

**ECONOMIC IMPACT OF IMMIGRATION IN KENYA**

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**A Research Project Submitted to the School of Economics in Partial Fulfillment of the Requirement for the Award of Degree of Master of Arts in Economics of the University of Nairobi.**

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**DECLARATION**

I hereby declare that this is my original work and that to the best of my knowledge has never been presented for the award of any degree in any other university or institution.

**CANDIDATE: EVERLYNE CHEPKWEMOI CHEROBEN**

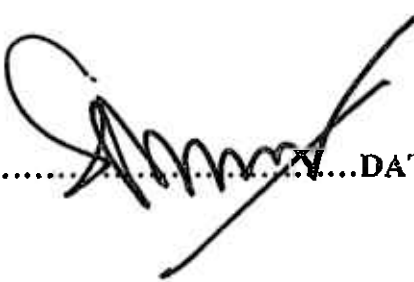
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**APPROVAL**

This MA Research project has been forwarded for examination with my approval as University Supervisor:

**DR. SAMUEL NYANDEMO**

SIGNATURE..........DATE.....*9/01/2017*.....

## **DEDICATION**

This research work is dedicated to my daughter, Victoria Chebet for her constant love and being my pillar of hope. Her inspiration and unconditional love ensured my accomplishing of this work. I appreciate her dearly.

## **ACKNOWLEDGEMENT**

It's my greatest pleasure and humility to thank the following persons for their valuable inputs in my work. First and foremost, Dr. Samuel Nyandemo of UON, thank you very much for your exemplarily guidance, monitoring and positive critics that led to a standard research paper. Your value of the duration of a good research paper taught me patience and determination. Secondly my gratitude goes to the University of Nairobi, School of Economics defense panelist for their professionalism and convivial support that led to the successful completion of my research. Lastly, I thank in a special way Almighty God for the good health and wisdom during the duration I was undertaking the research.

Thank you.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

<b>UNWTO</b>	-	United Nations World Tourism Organization
<b>GDP</b>	-	Gross Domestic Product
<b>ADF</b>	-	Augmented Dickey-Fuller
<b>KNBS</b>	-	Kenya National Bureau of Statistics
<b>OLS</b>	-	Ordinary Least Squares
<b>WTO</b>	-	World Trade Organization
<b>WTTC</b>	-	World Travel and Tourism Council
<b>OECD</b>	-	Organization for economic cooperation and development
<b>VECM</b>	-	Vector Error Correcting Model
<b>FDI</b>	-	Foreign Direct Investment



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## Abstract

This study sort to investigate the impact of immigrants on the economic growth of kenya between 1980 and 2014. Specifically, the study aimed at establishing the causality between immigrants and economic growth as well as the impact of the immigrant influx to Kenyan economic growth. Using time series data analysis such as cointegration, granger causality and OLS regression, the study had the following findings: first, there is no causality between immigrants and economic growth in Kenya under the period of study; second, all variables were found to have a long run causality and lastly, only gross fixed capital formation was found to have a positive and statistical influence on the economic growth of Kenya under the period of study. The study recommends a strict vetting of all immigrants to Kenya to establish the skills and experiences they have to add value to Kenyan economic growth. Equally, the study recommends more allocation of gross fixed capital formation as its impact on economic growth was positive and significant.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background**

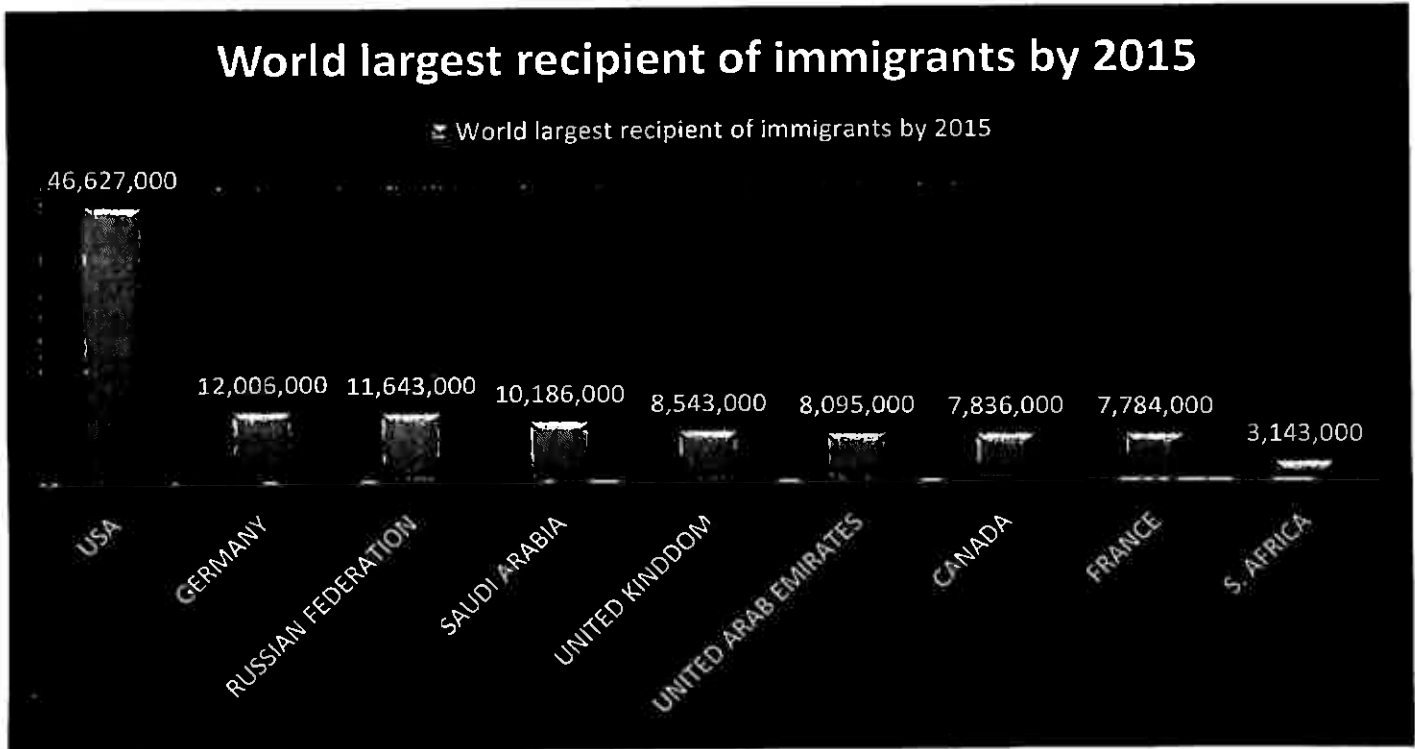
The economic impact of influx of immigrants to a receiving nation as revealed by most empirical studies has remained mixed and confusing. For instance, empirical study by Borjas, (2001) finds a very small impact of immigrants on the labour market of the native workers. But theoretically, competitive labour market forecast a wage decrease from such influx of immigrants provided that such immigrants are not perfect substitute and have both experience and right education to access the labour market (Cortes, 2008).

Large immigrants can strain the natural resources such as water and agricultural land in rural areas resulting to a conflict between the native people and the immigrants in such areas especially if the receiving area is an arid country. If such immigrants occupies urban centers, then the housing values is likely to shoot up as the demand for the same rises resulting to rent increase. Such increase in rent may make land in such areas very expensive leading to high cost of production, that is likely to be covered in the domestic prices of commodities and hence inflation (Cortes and Tessada 2011).

Depending on the educational level and experiences of the immigrants, their economic impact may be realized through the productivity of the native country. For instance, productivity of a native nation may be improved greatly if the majority of the immigrants are super experienced that the native workers if the existing employment policies allows them to work. This is likely to happen if such immigrants have a super technology in production than the native country thus leading to a technological change in the production of the native nation (Marrocu and Paci , 2010).

Some studies have revealed that some native countries such as the USA take large influx of immigrants as a form of developing trade links and international relations. In such, they have a policy such as the lottery green card ran by the USA department of immigration every year that helps them to get immigrants from all over the world (De Arcangelis et al, 2015). Despite the implications that may arise from large influx of immigrants especially on the fiscal part, USA has maintained inflow of immigrants annually. Although most of the immigrant's targets developed countries like the USA and Canada, current statistics have shown a rising demand for developing countries found in Asia and Africa such as South Africa and Kenya. The graph 1 below shows the immigrants by destination country by 2015. From the graph, the USA was the main immigrant destination in 2015 hosting over 46 million immigrants. Germany was a far distant second with south Africa, representing Africa hosting approximately 3 million immigrants (Etzo et al, 2016).

Graph 1: World largest recipient of immigrants by 2015



Source: Author's computation

Statistical figures from the world development indicator (2015) show that migration account for over forty seven percent and 70% of the workforce in USA and Europe alone. With Majority of the young immigrants having better educational requirements that the aged awaiting retirement, in Europe, its impact has greatly contributed positively to the labour market flexibility thus enhancing faster economic growth. However, the same may not apply in developing countries where labour market is flooded like Kenya.

### 1.1.1 Immigrants in Kenya

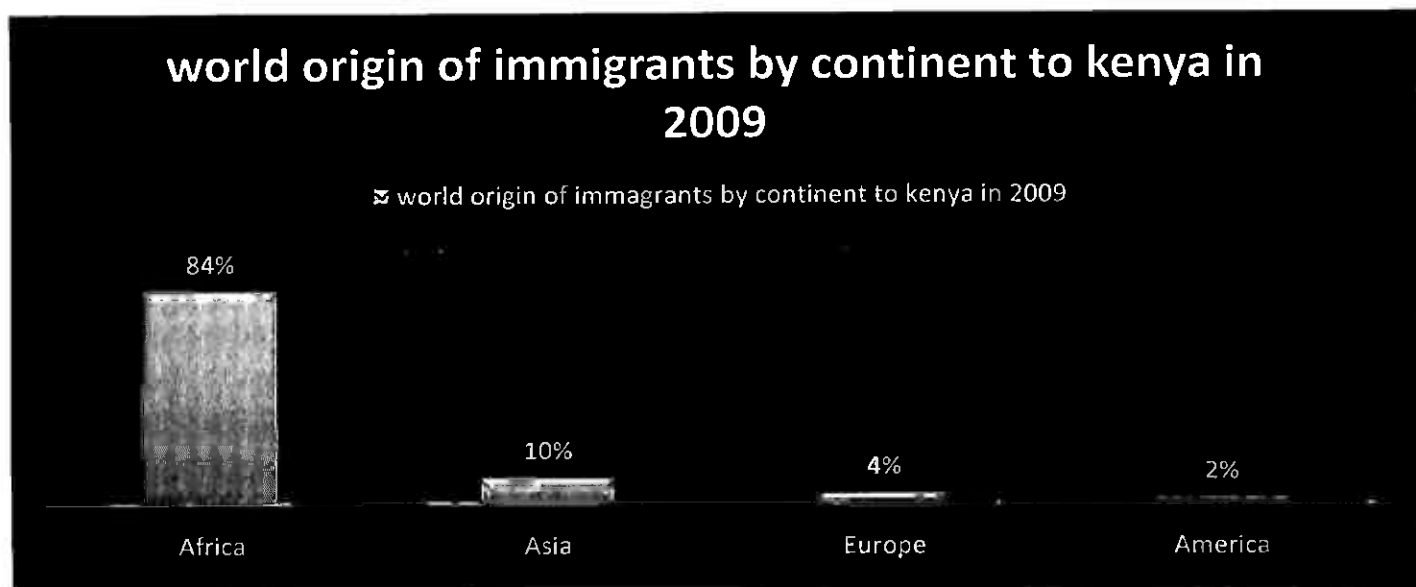
Immigrants to Kenya have been categorized into three broad categories: as Temporary residents, long term residents or as asylums. Temporary residents are those immigrants from the rest of the world who are studying, researching or visitors to the country and will leave the country once

their temporary permit of stay expires. Long term residents on the other hand, may include those immigrants that will stay in the Kenya as long as they want and may include spouses to the Kenyan residents or long time investors in the country. Asylum on the other hand is a person who has seeks protection in Kenya from hostile living environment in his or he home country like the refugees (Falzoni et al, 2011).

There are a number of reasons why the largest economy in Eastern Africa (Kenya) is witnessing an influx of immigrants. One such reason is because of its centrality to the neighbouring countries. Kenya is centrally located to serve landlocked countries such as Uganda, Ethiopia and Southern Sudan (the world's youngest nation). This means that most of the NGO's, united nation agencies and any humanitarian body such as the Red Cross have been located in the country so as to reach its neighbor countries that have faced instabilities for a long period of time. Secondly, Kenya has one of the best educational facilities in the region and thus most neighbouring countries send their children to get better education in the country (Hunt, 2011). For the tourist and those who come for temporary stay, Kenya is well endowed with unique sceneries and unique attraction sites like hosting one of the Seven Wonders of the World at Maasai Mara. Lastly, the country is one of the developed economies within East Africa countries and hence attracts job seekers for its vast industrial sector.

According to Kenya National Bureau of statistics (2011), majority of the immigrants to Kenya (84%) were mainly from African countries while the least were from America (2%) as shown the graph 2 below.

**Graph 2: World origin of immigrants by continent to Kenya in 2009**

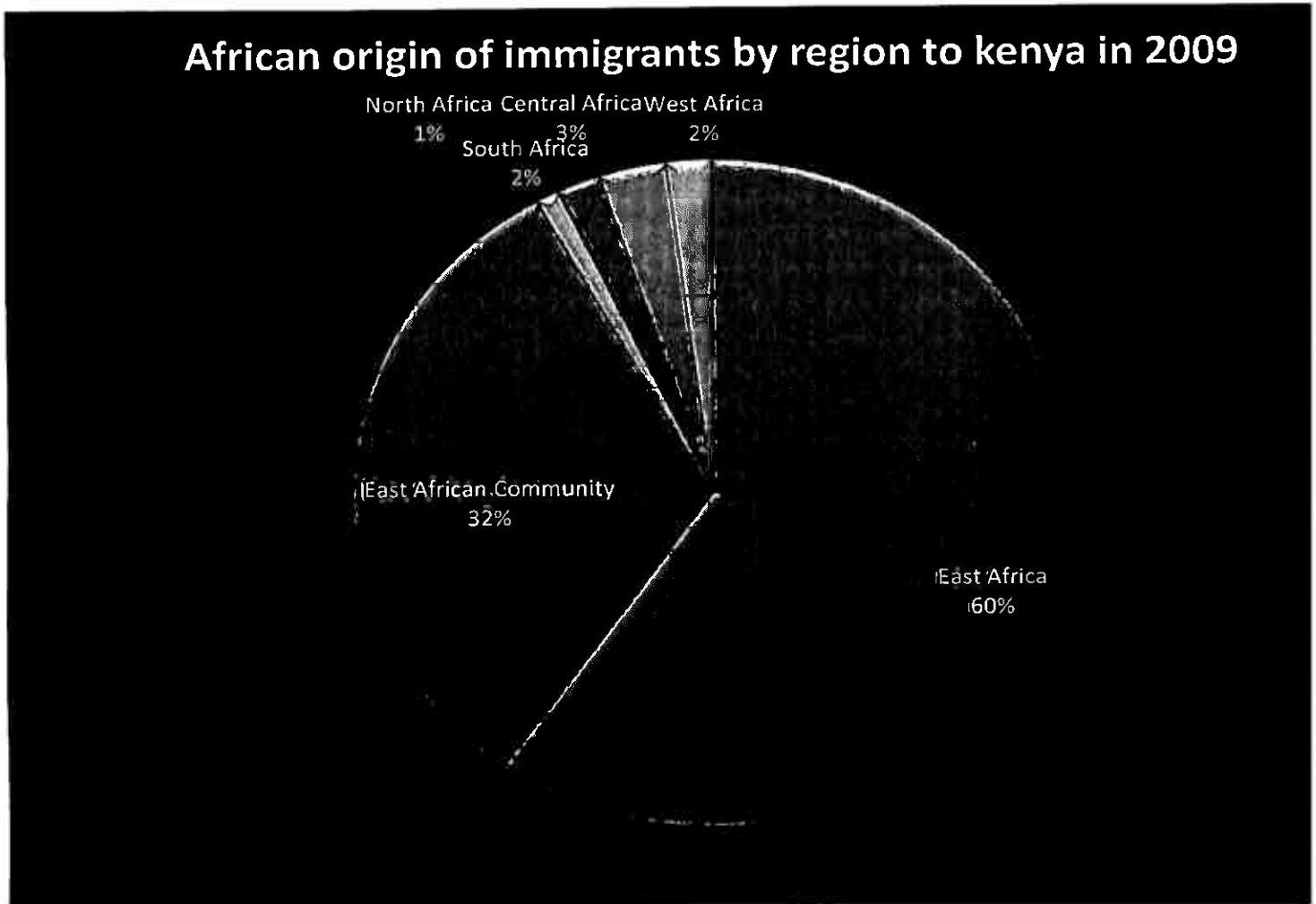


Source: author's computation

Out of the 84% of the immigrants from Africa, 60% of them are from the neighbouring countries to Kenya while 32% of them share the East African Community. Graph 3 below reveals that while the neighbouring countries form the main origin of the immigrants to Kenya, far away regions such as West and North Africa only accounts for 2%.



Graph 3: World origin of immigrants by continent to Kenya in 2009

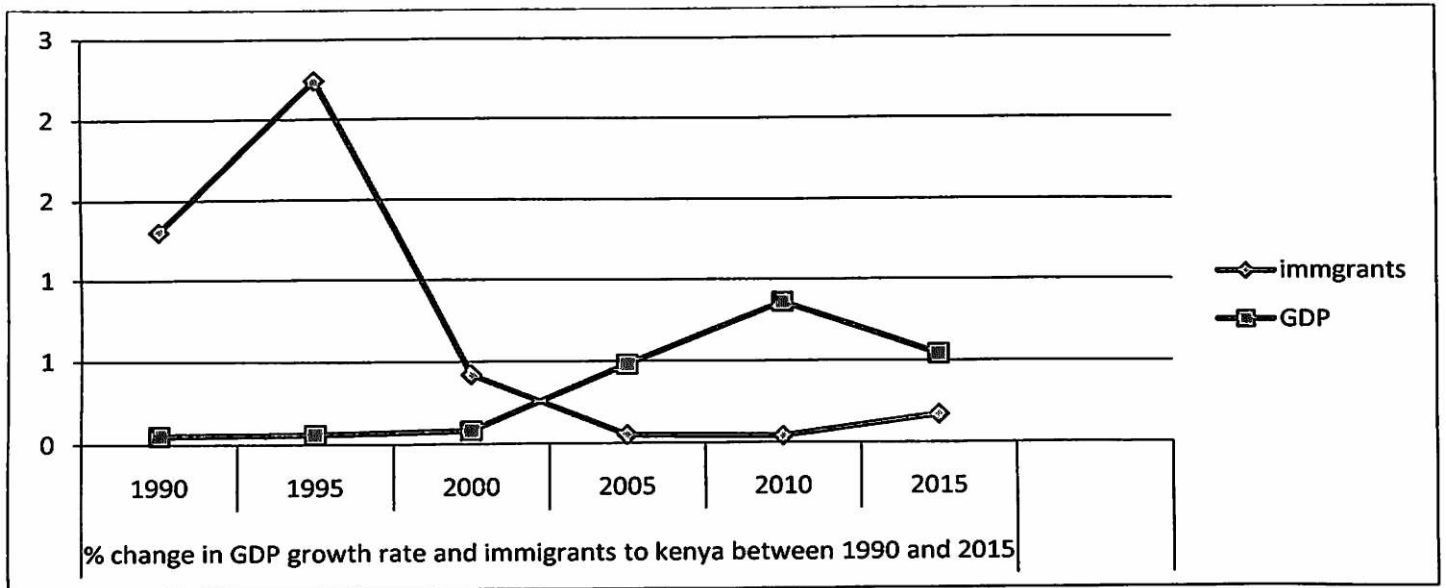


Source: Author's computation

With Kenyan population hitting over 47 million currently and the number of immigrants keeping on rising, there is a need for an empirical investigation on the impact of immigrant to Kenyan economic growth. Graph 4 below shows the trend of the main variables under investigation with the trend revealing a negative relationship. For instance in 1995 when Kenya received a higher influx of immigrants, the country GDP growth rate dropped. But between 2005 and 2015 when

the immigrant figures dropped, the GDP growth rate has an improvement (Lewis and Peri, 2015).

Graph 4: percentage change in growth rate and immigrants to Kenya (1990-2015)



Source: author's computation

### 1.1.2 Immigrants and insecurity in Kenya

With a rising insecurity levels in Kenya emanating from terrorism activities such as those that were witnessed in 1997 in the bombing of US embassy, the Westgate Nakumatt mall attack and other isolated cases, some investigations thereafter have linked the entry of small arms and other bombing devices to the refugees. Some of these refugees come from lawlessness countries in which small arms are not illegal and since Kenya at times does not have a tight proof security at the boarder points, such small illegal arms have found themselves into the black markets which have been used to cause insecurity especially in Northern Kenya as well as the coastal areas. The

Kenyan cities and major towns have not been spared as well as thugs and organized gangs use such arms to pose a security threat same as the insecurity posed by the cattle rustlers in North Rift. Countering this illegal arms that have been linked to the immigrants is posing a challenge to the Government and thus is affecting the economic growth negatively.

## **1.2 Statement of the problem**

The economic input of immigrants has been intensively studied but is still often driven by ill-informed perception, which in turn can lead to public antagonism toward immigrant into the hosting nation. These negative views risk jeopardizing efforts to adapt immigration policies to the new economic and demographic challenges facing many countries, Kenya in particular. Kenya is a country of immigrants having set aside about 4000 acres of land in North Eastern part of the country for refugee camps. The debate surrounding immigration policy has become multifaceted especially in recent months over the controversial statement by the Kenyan government over the issue of repatriating all the refugees (a component of immigrants) to their country of origin. Another concern related to this displacement fear is whether immigration merely adds to unemployment either directly through migrants being unable to find employment or by these immigrants' centers acting as a breeding ground for terrorism of which has been associated with scaring away investors thus impacting on the country's economic growth negatively.

Kenya has been a major host of all these immigrants from Eastern, Central and West African States i.e. Somalia, Ethiopia, Southern Sudan, Eritrea, Angola, DRC Congo, Rwanda and Burundi. These immigrants are believed to have run away from civil war, economic hardship and lack of opportunities in their home countries. Efforts being put in place by the Kenyan government and other both international and local NGOs to stay in dissipated places (camps)

they still manage to sneak out and interrogate with hosting society as a copying mechanism for their stay. Others come as immigrants start their business for sustainability by engaging in petty trade, wage employment or supply. Despite the influx of these immigrants and the associated socio-economic effects they have been associated with, little empirical studies have been done in Kenya to investigate their impact on the economy of Kenya. It is the gap that has driven this study.

### **1.3 Research questions**

1. What is the causality between immigrant influx and economic growth in Kenya between 1980 and 2014?
2. What is the incidence of immigration influx on economic growth in Kenya between 1980 and 2014
3. What policy mix can be applied to economic impact of immigrants to Kenya?

### **1.4 General objectives**

The main objective of this study is to investigate the impact of immigrant influx to the Kenyan economic growth between 1980 and 2014.

#### **1.4.1 Specific objectives**

1. To evaluate the causality between immigrant influx and economic growth in Kenya between 1980 and 2014.
2. To investigate the incidence of immigration influx on economic growth in Kenya between 1980 and 2014.
3. To offer policy recommendation based on the study findings

### **1.5 Justification of the study**

Most developmental economists have had varied stands on high population growth rate as advanced by various schools of thought. For instance, the pro-population growth rate is of the idea that such a population increases the aggregate demand boosting the economic growth. They also suggest that high population in a country will make production cost low through high supply of cheap labour. However, the anti-population growth cites straining of available natural resources, high dependency ratio and provision of basic needs instead of investing in high returning investments as the negative effect of a faster economic growth of a nation with a higher population growth. With immigrants a source of high population growth in Kenya, there is a need for different stakeholders understanding the real economic impact of immigrants. Thus the study findings will be significant in three folds: will help both public and private policy makers to make rational policies as regards to immigrants; will be relevant to security planning agencies on the instability associated with immigrants and finally, it will add to the existing body of literature thus forming a basis of further research.

### **1.6 Organization of the study**

Following this introduction chapter is chapter two which is the literature review. This chapter presents the theoretical literature review and empirical literature review. Chapter three which is the methodology discusses the conceptual framework, model specification, data type and topology of the variable used as well as the pre-estimation tests that will be used to analyze data.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

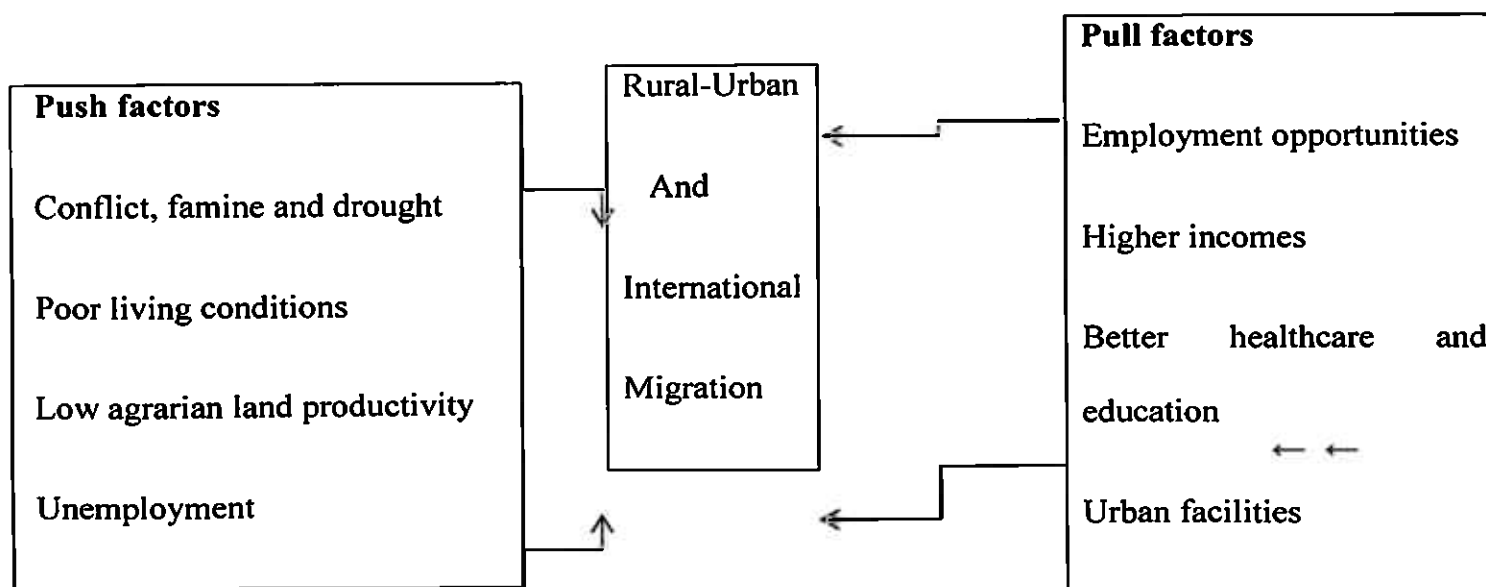
This section provides a review of literary work: conceptual, theoretical and empirical intended to give informative and descriptive origin, trends and patterns and other factors propagating human mobility.

### **2.2 Conceptual Framework**

Migration has been an historical phenomenon, facilitated by a number of pull and push factors. In most developing countries, internal migration has been the most common, which has resulted to emergence of urbanization. Sometimes a scenario of over urbanization occurs especially when the supplies of available opportunities are less than the demand in other ward the Todaro paradox sets in. This prompts the citizens to resort to cross border migration to search for the opportunities that are missing in the country of origin.

Policy analysts have often delineated their focus on what mainly causes such migration but much concerned at targeting the population that leaves the country's boundary through formulation of various policies. The pull and push factors for internal and international migration quite often with the inclusion of more in the later such macro factors that are unnoticeable or fail to be captured in assessing causes of internal migration. It can be conceptualized that certain factors at different periods provoke the desire to migrate however, the causes defer at different periods, places and practical set up (Blankenou and Cassou, 2011).

**Figure 3: Migration Push and Pull conceptual Framework**



Source: Author

### 2.3 Theoretical Literature

There is a large body of literature trying to give the theoretical angle to the determinants of emigration. These different literatures use differing concepts, assumptions, frames and level of analysis (Arango,2000).According to Arango (2000) and Castles(2008),such theoretical models having been developed through specific empirical findings and enhanced in isolation and are often segregated by area of functionalism.

In most recent literary works (Massey et al,1993: Todaro and Smith 2006)posit that despite theoretical perspectives giving deferring postulates; they should be applied in a complimentary manner and not to be regarded as mutually exclusive. A number of theories that explain the determinants to emigration have been increasing through the improvement on the prior theories. Portes (1990) alludes that the formulation of migration theories is aimed at resolving four basic questions: What are the origins of migration? What is the directionality and continuity of migrant

flows? How is migrant labor utilized? And how easy is it for migrants to adapt to the social cultural factors.

The theoretical impact of immigrants on wages of the host can be broadly viewed in two ways. That is on the context of a closed economy or on the context of the open economy.

### **Effect of immigrants on a closed economy**

In a closed economy, the effect of immigrants on factors of production depends on whether the factors of production are perfect or imperfect substitute. In the case the factors of production are perfect substitute, the overall influence will be a reduction in the prices of the factors of production. But if the factors of production are imperfect substitutes, the effect on prices will be ambiguous. In case the factors of production are complement, then the effect of immigrant influx is likely to be a rise in general prices of these factors of production.

Capital and labor are complement in the production process while labor is a substitute to other factors of production. This implies that an influx of immigrants, the cost of capital is likely to raise in a closed economy while the cost of substitutes to labour may reduce. Depending on the level of skills of the immigrants to the country, wages of the workers will vary. For instance, if majority of the immigrants is made up of unskilled labour, then the wages of unskilled labour in the host country will fall while the effect on return to capital and that of the skilled labour will be ambiguous. The reduction in wages of unskilled labour will be an incentive to the employers who are driven by cost minimization to substitute the expensive skilled labour and capital to unskilled labour. However, the oversupply of unskilled labour will mean an increase in the utilization of other inputs leading to increased production.

Suppose that the immigrants are skilled, then an influx of immigrants will likely lead to a fall in the wages of skilled workers causing an ambiguous effect on unskilled wages. This increase in



demand for skilled workers will lead to improvement in the return to capital, which is a complement to skilled workers.

However some studies have pointed out that the wages of the natives workers are likely to be lowered if the immigrants are willing to work for lesser pay than the hosing country's worker like the case of illegal immigrants.

### **Effect of immigrants on an open economy**

In the open economy, Heckscher-Ohlin model can be used to predict the outcome of immigrants to an economy. Holding technological advancement, then according H-O model, production will be driven by factor endowment. It states that, when such condition is fulfilled, then immigrant influx will cause a rise in the production of laour-intensive products while the factor prices remains unchanged. It summarizes by suggesting that an influx of immigrants will lead to less importation and more exportation that will improve the economic growth of a hosting nation.

#### **2.3.1 Ravenstein theory of Migration**

This theory is based in generalizations focused on individual rational choice to be influencing mobility of persons from one place to another. By using census data from England and Wales, Raveinstein(1889) focused on the repelling and attracting factors to migration, migrant's individual characteristics, areas of occupation, distance and the feedback effect of any migration patterns, he was able to formulate generalizations which came to be called Ravenstein's laws and most emerging theories have in one way advanced from a number of the laws. The laws are:

- Most migration occurs within a short distance
- Majority of the migratory movements are from agricultural to industrial regions
- Expansion of bigger town centers is because of migration rather than natural growth.
- Migration develops in tandem with industrial, commercial and transport expansion

- Every migration flow produces a counter flow
- Most women undertake short distance migration while the majority of men indulge in international migration
- Economic causes are the key factors at the Centre of most migration flows.

### 2.3.2 Neoclassical Migration Theories

According to this theory, migration is accelerated by differential in labor returns across markets. It's an initial model advanced to show the complementarity of development and migration by the neoclassicists such as Hicks(1932), Lewis (1954) and Harris and Todaro (1970).It reveals that actual wage differences across countries, arising from differing levels of labor market restrictions result in migration. The main consideration of this theory on what causes migration revolves around wages. Massey et al. (1993) and Borjas (2008) contend that in a situation of full employment this theory foresees a linear relationship between migration and differences in wages. In an extended version of this model, Zimmermann (1994) posits that is not the actual earnings but the expected earnings that greatly determine migration and often the key variable is *earnings weighted by the probability of employment*.

According to Faist (2002), Dustmann et al(2003), DeHass (2008) and Massey et al(1998), the migratory capability is linked with cost consequently; it is neither the poorest individuals nor the poorest countries that do send their labor, migration patterns therefore tend to be hump-shaped. Migration rates accelerate with the growth of country's wealth as more individuals or households are able to fund more migration. Kurekova (2011) alludes that as the country continues to develop, the emigration rates diminish and the incentives to migrate change.

### **2.3.3 Sjaadstad's Human Capital Theory**

This is a micro level model developed to assess individual choice to migrate. This model adds a social demographic angle to the neoclassical model as a key determinant in inducing a migration decision (Bauer and Zimmerman, 1999). Central to this theory, is the focus on a rational individual who aims to maximize benefits in the new destination, in other words, Sjaadstad likens an individual decision to migrate as a form of investment.

Bonin et al (2008), reveal that since individuals differ in preferences despite being from the same sending country they will portray varying migration propensities consequently select different destinations. According to Kurekova (2011), the position held by the human capital theory is that, the more skills an emigrant has increases ones chances of becoming successful.

This approach is criticized for its failure to be applicable to realism, based on its contention that the desire to maximize gains in the migration destination may not be a justification to provoke a decision to move because of the existence of asymmetric information.

### **2.3.4 New Economics theory of migration**

Mutual interdependence and not individual independence in decision choice to migrate is emphasized by this approach (Stark,1991). An individual's decision to migrate is not 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(1991,2003),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 is 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 its heavily future oriented.

### 2.3.5 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; Silver, 2003). 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. Bijak (2006), critiques this approach to being too descriptive on the other hand Farell (2008) recognizes its failure to derive testable postulates.

## 2.4 Empirical Literature

Kenyan specific empirical studies on determinants of international migration is limited, however there are studies from a sample of countries on the determinants of emigration. De Haas(2008); De Rgt(2006); Zohry and Harrell-bond(2003),point out that oil-rich countries became potential destination of migrants from south Asia, South East Asia and for some regular sub-Saharan workers who were regarded to offer their labor cheaply during 1983,Iran-Iraq war that had resulted to fluctuating oil prices and declining demand of construction workers who were mostly Egyptians and Arabs.

According to Cohen(2001), in Morocco middle class high school and university, graduates are a frustrated lot who are eager to emigrate due to high unemployment, lethal education systems failing to provide the required job skills, existence of state bureaucracy and scarcity of stable jobs for those without networks. This 'condemned 'group often stage demonstrations at the parliament in Rabat. 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;Ozden,2006)

Jerome(1926), by observing the number of migrants 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.

Mwajuba (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. 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 migrants 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.

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. 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.

Mohammed (2014) investigated the impact of immigrants living in Eastleigh on Kenyan economy using a cross sectional primary data. His study revealed that most immigrants had intergrated to the Kenyan economic system and had started very many microeconomic activieties both at Eastliegh and other places of Kenya which had improved the revenue collection to the country.

There are a number of literary works accessing the non-economic determinants of migration and they often indicate that they dominate the economic factors. 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. 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 Overview of Literature**

This section has provided a wide spectrum of the theoretical and empirical literature in the area of migration. It stands out that international migration is a very complex area. As the various

authors try to identify the exact factors that cause certain migration flows, it becomes conspicuous that no single theory can be used to explain the entire migration phenomenon. There exists a geographical gap in that, majority of the studies were not conducted in Kenya. To add to the existing body of knowledge it will be necessary to incorporate such factors to the familiar macroeconomic factors framework to determine their effect in influencing migration stock.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section presents the methodology of the study, the research design and conceptual framework, detailing the relationship between the dependent variable and the independent variables. The section further presents the study model, how it is estimated and how it can be used to project the impact of immigrant's influx on economic growth to Kenya.

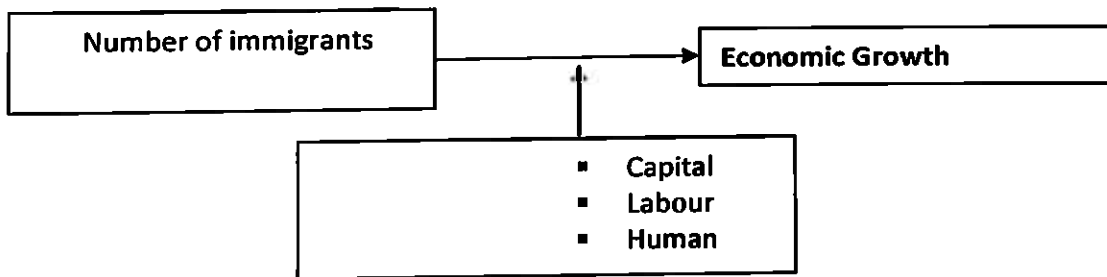
##### **3.1.1 Research Design**

The study aimed at investigating the impact of immigrant influx on economic growth in Kenya. The study was motivated by the need to establish either an empirical association or non-spuriousness. The direction and strength of the relationship was a key in this study.

##### **3.1.2 Conceptual Framework**

The conceptual framework is a research tool intended to assist a researcher to develop awareness and understanding of the variables under scrutiny (Kawakatou, 1998).

For the purpose of this research, a conceptual framework was developed showing the influence of the moderating variable on the relationship between the independent and dependent variables.



**Figure 3.1: Conceptual Framework**

### 3.2 Model Description

This study presented both the theoretical and empirical models. The theoretical model is a collection of concepts and their hypothetical interrelationships. Theoretical model borrowed heavily from theories presented in literature review. The empirical model on the other hand is the econometric model that is modified from theory.

#### 3.2.1 Theoretical Model

The subject of immigrants and their impact on economic growth has to a large extent been the basis of argument amongst the literary works covering this area. Patricia (2004) argues how with the presence of international agencies supporting the assistance efforts of refugees (a component of immigrants to a host country) the high volumes (1.5 million) of these refugees has inevitably had an impact on Tanzania's economic situation and consequently influencing to an extent the growth patterns here.

Assuming the economy has reached its steady state, then, because of immigration of refugees, the growth rate of an economy could rise. The Solow growth model as presented by Mankiw and

Weil (1992), would show how an increase in the population growth rate as a result of refugee immigration would impact on economic growth.

### 3.2.2 Empirical Model Specification

The first step of the empirical model incorporated the simple Cobb-Douglas production function such that:

$$Y \text{ (GDP growth)} = f(\text{Capital stock, Labor}) \dots \dots \dots (1)$$

$$\text{From } Y = f(K, L) \dots \dots \dots (2)$$

Y being GDP growth,

K being capital stock

L being labor and taking into effect, the role of human capital for the above model as derived via Mankiw and Weil (1992), to therefore have

$$Y = f(K, L, H) \dots \dots \dots (6)$$

Where H denotes human capital as a factor of production, which invokes the role of skills as a factor here.

Further, the study adopted the framework employed by Rasmusen (2013) incorporating among others immigrants such as refugees, as part of immigrants into the Kenya.

The resultant model is:

$$Y = f(K, L, H, I) \dots \dots \dots (7)$$

Where I represent the presence of immigrants

Thus the specified model entailed the following equation

$$Y_t = \beta_0 + \beta_1 K_t + \beta_2 L_t + \beta_3 H_t + \beta_4 R_t + e_t \dots\dots\dots(8)$$

With a priori expectation being that ,

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4 > 0$ , i.e. all factors have a positive relationship with real economic growth.

Eventually our empirical model being,

$$\text{GDP growth}( Y_t ) = \beta_0 + \beta_1 (\text{Capital}) + \beta_2 (\text{Labour}) + \beta_3 (\text{HumanCapital}) + \beta_4 (\text{Number of immigrants}) + e_t$$

### 3.3 Measurement of Variables

Variables were categorized according to the type of variable, measurement whether dependent /independent.

**Table 3.1: Operationalization of Variables**

<b>Definition of Variable</b>	<b>Period</b>	<b>Measurement of Variable(s)</b>	<b>Data source</b>
Capital	1980-2014	Gross fixed capital formation (% of GDP)	WDI
Labour	1980-2014	Labor force, total (The population that is actively engaged in production.)	ILO KNBS database
Number of immigrants	1980-2014	Number of asylum seekers to kenya	UNHCR Database Immigration Department
Human Capital	1980-2014	Government expenditure on education and health divided by CPI	KNBS Database
GDP growth	1980-2014	Real GDP growth rate	KNBS Database

Source: Author's computation

### 3.3.1 Expected Signs

From the theoretical point of view, as Lyn (1981) observes, we would expect a positive relationship between population growth and immigrant influx on economic growth, as these may be catalysts for growth in the way of additional labor and greater consumption within the economy thus leading to economic growth (Lim, 1996).

### **3.3.2 Data Sources and Scope**

The model estimates were based on data from various sources mainly UNHCR, Immigration Department, IMF data bases and KNBS Statistical Abstracts. The data was for the period 1980 – 2014.

### **3.4 Model Estimation**

In order to guard against the possibility of a spurious relationship while maintaining the level information/results, two main approaches offer reasonable solutions. First is the unrestricted error correction modeling (ECM) developed by Hendry and his co-researchers (Hendry, 1995). Second method is the co-integration approach pioneered by Engle and Granger (1990). The Engle and Granger pioneering method is appropriate when dealing with non-stationary data that are integrated of the same order, that is, all data series are integrated processes of order 1. On the other hand, the ECM method developed by Hendry (1995) can be applied to data series that are integrated of different orders (Hendry, 1995).

#### **3.4.1 Unit Roots**

The data to be used in the analysis of this research is a macroeconomic time series which, from a theoretical perspective suffers from non-stationarity (Nelson and Plosser, 1982). It will be vital to run a stationarity test first before using it since running a regression on a non stationary data may lead to invalid empirical result and therefore the study will test stationarity using Augmented Dickey-Fuller (1979, 1981).

It is at this stage that first and second differences will be conducted if necessary.

### **3.4.2 Testing for Cointegration**

When two or more macroeconomic variables have a long run relationship, we conclude that those variables are cointegration. Suppose the economic variables in this study have unit root, then the study will proceed to test for cointegration tests. To test for cointegration, the study will employ Engel-Granger (1987) test. According to Engel-Granger (1987), if the residuals are stationary, then it means that the variables are co-integrated

### **3.4.3 Error Correction Modelling**

It determines whether the error correcting term has a long run causality effect. It is a special model in that it ensures that the economic variables in the model are stationary after first differencing. For its development, the economic variables must have cointegrating vectors which will be done first in above. This model is vital in checking whether an individual lagged economic variable has any significant effect on the dependent variable. This will be carried in this study through all the lagged variables and GDP. The sign of the coefficient of ECT will guide in the conclusion of the direction of causality

## **3.5 Diagnostic Tests**

The following diagnostic tests will be performed before running the regression model.

### **3.5.2 Normality Testing**

This study will utilize Shapiro-Wilk test to conduct a normality test for the error term. It will involve computation of the, W, V, Z and P-value. We use the p-value to make an inference of normality. If our calculated p-value exceeds the critical value, then the variable will be statistically significant or normal in our case. If the calculated p-value is smaller than the critical

value, then a variable is not significant or not normal. The credibility of the OLS parameters will be test through testing for the degree of multicollinearity and heteroscedasticity.



## **CHAPTER FOUR: ANALYSIS OF DATA AND DISCUSSION OF RESULTS**

### **4.0 Introduction**

The section presents the study results from the empirical analysis and discusses their economic interpretation. It begins with the description of all variables used in our model followed by diagnostic tests of a time series data and finally an OLS regression and a discussion of results.

### **4.1 Descriptive statistics**

Descriptive statistics was mainly carried out in this study to ascertain the statistical characteristics of the data used in the model. This study uses annual time-series data between 1980 and 2014. The main variables under study include GDP growth rate and number immigrants to Kenya while other variables like gross fixed capital formation (a proxy of capital stock), government expenditure in health and education (as a proxy of human capital) and total labour force (as a proxy of the population actively in production) acted as control variables. Most variables were obtained from the KNBS, world development indicator (WDI, 2015) while some were from the ILO online website.

**Table 2: shows the descriptive statistics**

<b>Variables name</b>	<b>Mean of variable</b>	<b>Standard Dev.</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Kurtosis</b>	<b>Skewness</b>
GDP growth rate	3.728626	2.33748	8.402277	-8.402277	7.071361	.1267275
Human capital	9.952571	4.324293	16.9	4.58	1.25407	.2240779
<i>number of immigrants</i>	28789.29	37482.07	1860050	1214	1.13392	2.793149
capital	18.5306	1.868058	22.62276	15.3879	2.189022	.0211628
labour	1.09e+07	3527689	1.75e+07	5680026	1.958413	.1114889

Source: Author's calculation

From table 2 above, the GDP growth rate has a mean of 3.73 % with a standard deviation of 2.34% and a respective minimum and maximum of -0.799% and 8.40%. The average gross fixed capital formation within the 35 year period is 18.53% with a standard deviation of 1.87%. The highest gross fixed capital formation is 22.62% of the GDP and the lowest is 15.39% of GDP within the period under study. Equally, the average human capital expenditure (as proxied by the total public expenditure on education and health) is 9.95% of total government expenditure with a standard deviation of 4.32% and a minimum and maximum of 4.58% and 16.9% respectively. Lastly the labor force had an average 10.9 million with a standard deviation of 3527689 under the period of study.

Since the study used time series data, Kurtosis and Skewness were employed to give a clue of the trend of the individual variable. Kurtosis measures the flatness of the distribution and with the

results from the table 2 above; it reveals that all the variables are leptokurtic since their distributions are peaked sharper than a normal distribution. Skewness, which shows the symmetry of the distribution around the mean of each variable, shows that all variables under study were positively skewed (implying they have a long right tail) except GDP growth rate that was found to have a negative skewness (implying that they have a long left tail)

## Pre-estimation tests

### 4.2 Diagnostic tests

#### 4.2.1 Normality test

This study uses the Shapiro-Wilk test to determine normality of variables. A variable is normal if the mean, median and mode are equal (that is normally skewed). The Shapiro-Wilk test gives four options, a W, V, Z and P-value. We use the p-value to make an inference of normality. If our calculated p-value exceeds the critical value then our conclusion is that the variable is normal. But if the calculated p-value is smaller than the critical value, then a variable will be non-normal.

Table 3: Shapiro-Wilk normality test

Variable	observation	W	V	Z	Prob>z	status
gdpgrowth	35	0.97061	1.049	0.100	0.46031	Normal
humancapital	35	0.81379	6.646	3.954	0.00004	Non-normal
Numberof immigrants	35	0.64972	12.502	5.273	0.00000	Non-normal
capital	35	0.97140	1.021	0.043	.48283	Normal
labour	35	0.95673	1.545	0.907	0.18209	Normal

Source: Author's computation

Results from table 3 above show that only GDP growth rate, gross capital formation and labour force the are normal at 5% level of significant while the rest of the variable are not normal.

#### 4.2.2 Multicollinearity

This problem arises when two or more independent variables are strongly related. According to Gujarati (2012), a correlation of 0.8 and above indicates the possibility of collinearity between two variables. This study used the Vector Integrating Factor (VIF) and Tolerance (1/VIF) to test for multicollinearity. The VIF test directs that one first runs a regression followed by a VIF command in Stata. Then an inference is made based on the magnitude of the VIF value. If the VIF value is less than 10, then a variable has no multicollinearity. Conversely, if the VIF is greater than 10, then multicollinearity exists.

**Table 4: VIF and Tolerance results**

Variable	VIF	/1VIF	Status
humancapital	4.14	0.241453	no multicollinearity
Numberof immigrants	1.63	0.613355	no multicollinearity
capital	1.18	0.849084	no multicollinearity
labour	5.41	0.184862	no multicollinearity

Source: Author's computation

Results from Table 4 above show that there is absence of multicollinearity among all our variables because all our VIF values are less than 10.

#### 4.2.3 Stationarity (Unit root test)

The study employs ADF test to test for stationarity in the individual variables. According to ADF test, a variable is declared stationary when it's t-calculated is smaller than the t-critical.

Table 5: ADF test results

Variable	Test Statistic	1% critical value	5% critical value	10% critical value	Nature
gdpgrowth	-3.437	-3.689	-2.975	-2.619	Non Stationary
humancapital	-0.609	-3.689	-2.975	-2.619	Non stationary
Numberof Immigrants	<b>-3.087</b>	-3.689	-2.975	-2.619	Non stationary
capital	<b>-2.134</b>	-3.689	-2.975	-2.619	Non stationary
labour	<b>1.548</b>	-3.689	-2.975	-2.619	Non stationary

Source: Author's computation

Table 5 above reveals that all the variables are non stationary at all levels. These non-stationary variables require additional attention to determine whether they are co-integrated.

Therefore, taking the first difference gives the results in table 6.

Table 6: ADF test results for differenced variables

Variable	Test Statistic	1% critical value	5% critical value	10% critical value	Nature
D_gdpgrth	-3.689	-2.975	-2.619	-2.619	Stationary
D_humK	-4.695	-2.975	-2.619	-2.619	Stationary
D_no.IMG	-7.094	-2.975	-2.619	-2.619	Stationary
D_K	-5.698	-2.975	-2.619	-2.619	Stationary
D_L	-7.886	-2.975	-2.619	-2.619	Stationary

Source: Author's computation

The table above shows all variables ( which were non stationary at order zero) are stationary at order one i.e. I (1)

#### 4.2.4 Testing for Cointegration

When variables have a long run equilibrium relationship, we say they are cointegrated. Most of the time when economic variables are individually non-stationary; it is likely that cointegration may occur. Cointegration test is normally a pre-test for a time series data which tries to eliminate spurious regression situations of non stationary data. Thus cointegration relationship existence implies that the regression of non-stationary series in their levels yield meaningful and not spurious results. To test for cointegration, the study employed Engel-Granger (1987) test. According to Engel-Granger (1987), if the residuals are stationary, then the variables in the model are co integrated.

Table7: Engle-Granger Test for Co integration

Variable	t-statistic	1% level	5% level	10% level	Nature
Residuals	-4.134	-3.689	-2.975	-2.619	Stationary

Source: Author's computation

From table 7, the t- value of test statistics are smaller than all the critical level and hence we reject the null hypothesis of no co integration among the variables. This therefore implies that variables in the model do have a long run equilibrium relationship. This shows that regression of the non-stationary series in their levels will yield meaningful and not spurious results

#### 4.2.5 The Granger causality test

To test for the existence of short run causality between macroeconomic variables used in the model, we run the granger causality. The test checks whether one time series data could be used to predict another time series data and therefore it has been used in this study to check whether the number of immigrants could be used to forecast the GDP growth rate of Kenya in the future.

Variable		coefficient	Z	P> z	[95% Conf. Interval]
GDP growth rate to number of immigrants	L1	7.68e-06	0.66	0.509	.0000305
	L2	-2.19e-06	0.19	0.846	.00002
Number of immigrants to GDP growth rate	L1	3868.704	1.45	0.147	9093.201
	L2	-169.5715	-0.06	0.950	5179.184

### Interpretation of the result

From the result in table 8 above the p-value of 0.147 implies that the coefficient of Number of immigrants is not zero or rather is statistically insignificant at 95% level. This is a clear indication that Number of immigrants of the previous year do not granger cause economic growth in the current year at 95% but will be statistically significant at 89% level of significant. Equally the p-value of 0.509 means that the sample parameter of economic growth rate is not statistically significant- a clear indication that economic growth rate of the previous year does not cause any change in the number of immigrants to Kenya in the current year. This result reveals an one-directional causality running from international tourism receipts to economic growth.

### 4.3 Empirical Findings

Table 9: long run Regression Results in Level

. reg gdpgrowth labour capital numberofimmigrants humancapital

Source	SS	df	MS			
Model	67.5679931	4	16.8919983	Number of obs =	35	
Residual	118.20161	30	3.94005366	F( 4, 30) =	4.29	
Total	185.769603	34	5.46381185	Prob > F =	0.0073	
				R-squared =	0.3637	
				Adj R-squared =	0.2789	
				Root MSE =	1.985	

gdpgrowth	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
labour	1.16e-07	2.24e-07	0.52	0.608	-3.42e-07	5.75e-07
capital	.7351388	.1977634	3.72	0.001	.331252	1.139026
numberofimmigrants	-.0000141	.0000116	-1.22	0.233	-.0000378	9.55e-06
humancapital	.0143167	.1602067	0.09	0.929	-.312869	.3415024
_cons	-10.89762	3.579117	-3.04	0.005	-18.20716	-3.58809

Source: Author's computation

#### Interpretation of the Results

An R-squared of 0.3637 indicates that 36.37% of the variation in the Economic growth is explained by the explanatory variables in the model. The regression further indicates that gross fixed capital (a proxy of capital stock), labour force (a proxy of labor in Kenya) and human capital have a positive influence on the economic growth under the period of study. However, the number of immigrants was found to have a negative impact on Kenyan's economic growth. The result reveals that all factors were statistically insignificant in determining the economic growth of Kenya except gross fixed capital formation (that was a proxy of capital stock). Holding all other factors constant, economic growth will grow at -10.9%. Equally, an increase in labour force by one percent will lead to 1.7% increase in economic growth under *ceteris paribus*. Further, if all other factors were held constant, a unit percentage increase in gross fixed capital (a proxy of capital stock) will lead to 0.74% increase in economic growth. If human capital increased by one percent, economic growth will improve by less than a unit percent holding all



other factors constant. Lastly, under *ceteris paribus*, an increase in the number of immigrants by one percent leads to a decrease in economic growth by 0.04%.

## CHAPTER FIVE:

### 5.0 SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

#### 5.1 Motivation of the study

The success of any strategic plan of any nation lies behind the practicability of such plans. Kenya as a nation has given much to the immigrants coming into the country and at one time has decided to repatriate some of the refugees. With international pressure for Kenya to reconsider its stand on some immigrants (refugee in specific) this study was motivated by the lack of empirical information linking immigrants and economic growth and thus intended to investigate the causality between the two macroeconomic variables for a period of 35 years

#### 5.2 Summary

This study aimed at analyzing the influence of immigrants on Kenyan's economic growth for the period 1980 – 2015. The study sought specifically to investigate the effect of the immigrants on the country's economic growth as well as the causality between the two macroeconomic variables. The study obtained its objectives by first identifying cointegration causality test- for the long term causality followed by Engel-Granger (1987) - for the short term (run) causality between immigrants and the country's economic growth.

Results from cointegration test revealed an existence of the long term relationship of all the variables used in the model while the short term relationship reveals an existence of no causality.

The second objective of our study attempted to investigate the influence of immigrants on economic growth and was achieved through OLS regressing

From the result, despite our main variable under study (immigrants) remained statistically non-significant, the result proved that the main determinants for Kenyan economic growth under the period of study was gross fixed capital formation (which was a proxy of capital stock).

### **5.3 Policy implication**

Kenya has set its priority on enhancing quality life to its citizen through the vision twenty thirty blue prints. To achieve this, its production process has to be efficient and any cost must be minimized. From our regression in chapter four, the main variable understudy (effects of immigration on economic growth) found to have a negative impact on the economic growth. Thus the government needs to control the number of immigrants into the country especially those without skills to match country's employment requirement. Immigrants from countries with poor educational and training background must be vetted first before being allowed to enter into the country. Equally, policy makers need to add more of the fixed capital formation as it was the only variable that had a significant impact on the economic growth in Kenya.

### **5.2 Limitations of the study**

There several control variable that determine economic growth that were not included in the study since their data was either not enough or was totally missing. Such variables like life expectancy, fertility rate and inflation among other were we unavailable in the period of study. Some were very scant and this led to  $R^2$  of 36.37%. Equally, data on immigrants to Kenya is scanty and collecting from several sources could have made it susceptible to measurement errors.

### **5.3 Areas for further research**

There is a need for further research on the impact of disaggregated immigrants (like asylums seekers, labour immigrants, temporary migrant workers, refugees and so on) on economic growth. This will help to differentiate immigrants that contribute positively to the economic growth from those that have a reducing influence..

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