonial relationship between source country (Uganda) and destination countries carry the expected sign and is highly statistically significant in the static model. This implies that there is relationship between Uganda emigrants flows to former colonial masters and countries colonized by the same country.

Furthermore, there was no statistical evidence found in support of the notion that English or French language proficiency or cultural similarity has special effects Uganda's emigration patterns during the period present in the study.

To determine the effects of geographical advantage in gross emigration from Uganda to other countries or regions of the world. Region /trading bloc Dummy variables were included in the model. Countries were divided into trading blocs of EAC, EU, ASIA, COMESA, The Americas and Rest of the World. Hence six dummy variables were included in the model. Three out of the six dummy variables are found to be statistically significant. Thus, the estimated results indicate that Uganda emigration flows to other countries or regions varies geographically by continent or origin of destination. These results confer with the Odipo et al (2015) descriptive study results earlier cited.

Specifically, the EAC, COMESA and ASIA dummy variables are highly statistically significant and their magnitude is greater than 1.0 in the static model. This is in support of the notion that Ugandan citizens emigrate to mainly within East African region, the COMESA Region or trading bloc and currently to Asian countries in search of greener pastures.

The coefficient on the lagged emigrants[12] (0.667) implied that a percent increase in the number of emigrants leaving Uganda in the previous year caused an increase in emigrants flow in the current years of approximately 0.7 percent all other factors held constant. This has high signals on the migration patterns of Ugandans to other countries. This can be partly attributed to the networks created abroad by already emigrated citizens into the destination countries, thus resulting into an increased stock of emigrants abroad.

4.3 Conclusion

It therefore be concluded that the specified and estimated models adequately explained emigrants' macroeconomic determinates and thus the study rejects null hypothesis that GDP per capita and Inflation rate as proxied by consumer price index have no significant impact on emigration from Uganda.

The study however, find no evidence that bilateral exchange rate and real interest rate between Uganda and destination countries influence emigration from Uganda. Though these variables (Bilateral exchange rate and real interest rate) have expected theoretical signs but only real interest rate is statistically significant at any 5% in the dynamic model.

Overall, the study retained the conventional features of gravity equation. It found out that GDP per capita, GDP as a proxy of economic growth and inflation rate are important macroeconomic factors which explain emigration from Uganda. GDP per capita and GDP of origin country (Uganda) are found to be the most significant determinants of emigration flows from Uganda in the period considered under the study.

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[12] Other Studies like P.J. Pedersen et al. (2008), Zavodny (1997) used lagged immigrant's explanatory variable in studying immigration into 22 OECD countries to estimate the effects of networks on migrant flows. They found out that the migrant network effect is less significant for Nordic countries.

The gravity model theoretical framework used in the study provides results similar to Wadycki (1973) and Borjas (1989), Karemera et (2000) However, distance between countries is not significant in any of the models estimated, though had the expected theoretical sign. This can be attributed to significant reduction travel costs and existence of social networks in diaspora as posited by Vertovec (2003), also the emergence of institutions facilitating movement of Ugandans to other countries for employment, also could explain why distance is no longer a factor hindering emigration to destination countries.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study aimed to examine the macroeconomic determinants of emigration from Uganda. Specifically, the study considered forty-eight countries that are major destinations of Ugandan citizens in the world. The study established the macroeconomic factors influencing increased emigration from Uganda in the present period considered in the study. Results show that GDP per capita (*lnGDP_pci*), lagged emigrants from Uganda to other countries (*lnlaglnEmigij*), inflation rate (*lnInfni*) in the source country *i*, inflation rate *(lnInflanj)* in the destination country *j*, GDP in the source country (*lnGdpi*) are the major factors influencing emigration from Uganda.

GDP per capita (*lnGDP_pci*) and inflation rate (*lnInfni*) of the source affected propensity to emigrate positively, GDP in the source country(*lnGdpi*) ,lagged emigrants from Uganda to other countries (*lnlaglnEmigij*), inflation rate (*lnInfni*) in the source country *i*, inflation rate *(lnInflanj)* in the destination country *j*, are highly likely to influence emigration from Uganda to other countries, while domestic real interest rate and distance between countries have no significant effect on propensity to emigrate from Uganda.

Other gravity model equation variables such as geographical proximity (being in the same trading bloc/ or region of world as proxied by Dummy variables) and shared colonial relationship also increase the propensity to emigrant from Uganda.

5.2 Conclusions

Emigration from Uganda is mainly increased by deteriorating levels of economic growth, high inflation rates in Uganda and former colonial relationship between Uganda and

destination country. On the basis of these findings, it is generally inferred that emigration decisions of Ugandans are more likely to be inclined economic growth and level of development of a destination country rather than mere altruism and unemployment rates both in the source (Uganda) and destination country. The fact that emigration rates are dependent on their past rates of emigration means that earnings from abroad (remittances) are also used to finance future migration prospects of Ugandans.

Furthermore, emigrants find it easy to move to countries neighbouring Uganda and countries already having trading relationship with Uganda as demonstrated by positive response of EAC and COMESA trading blocs and recently increasing trading relationship between Uganda and Asia continent. These finding means that governments in East Africa can influence emigration patterns and increase intra-movements between themselves, trade amongst themselves more, increase remittance flows and importantly remove any barriers that may limit free movement of labor.

While the study found out that more Ugandans are moving within the major trading blocs in the region, to reap more from this increased movement, the issues that need to be prioritized are; remove barriers that pertain to acquisition of travel documents; establish bilateral labor relationship with countries where Ugandans are moving to;

5.3 Recommendations

5.3.1 Policy Recommendations

Migration is a decision that impacts the welfare of the household, the home community, and in the end the whole economy in various ways (Azam and Gubert, 2006)

Migration policy makers in Uganda should design strategies to enhance movement within the major trading blocs such as East African Community and COMESA trading bloc, and with emergence of ASIA as a major player in Uganda's economy and trading relations.

Streamlining labor and movements agreements between Uganda and these trading blocs. This can be achieved by improving macro-economic stability particularly managing the rate of inflation.

While emigration has major effect of brain drain and loss of expertise skills in the economy, however, these effects are counter – balanced by the benefits that come with emigrants sending home remittances. emigration has been found to contribute significantly to development through remittances transfer (Massey, 1990; 1995, Ratha, 2005;2009; 2017, Mushomi et al (2017)). Migrant remittances increase domestic savings as well improve financial intermediation. Uganda thus needs to devise a strategy of facilitating the remittances flow through for example reducing the remittances sending charges from host countries and establishing platforms that are non-profit for emigrants to send their remittance back home.

With increased emigration from Uganda, also comes with the human trafficking vice, more efforts should be made to track and fight human trafficking of Ugandans to other countries under uncertain circumstances. This can be done through improving recruitment mechanisms, and facilitating international labor mobility through safe and legal channels across borders through better monitoring of recruitment processes and bilateral coordination will help protect the rights of emigrants and fight exploitation and trafficking.

Also providing knowledge about the migration process and language spoken of the destination country will also enhance integration and quicker adjustment of emigrants into new labor markets.

5.3.2 Further Research

Further research should consider establishing in detail which sub sectors in Uganda has high rates of emigration and benefits or disadvantages that come with it. That is, determining the sectoral impacts of emigration (economy-wide) in Uganda. This will be helpful in

understanding whether emigration has any distributional impacts and the degree of substitutability between international and internal migration in Uganda.

It is further recommended that empirical studies examine whether emigration behaviour of Ugandans is an individual or family decision as well as whether occupational characteristics of individual (such as educational level, age etc.,) has any effect on the decision to emigrate or not.

Research should also look at longitudinal household -level studies to determine the impact of household characteristics on the propensity to emigrate from Uganda. Knowledge on the role of these characteristics will be useful in guiding the policy formulation on migration and emigration in Uganda.

Emigration can have notable implications for domestic institutions and politics. The emigration of capable people may cause loss of governance capacity in countries especially in sectors and institutions that are already weak. Thus, further research is needed to find out whether increased emigration of Ugandans to other countries has any negative (positive) implications on sectors and institutions capacity to operate fully in Uganda.

REFERENCES

Ahmad N, Hussain Z, Sial M H, Hussain I, Akram, W. (2008). Macroeconomic determinants of international migration.

Arango, J. (2000). Explaining migration: a critical view, International Social Science Journal.

Bach, S. (2003). International Migration of Health Workers: Labor and Social Issues', Sectoral.

Basin of Ghana: A Sample Selection Approach, Paper presented at Canadian Economics Association 38th Annual Meetings, June 2009.

Bauer, T., and Zimmerman, F (1999). "Assessment of Possible Migration Pressure and Its Labor.

Beyene B, M. (2011). Determinants of internal and international migration in

Bijak, J. (2006). "Forecasting international migration: selected theories, models and methods",

Blijj, H. (1987) Human Geography; Culture, Society and Space, Wiley and Sons, New York.

Bonin, Holier et al. 2008. "Geographic Mobility in the European Union: Optimising its Economic and Social Benefits". IZA Research Report No. 19. July

Borjas, G. J. (1987). Self-selection and the earnings of immigrants. The American Economic Review, 77(4):531- 553.

Borjas, G. J. (1989). Economic theory and international migration. International Migration Review, 23(3):457-485.

Borjas, G. J. (1994). The economics of immigration. Journal of Economic Literature, 32(4):1667-1717.

Borjas, G. J. and Bratsberg, B. (1996). Who leaves? The outmigration of the foreign-born. The Review of Economics and Statistics, 78(1):165-176.

Borjas, J. G. (1999). The economic analysis of immigration. In: Ashenfelter, Card (Eds) Handbook of Labor Economics, 3, Elsevier, Amsterdam.

Bretell, C and J.F. Hollifield. (2008). Migration Theory. New York: Routledge.

Breusch T.S and Pagan A.R. (1979) A simple test for heteroskedasticity and random coefficients variation, Economtrica, 47, 1287 -94

Burkina Faso.Wageningen University and Research Center, Mansholt Graduate School of Social

Cohen D. & Soto, M. (2001). Growth and Human Capital: good data, good results. OECD

Cuaresma, J.C., Moser M, Raggl A. (2013). On the determinants of global bilateral migration flows. Working Paper No. 5.

Chiswick, B. R. and Hatton, T. J. (2002), "International Migration and the Integration

of Labor Markets," in M. Bordo, A. M. Taylor and J. G. Williamson (eds.), Globalization *in Historical Perspective* (Chicago: University of Chicago Press).

DAI Europe and Euro Trends (2015). Context assessment to prepare the project "Addressing mixed migration flows in Eastern Africa". Brussels: European Commission.

De Haas, H. (2008) 'North-African migration systems: evolution, transformations and development linkages', in S. Castles and R. Delgado Wise (eds.), Migration and Development:

De Haas, H. (2009) Mobility and Human Development, New York: UNDP.

Godfrey. J. (1986) Specification Tests in Econometrics, North Holland Amsterdam

Harris JR and Todaro MP (1970). Migration, unemployment and development: A two sector analysis. The American Economic Review. 60(1):126–142

Hatton, T., Williamson, J.G., 2002. What fundamentals drive world migration? NBER Working Paper No. 9159

Hausman J. A (1979) Specification test in econometrics, Economtrica, 46, 1251-72

Hicks JR (1932). The Theory of Wages. Macmillan. London

Hsiao, C. (1986) Analysis of Panel Data Cambridge University Press, New York.

International Organization for Migration (IOM) (2016). Uganda - IOM Uganda. IOM Nairobi. Retrieved June 2017 from http://ronairobi.iom.int/uganda

IOM (2013). World Migration Report 2013: Migrant Well-Being and Development.

IOM (2017a). World Migration Report 2018. Geneva.

Isard, W. (1960) Methods of Regional Analysis: An Introduction to Regional Science, MIT Press, Cambridge, MA

Jennissen, R. (2003). Economic determinants of net international migration in Western Europe.

Karemera, D., Oguledo, V.I., Davis, B. (2000) a Gravity Model Analysis of International

Kuznets S (1973). Modern economic growth: Findings and reflections. The American Economic Review. 63(3):247 258.

Lewer J.J. and Berg, H. Van den (2008) A Gravity Model of Immigration, Economic Letters,

Lewis WA (1954). Economic development with unlimited supplies of labour. The

Lowry, I. (1966), Migration and metropolitan growth: two analytical models. San Francisco:

Mabogunje, A. L. (1970). Systems approach to a theory of rural–urban migration, Geographical

Manchester School. 22(2):139–191

Massey, D. S., G. Hugo, A. Kouaouci, A. Pellegrino, and J. E. Taylor. (1993). Theories of International Migration: A Review and Appraisal. Population and Development in Review 19: 431–66.

Mayda A M (2010). International migration: A panel data analysis of the determinants of bilateral flows. Journal of Population Economics. 23(4): 1249-1274.

Mendoza, J. E. (2006). Determinants of macroeconomics regionals de la

Mendoza, J. E. (2006). Regional macroeconomic determinants of Mexican Migration Mexicana. Migrations Internationals, 3(4):118-145.migration. MPRAPaper2860, University Library of Mora, Jorge and J. Edward Taylor. (2006). Determinants of Migration, Destination, and Sector

Mulumba, D., & Olema, W. M. (2009). Policy analysis report: Mapping migration in Uganda. ACP-EU Cooperation.

Mulumba, Deborah, and Wendo Mlahagwa Olema. 2009. "Policy Analysis Report: Mapping Migration in Uganda." Project report for IMMIS – African migration and gender in global context: Implementing migration studies. Kampala: Makerere University

Mwajuba, C. (2005). "International Migration and Livelihoods in Southeastern Nigeria." Global Pacific Population Journal, 12, 1, 3-16.

P.J. Pedersen et al. (2008). Selection and network effects – migration flows into OECD Countries 1990 – 2000, European Economic Review 52 (2008) 1160–1186

Ratha, D. et al. (2011). Leveraging Migration for Africa: Remittances, Skills and Investments, Africa Migration Project. World Bank. Washington DC.

Ravenstein, E. G. (1985). The laws of migration part 1. Journal of the Royal

Ravenstein, E. G. (1989). The laws of migration part 2. Journal of the Royal

Republic of Uganda (2017). Diaspora Services Overview. Retrieved July 2017 from *http://www.mofa.go.ug/data/smenu/16/Overview%20and%20Mandate.html*

Sassen, S. (1988). The Mobility of Labor and Capital: A Study in International Investment and Labor Flow, Cambridge: Cambridge University Press.

Skeledon, R. (2002). Rural-to-urban migration and its implications for poverty alleviation, Asia-

Smith, D. (2007). ―Migrants ease the Inflation Pressure. The Sunday Times, October 28.

Stark, O. (1991). The Migration of Labor, Cambridge and Oxford: Blackwell.

Stark, O., and Taylor, J.E. (1991). Migration Incentives, Migration Types: The Role of Relative

Studies, Budapest: Central European University.

Tabassum, I (2014). Determinants of migration and its role in environmental restoration in dry areas of Pakistan: Example from Karak District. PUTAJ – Humanities and Social Sciences. 21(1):7380.

Taylor, J. E. (1993). Theories of international migration: A review and appraisal. Population and Development Review, 19(3):431-466

Taylor, J. E. (1999). The new economics of labour migration and the role of remittances in the

Thomas Antwi Bosiakoh, Nigerian Immigrant Entrepreneurs in Contemporary Ghana: Insights on Locational/Sectoral Niches and Inter-Generational (Dis) Continuities, Urban Forum, 28, 2, (143), (2017).

Todaro, M. and Smith P., (2009). Economic Development: 11th Ed', Addison-Wesley-Longman,

Ullah, M. (2012). Determinants of international labour migration from Bangladesh: a gravity unemployment: Empirical evidence and implications for policy. Oxford Economic Papers, 42(4):812-831.

United Nations Department of Economic and Social Affairs (2017a). International migrant stock: The 2017 revision. Available at http://www.un.org/en/development/desa/population/migration/data/estimates2/estimates17.shtml (accessed 6 February 2018)

University of South Africa. Unpublished.

Wadycki, W.J (1973) Stouffers model of migration: comparison of interstate and metropolitan flows, Demography 12.

Wentzel, M., Viljoen, J. and Kok, P., (2006). Contemporary South African migration patterns and

World Bank, (2011) Migration and Remittances Fact Book 2011, 2nd Edition, Washington: USA

Wouterse, F and Van den Berg. (2004). Migration for Survival or Accumulation: Evidence from Bukinafaso.

Zimmermann, F (1994). European migration: push and pull ". Proceedings of the World Bank Annual Conference on Development Economics 1994. World Bank.

Zavodny, M., 1997. Welfare and the locational choices of new immigrants. Economic and Financial Policy Review—Federal Reserve Bank of Dallas, QII, pp. 2–10.

Appendix A: Regression Results

OBJECTIVE 1: RELATIONSHIP BETWEEN GDP PER CAPITA AND EMIGRATION FROM UGANDA

xtpcse lnGdp_pci lnEmigij lnInflni lnInflnj lnDistij, correlation(psar1) rhotype (freg) np1 nmk nocon

Group variable: ID	Number of obs = 353
Time variable: YEAR	Number of groups = 48
Panels: correlated (unbalanced)	Obs per group: min = 3
Autocorrelation: panel-specific AR (1)	avg = 7.354167
Sigma computed by casewise selection	max = 8
Estimated covariances = 1176	R-squared = 0.9987
Estimated autocorrelations = 48	Wald chi2(4) = 2.62e+06
Estimated coefficients = 4	Prob > chi2 = 0.0000

		Panel-corrected				
lnGdp_pci	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
lnEmigij	.0483044	.0105349	4.59	0.000	.0276563	.0689525
lnInflni	.0095911	.0107283	0.89	0.371	-.011436	.0306181
lnInflnj	.0347971	.0075501	4.61	0.000	.0199991	.0495951
lnDistij	.7435857	.0069434	107.09	0.000	.729977	.7571945

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rhos = .9971188 -.0019949 .8665614 .7616506 .9534265 ... .9050128

OBJECTIVE 2: EFFECTS OF EXCHANGE RATE ON THE PROPENSITY TO EMIGRATE FROM UGANDA

xtpcse lnREERj lnEmigij lnGAPij lnREERi lnlaglnREERi, correlation(psar1) rhotype(freg) np1 nmk

Group variable: ID	Number of obs = 335
Time variable: YEAR	Number of groups = 48
Panels: correlated (unbalanced)	Obs per group: min = 6
Autocorrelation: panel-specific AR (1)	avg = 6.979167
Sigma computed by casewise selection	max = 7
Estimated covariances = 1176	R-squared = 0.9927
Estimated autocorrelations = 48	Wald chi2(4) = 6.20
Estimated coefficients = 5	Prob > chi2 = 0.1844

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lnREERj	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf. Interval]	
lnEmigij	.004135	.0038614	1.07	0.284	-.0034332	.0117031
lnGAPij	.0339142	.0165849	2.04	0.041	.0014084	.06642
lnREERi	.1471064	.1137612	1.29	0.196	-.0758614	.3700742
lnlaglnREERi	-.0654299	.1106933	-0.59	0.554	-.2823848	.151525
_cons	4.39466	.7823817	5.62	0.000	2.86122	5.9281

----

rhos =	1 .9766695	.8153785		1 .6494986 ... .9431466

Appendix B

Table B1: List Countries Considered in the Analysis

	Continent/ Region	Countries							
1		Austria	Belgium	Italy	Denmark	Finland	France	Germany	Greece
	EUROPE	Netherlands	Norway	Spain	Sweden	Switzerland	Turkey	UK	Australia
2		Rwanda	Sudan	Burundi	Cameroon	Ethiopia	Kenya	Morocco	South Sudan
	AFRICA	Tanzania	Togo	Tunisia	South Africa	Nigeria	Niger	Egypt	DR Congo
3	ASIA	UAE	China	India	Israel	Japan	Pakistan	Yemen	
4	The Americas	USA	Canada	Mexico	Brazil				
5	Caribbean and Pacific	Jamaica	Dominican Republic	Trinidad and Tobago					
6	ROW	Others							

Table B2: Distribution of Ugandans in the Diaspora (1990-2017)

	Region	1990	1995	2000	2005	2010	2015	2017
1	Africa	238,388	389,990	466,080	457,637	582,334	597,018	597,859
2	Asia (Including China, India and Middle East)	2,063	1,472	881	819	760	733	724
3	Europe (Including Eastern Europe)	54,810	57,648	61,461	63,227	70,147	74,321	78,791
4	Latin America and Caribbean	22	15	10	14	87	104	106
5	Northern America	15,282	18,980	22,963	33,879	46,388	56,662	58,626
6	Australia and New Zealand	925	1,218	1,440	1,910	2,890	3,397	3,561
	TOTALS	*311,490*	*469,323*	*552,835*	*557,486*	*702,606*	*732,235*	*739,667*

Table B3: Distribution of Ugandans in the Africa (1990-2017)

No	Countries	1990	1995	2000	2005	2010	2015	2017
1	Kenya	83,355	237,964	299,871	291,776	326,978	333,789	332,008
2	Tanzania	19,706	15,546	12,286	9,484	6,938	4,857	5,788
3	Botswana	295	411	570	902	1,238	1,645	1,704
4	Burundi	1,833	1,546	949	805	731	891	921
5	DR Congo	18,418	19,780	24,177	30,111	33	6,224	6,637
6	Egypt	91	75	64	76	82	97	81
7	Ethiopia	103	135	192	161	178	218	230
8	Lesotho	185	160	130	132	134	137	140
9	Namibia	712	680	633	500	481	454	445
10	Rwanda	34,106	51,986	79,241	93,430	92,808	92,195	92,521
11	South Africa	4,621	2,882	1,962	2,403	4,161	7,573	8,009
12	South Sudan	..	..	..	..	144,466	145,607	145,799
13	Sudan	74,433	57,771	44,409	26,103	2,079	1,250	1,481
14	Zambia	349	359	370	355	456	473	477
15	Others	181	695	1,226	1,399	1,571	1,608	1,618
	Totals	238,388	389,990	466,080	457,637	582,334	597,018	597,859

Table C1: Table showing summary Variables, Data Sources and Expected a Prior Sign

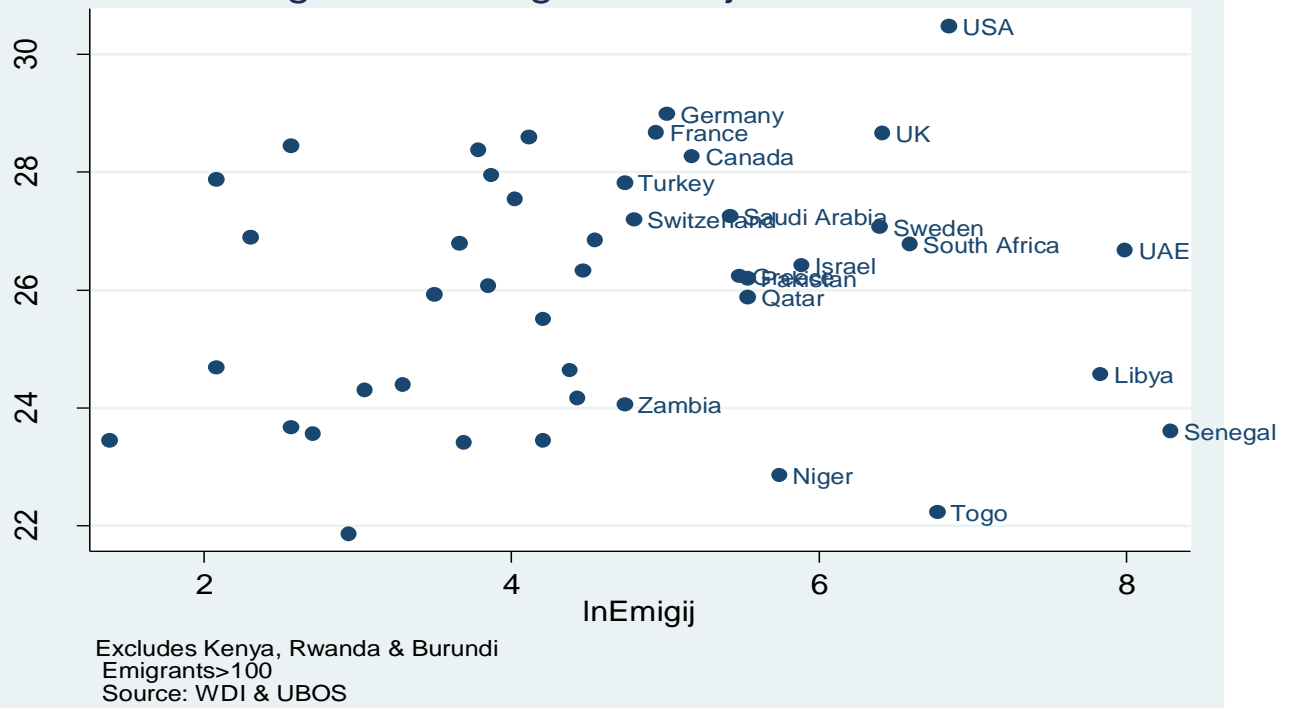| S/No	Variable	Sign-Origin	Sign-Destination	Source of Data
1	Number of Emigrants leaving Uganda			UBOS-Migration Tables, accessed in October, 2019.
1	Unemployment rate	+	-	Global economy.com
2	Inflation rate as a Proxy by CPI	+	-	WDI Indicators
3	GDP Per Capita.	-	+	WDI Indicators.
4	Real Interest rate	-	+	WDI Indicators
5	Remittances sent by emigrants to country of origin	+ or -	+ or -	Bilateral Remittance Matrix – World Bank Group
6	Population	+ or -	+ or -	WDI Indicators
7	Bilateral Exchange Rate	+ or -	+ or -	COMTRADE Database; accessed online in February 2019
8	Weighted Distance between destinations	+ or -	+ or -	Cepii –Distant dataset (http://www.cepii.fr/anglaisgraph/bdd/ distances.htm)
9	Rear Effective Exchange Rate	+ or -	+or -	COMTRADE Database; accessed online in February 2019

Emigratory Rate of Uganda in Relation to GDP per capita
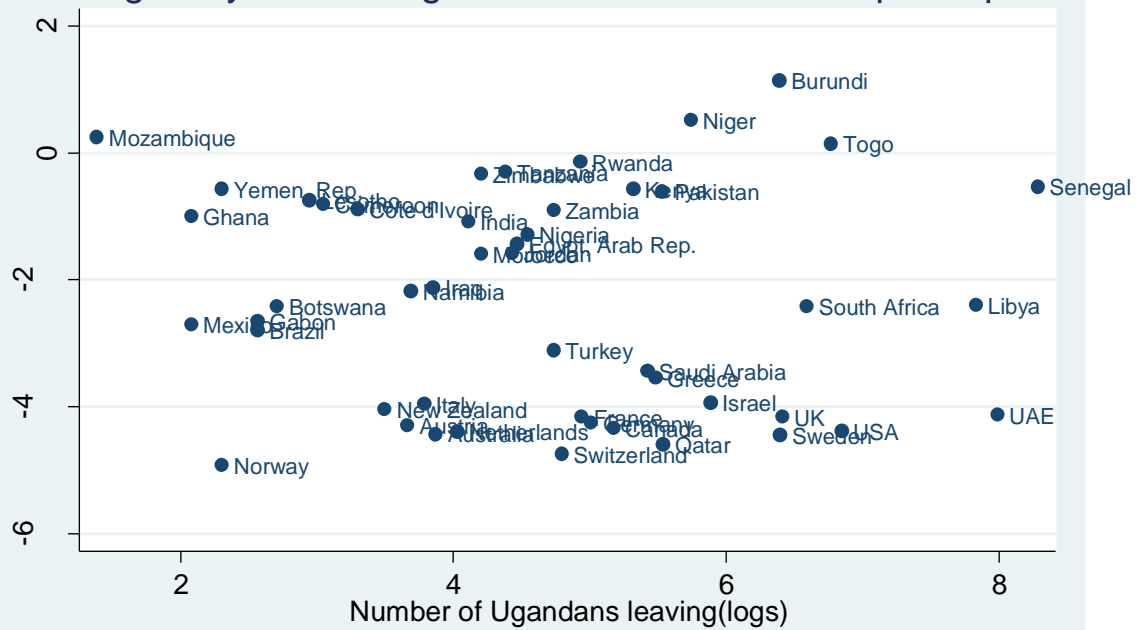
Emigratory Rate
Source: Own elaboration based on data from WDI & UBOS

Uganda's Emigrants Major Destinations

Excludes Kenya, Rwanda & Burundi
Emigrants>100
Source: WDI & UBOS

Uganda's Emigrants Major Destinations

Excludes Kenya, Rwanda & Burundi
Emigrants>100
Source: WDI & UBOS

Uganda's Emigrants Major Destinations

Emigrants>100
Source: WDI & UBOS