IMPACT OF ECONOMIC INSTITUTIONS ON LONG TERM ECONOMIC GROWTH IN EAST AFRICA

BY

SAMUEL MUTUA KATAA

X51/79354/2015

A RESEARCH PAPER SUBMITTED TO THE SCHOOL OF ECONOMICS, UNIVERSITY OF NAIROBI FOR PARTIAL FULFILLMENT OF THE MASTERS OF ARTS DEGREE IN ECONOMIC POLICY MANAGEMENT

NOVEMBER 2016

DECLARATION

This research project is my original work and to the best of my knowledge has not been presented for award of degree in any other University.

Samuel Mutua Kataa

Signature…… Date……

This research project has been submitted for examination with my approval as University Supervisor.

Dr. Bethuel Kinyanjui

Signature…… Date……

DEDICATION

To my beloved parents, brothers and sisters, for their support during my studies.

ACKNOWLEDGEMENT

First and foremost, I thank the Almighty God for His mercy and love upon my life.

Special thanks to my supervisor Dr. Bethuel Kinyanjui for his guidance and academic support from the start to the end of this research project. His constructive criticism and priceless comments enhanced my understanding of various issues.

I also acknowledge my brothers who supported me tirelessly in terms of school fees payment and upkeep. I also thank my dear parents for their prayers and moral support.

Last but not the least I thank all the staff at the school of economics, university of Nairobi for their input in building an academic base upon which I was able to write this research paper. I also thank my classmates and friends for their support and encouragement during the research period.

TABLE OF CONTENTS

ABSTRACT

The study investigates the impact of economic institutions on long term economic growth in East Africa and the mechanisms through which institutions affect economic growth in the region. The study used the Kaufman et al (2009) governance an indicator as measures of economic institutions. The study period was from 1980 to 2015. Panel data estimation techniques were used. The results revealed that institutional quality is crucial for better economic performance in the region. Control of corruption, voice and accountability were found to be the crucial institutional quality indicators that affect economic performance in East Africa.

CHAPTER ONE

1.0 INTRODUCTION

According to institutions quality hypothesis by Rodrik and Subramanian (2003), institutional framework in which economic agents mingle or interact in an economy affects economic development. According to the authors, what is of importance are the set rules. These rules are set by behavioral norms and their ability to make proper incentives for a good economic behavior. The integration of institutions into economic theory is of great importance. From empirical evidence; institutional differences in various countries have proven to be the vital determinants of economic growth rates differences (Rodrik 2000).

To understand the importance of institutions in enhancing growth is crucial for all countries; especially in developing economies where institutions are very weak thus derailing policy implementation (Fosu, 2013).New institutionalism has been widespread from the moment Douglass North argued that institutions were crucial for economic performance (North, 1990).It is argued that improvement of political institutions in Africa towards increased democracy lead to increment in total factor productivity in Agriculture. It is therefore evident that economic performance is affected by the political institutions' structure which shows consistency with the new institutionalism (Bates et al., 2013).

Ajab 2013 argued that economists in the recent past have widely come into consensus on the subject matter of importance of institutions on economic performance. Hadhek 2012 claimed that institutions affect growth through productivity and investment mechanisms. Growth theories have given varied explanations about productivity and growth. According to Stiroh (2001), the Solow and the endogenous theories of growth give crucial insights about growth and productivity. Solow argued that productivity in the long term is driven by technological progress which is determined exogenously whereas the endogenous growth theory claimed that long run productivity is determined by avoiding diminishing returns to capital and technological progress which is determined endogenously or internally**.**

In addition, accumulation of capital affects growth in the short run according to the neoclassical view, but diminishing returns to capital are experienced eventually. This means that productivity growth in the long term is completely as a result of technological progress which is determined exogenously (Stiroh, 2001).

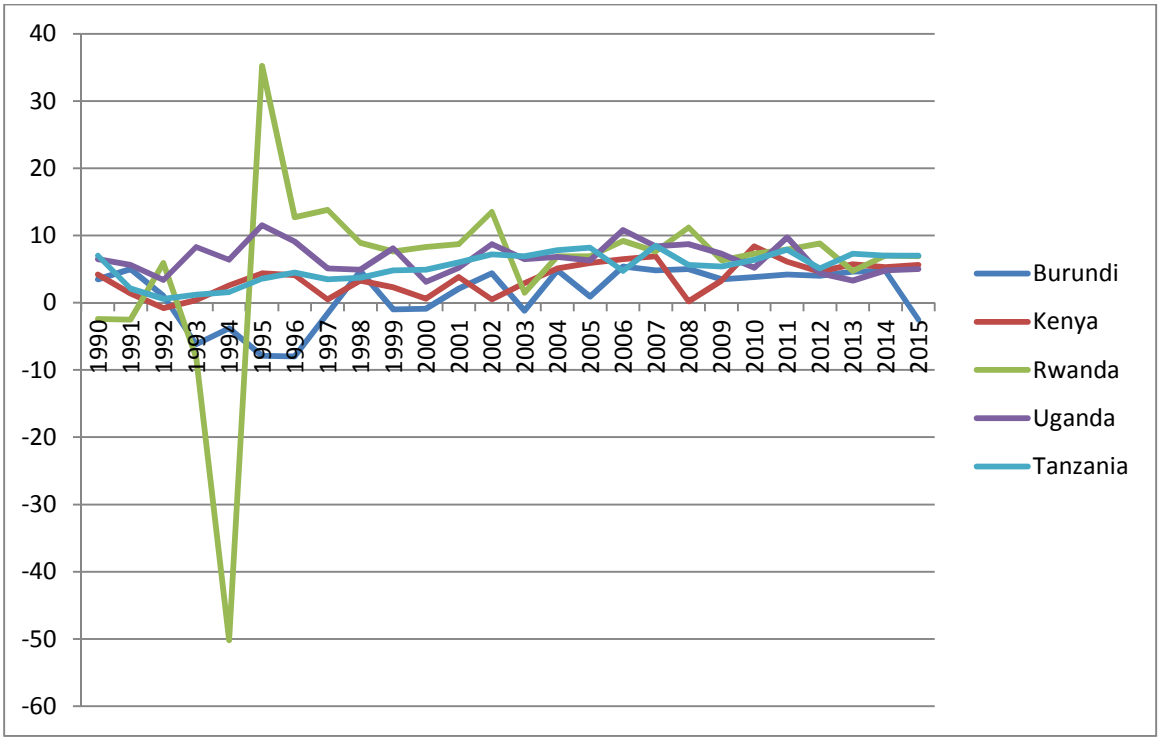
Moreover, Harrod-Domar growth theory claimed that growth is brought about by the savings ratio and capital-output ratio together. Specifically, the theory implies that for an economy to grow, it must save and invest a certain fraction of their GDP. The more economies save and invest, the more rapid growth will be experienced (Todaro and Smith, 2006). Moreover, empirical evidence has shown that institutions are fundamental determinants of economic growth in the long Run. For example, Aron 2000 argued that Tanzania, Ethiopia and Rwanda had tried to put in place good institutions and price reforms and that enabled them to become some of the rapidly growing economies in Africa. Ajab (2013) argued that African economic growth for the period 2001-2010, was 5.7 per cent per annum. He attributed this growth to factors such as improved political stability, less conflict, domestic economic reforms and favorable external environment. Moreover, it is claimed that the slow growth in African economies is largely attributed to poor institutions.

The knowledge gap to be filled is that the limited number of studies done in east Africa has not analyzed the impact of Economic institutions as determinants of long term economic growth conclusively; and the mechanisms via which institutions affect economic growth in East Africa. In addition, previous studies have not identified the aspects of Economic institutions that matter the most for economic growth in East Africa. These aspects would include; control of corruption, regulatory quality, secure property rights, Accountability and transparency, and enforcement of the rule of law.

Instead, they used other variables to explain growth. For example, (McAuliffe, Saxena and Yabara, 2012) claimed that growth in East Africa was attributed to macroeconomic stability, financial sector deepening, improved business environment, human capital and infrastructural development.

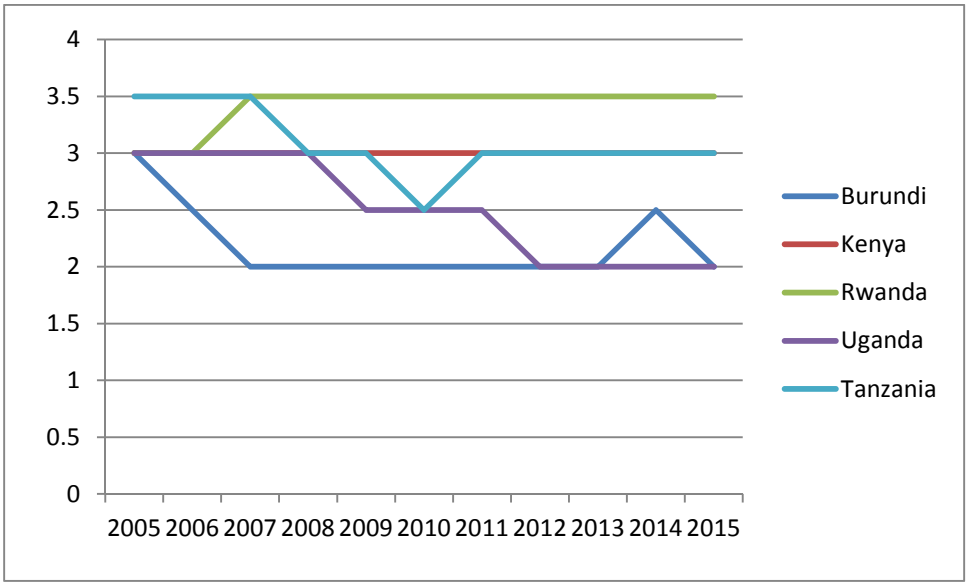
2.0 Institutional quality and economic growth in East Africa.

Fig 1: GDP Growth (Annual %)



Source: World Bank (2014)

Fig 2: Accountability and corruption in the public sector rating: (1=low to 6=High)



Source: World Bank (2014)

Burundi being the poorest country among the East African member states is also faced with lack of transparency and accountability within the institutions. In 2015, the country's GDP growth rate was -2.5% which was a bad economic performance as compared to growth rate in 2014 which was 4.7%.This decline in growth was attributed to lack of transparency in the political arena where president NKURUNZIZA wanted a third term as the head of state.

When former President Mwai Kibaki became the head of State in 2002, Kenyans had the hope that corruption would be eliminated completely just as he had promised during the campaign period. Kenyans were optimistic that elimination of official corruption would enhance economic growth but the Kibaki administration did not adhere to that political commitment. The increased levels of corruption in most of the governance institutions almost brought the Kenyan economy to a standstill in 2005 as shown in figure 1 above. In spite of the coalition government providing Kenya with a new constitution, very little has been done to enhance accountability and transparency in both public and private institutions.

Rwanda which is the smallest country in East Africa geographically, encountered genocide in 1994 which was the worst in history. This was as a result of ethnicity and political instability that existed in the country (Kimenyi and Kibe, 2014).This greatly affected the economy negatively as shown in figure 1.However, Rwanda has improved significantly in terms of corruption perception index compared to the other member countries (corruption perception index, 2015). This has greatly enhanced economic performance in Rwanda.

Tanzania has experienced political stability in the past decades and a series of political, economic and transparency and accountability reforms. These reforms have greatly attracted foreign aid which has immensely improved the economic performance of Tanzania. Transparency and accountability in governance are believed to be some of the reasons for increasing economic growth rates for Tanzania as shown in figure 2 above (Sophia and Khan, 2010).

From 2012 to 2015, Uganda was rated very low in the public sector performance in terms of transparency, accountability and corruption as shown in figure 2 above. This led to decline in GDP growth rates as shown in figure 1.

1.1Statement of the problem

The weakness of the institutions in East Africa and Africa at large stems from lack of enforcement of the rule of law, mismanagement of public funds and resources, corruption, lack of a strong civil society, political instability and insecurity (Asfaw and Mbeche,2004). Corruption has been widespread across many African countries. This has greatly affected Africa in terms of economic performance (Mauro, 1995). Different factors have been used to explain economic growth across-countries. However, previous studies have not analyzed the impact of Economic institutions on long term economic growth conclusively. Although many studies such as (Acemoglu et al, 2001; Asfaw and Mbeche 2004; Bassanini et al, 2001; Barro and Salai-i-Martin, 2004), have tried to investigate the impact of economic institutions on long term economic growth, most of the studies give results which are conflicting. Also, previous studies have not identified the aspects of Economic institutions that matter the most for economic growth in east Africa. This clearly shows that the role played by Economic institutions on economic growth remains unresolved.

This study will investigate the effect of Economic institutional quality on performance of the economy in east Africa and even the mechanism through which institutions affect economic growth in east Africa.

1.2 Research question

This study addresses the following question

i. What is the impact of economic institutions on long term economic growth in East Africa?

1.3Objectives of the study

The broad objective of this study is to investigate the impact of Institutional quality on long term economic growth.

The specific objectives are:

i. To investigate the effect of Economic institutions on long term economic growth in East Africa.
ii. To investigate the mechanism through which economic institutions affect economic growth in East Africa.
iii. To give policy-recommendations as regards to the above objectives

1.4 Justification of the study

This study is important to policy makers because it will help them evaluate the effect of the level of institutional quality on economic growth in East Africa with a view of improving the quality of Economic institutions to enhance economic growth in the region. This study therefore will enable policy makers evaluate the existing policies in order to come up with clear and relevant policies geared towards achieving good economic institutions in the region to promote economic growth.

In addition, very few studies have been done about the effects of institutional quality on long term economic growth in east Africa. For example, (McAuliffe, Saxena and Yabara, 2012) claimed that growth in East Africa was attributed to macroeconomic stability, financial sector deepening, improved business environment, human capital and infrastructural development. The previous studies have not identified the aspects of Economic institutions that matter the most for economic growth in east Africa. These aspects would include; Control of corruption, regulatory quality, security of property rights, and enforcement of the rule of law.

This study is also crucial for scholars because it adds value to the existing literature on the role institutions play on long term economic growth in East Africa, and the mechanisms through which institutions affect economic growth. The study will also contribute to the existing literature in addressing future research problems.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical literature

2.1.1 Growth theories

Several theories of growth have been put forward by different authors to explain growth and generally the economic performance of a country. These models use capital, labor and technology to explain economic growth. First and foremost, the Harrod-domar growth theory was developed in 1930s and it suggests that the rate of economic growth depends on savings and the capital –output ratio in an economy jointly (Todaro and Smith, 2006).The model suggests that higher savings and investment are good for the growth of the economy. The theory also claims that economic growth will be zero where there is no net investment.

It is also argued that a steady capital accumulation through saving and investment, with a certain level of efficiency and technology, leads to economic growth through capital accumulation. Harrod-Domar suggests that economic growth relies on three factors which include; saving rate which is determined by households, the capital output ratio which portrays how firms base their demand for capital on the quantity of output they intend to produce and the depreciation rate which is as a result of the investment decisions quality undertaken in the past (Todaro and Smith 2009).The Harrod –Domar theory carries importance for countries which are less developed economically, where there is plenty labor supply but limited physical capital. This ultimately leads to slow economic growth. Since most of the less developed countries do not have enough incomes to enable enough saving rates, physical –capital stock accumulation via investment is low. This theory implies that policies are required for the economy to grow by stimulating investments and increment in savings.

In addition, another growth theory known as Solow –Swan was developed in 1956.They developed an economic model of long run economic growth under the neoclassical economics framework. This theory helps to explain economic growth in the long –run by considering capital accumulation, labor or population growth and productivity increase which is also known as technological progress (Solow, 1956). They argued that income levels of poor countries will tend to converge towards the income levels of rich countries provided the less developed countries

have the same saving rates for both human and physical capital as a share of output (Todaro and Smith, 2009). They called this conditional convergence. For example, Japan which was once poor, has converged to the level of rich countries because it raised its savings rates in the 1950's and 1960's.However, the growth of output per worker has slowed down due to the fact that its saving rates stabilized at around 1970's as the model predicts. They made an assumption of diminishing returns to capital and that technological improvements and per capita growth rate must finally come to an end. Moreover an endogenous growth theory was established to counter this Solow-Swan assumption.

According to Jeffrey parker (2012), the pioneer of endogenous growth model is Paul Romer. The main reason why this theory was established was to eliminate the Solow's assumption of decreasing returns to capital. Romer and his followers gave a wider definition of capital in order to departure from the long –established assumption of microeconomic theory. Romer and his followers defined capital to include knowledge capital and /or human capital. This ensured that the assumption of decreasing returns to capital from the previous theories was eliminated. Human capital means the acquired characteristics that enable workers to be more productive.

Even though it consists of characteristics such as strength, health and stamina, the sources of human capital that are commonly analyzed are training, education and experience that workers embody. The difference between human capital and knowledge capital is that the latter is potentially a public good but human capital is not Human capital is personal since it does not increase somebody else's productivity. Romer models the production of improvements in technology by including physical capital alongside knowledge capital. The important issue in this model that distinguish it from other models is that the introduction of knowledge or human capital can allow the elimination of the usual assumptions of diminishing returns to capital and constant overall returns to scale.

2.2 Determinants of long term economic growth

Acemoglu et al (2005), claims that there are three fundamental determinants of long term economic growth. These factors include; Economic institutions, geography and culture. These authors believed that capital accumulation, economies of scale, innovation, education and policies are proximate factors that cause growth. In fact, North and Thomas had the same view that factor accumulation and innovation are just proximate causes of growth. These authors

continued to argue that, comparative growth is fundamentally explained by differences in institutions.

The authors also argued that the theory that differences in economic institutions are important cause of different economic growth patterns is found on the notion that it is the way that humans themselves decide to organize or arrange their societies that determines whether they will prosper or not. There are certain ways in which people may organize their society that may encourage innovation, risk taking and even to save for the future, to learn and educate themselves, to find efficient ways of doing things, to solve collective action problems and public goods provision. This idea that society's prosperity depends on its economic institutions dates back to Adam Smith.

Jones and Harold (1981) argued that societies are prosperous economically the moment they have good economic institutions. These good institutions are inter-linked with a number of things. He claims that property rights must be enforced for the entire society to ensure all individuals have an incentive to innovate and invest and to enable people take part in economic activity. Also, opportunities in the society must be shared equally; things such as equality before the law, so as to give individuals with viable investment opportunities a position to benefit. However, this study will dwell on the impact of Economic institutions on economic growth as opposed to other factors like geography and culture.

2.3 Institutional theories

North (1990) defines institutions as the humanely devised rules in a society that shape human interactions. Also, Scott (2008) defines institutions as the complex long lasting socially set structures, made up of different components; material resources and social activities. Institutions are both formal and informal. Powell and DiMaggio (1991) claims that formal rules contain political rules, contracts and economic rules, informal rules contain customs, traditions and taboos. Both of these institutions give a pattern to human behavior by enabling and constraining their various activities.

First and foremost, the old institutional theory emerged in the early twentieth century. It emerged due to the fact that Veblen and Ayrens who are the proponents of the theory, were not satisfied about the assumptions of the mainstream economic theory. This theory revolves around the

norms, common beliefs and values that join together action patterns. According to old institutional economics, institutions are dependent on individuals that dwell in various social settings; this is due to the fact that institutions exist due to the individuals' behavior. This theory differs from the new institution theory in that it assumes institutions are not independent of the individuals that inhabit the various social settings. Old institution economics recognizes individual behavior as interlinked with the institutions that govern most of the social life: institutions simplify choices; they are part of the individual behavior (Sjostrand, 1995).

In addition, the new institutional theory was established to counter the existing assumptions of the old institutional theory. According to Menard and Shirley (2011), this theory is founded on the Ronald Coase's work and mostly on his ideas on transaction costs. This transaction cost concept arose in the Coase's paper of 1937, when he had some questions about why there are firms and the reason why all the exchange does not take place in the market. He answered himself that transaction costs must arise in the market. Moreover, he argued that a firm can reduce the transaction costs given certain conditions by doing \away with bargains among the numerous owners of factors of production and substituting them with coordination by a hierarchy. This theory postulates that, the organization of transactions, with the compulsory costs it incurs, will clearly determine the goods and services to be produced and the output of any economy to take advantage on specialization and labor division. This implies that the costs of transactions influence not only the individual firms but also the size of the whole economy.

Also, Menard and Shirley (2011) argue that there are three concepts that are core to this new institutional theory. They include transaction costs, contracts and property rights. Coase argued that transaction costs shape the size and activities undertaken by individual firms as well as the activities and size of the complete economy. This concept of transaction costs is used broadly in new institutional theory to include the cost of finding trade partners, monitoring contractual partners' behavior and agreement enforcement, negotiating and contract drawing and other costs involved in an effort to define measure and enforce property rights or agreements to exchange property rights (Greif and Kingston, 2011). The idea of contracts was also introduced by Coase in his 1937 paper with the following assumptions; contracts are agreements arrived at by different parties whether written or unwritten which are never enforced perfectly and never perfectly complete.

Alston and Mueller (2008) argues that the new institutional theory addresses two major issues that is, the determinants of institutions and the impact of institutions on economic performance. He argued that it is as a result of institutions through property rights and costs of transaction that eventually influence the ability of individuals and societies to benefit from trade gains which in turn leads to improved economic performance. Alston and Ferrie (1999) argued that this theory is basically about institutions and economic performance.

They claimed that institutions determine economic performance and that economic performance determines institutions. This theory focuses more on the cognitive aspects of institutions that is the reason it differs from the old institution theory. This theory proposed that formal organizational structure reflected not only technical demands and resource dependencies, but was also shaped by institutional forces, including rational myths, knowledge legitimated through educational system and by the professions, public opinion and the law (Walter et al. 1991).Also, they argued that organizational practices and structures are mostly a reflection of the beliefs, rules and conventions that are built into the broader environment.

2.4. Empirical literature

Hall and Ahmad (2014) used neoclassical growth model augmented with institutional controls and panel data analysis to study the important institutional qualities in East Asian countries and other developing countries and found the channel of their impact toward growth. They found that security of property rights (using investment and law and order as proxies and bureaucratic efficiency which was proxied by government stability variable had a significant importance for growth in all developing countries. property rights security and government characteristics which are strong were found to be the crucial aspects of institutional quality for the growth performance of the East Asian countries during the period (1984-1996).However this study failed to show any impact of institutions on economic growth after this period.

In addition, Acemoglu and Robinson (2010) argued that the fundamental cause of economic growth differences across countries are the institutions; and that it is possible to come up with a framework to understand why and how institutions differ across countries, and how they change. However, they did not explain how institutions can be improved so as to boost or promote economic growth. Moreover, institutions may differ across societies or countries due to formal methods of collective decision; that is, democracy versus dictatorship or because of the societies

economic institutions; including security of property rights, entry barriers, and the set of contracts available to business people.

Many studies documents large debates about economic institutions among countries, and a well-built relationship between economic performance and institutional quality. For instance, Knack and Keefer (1995) looked at measures of property rights enforcement, Mauro (1995) looked at measures of corruption and Djankov et al (2002) looked at measures of entry barriers in different countries. All the authors of these studies report significant differences in these economic institution's measures and a powerful correlation between the measures and various economic performance indicators. (Acemoglu and Robinson, 2010).For instance, Djankov et al. (2002) found that, while the accumulated cost of starting off a business in the America was below 0.02% of per capita Gdp in 1999, similar cost was 2.7% of per capita Gdp in Nigeria, 1.16% in Kenya and 0.91 percent in Ecuador. The entry barriers were proved to be highly correlated with various economic outcomes, including growth rates and the level of development. This correlation nevertheless, does not show that the countries with worse institutions are poor because of their institutions.

Acemoglu et al. (2001) argues that European powers did not introduce much protection for private property nor did they provide checks and balances against the government in a number of colonies, that is, in Africa, Central America, Caribbean and south Asia. The motive of colonizers in these countries was purely resource extraction. The institutions set up in these colonies were totally different from the ones set up in America, Canada and Australia. In these countries, they emphasized on the enforcement of property rights for a wider cross-section of the society, mostly the entrepreneurs, smallholders and the merchants.

Ajab 2013 argued that African economic growth for the period 2001-2010, was 5.7 per cent per annum. They attributed this growth to factors such as improved political stability, less conflict, domestic economic reforms and favorable external environment. Collier (2007) also argues that better commodity prices have been a key driver of African economic growth. Moreover, it is claimed that the slow growth in African economies is attributed to poor institutions. Good governance or good institutions are crucial for long term economic growth and development.

Aron 2000 argued that Tanzania, Ethiopia and Rwanda had tried to put in place good institutions and price reforms and that enabled them to become some of the rapidly growing economies in Africa

McAuliffe, Saxena and Yabara (2012), claimed that the factors that have contributed to east African countries sustained growth include; investment and productivity, improved macroeconomic stability and quality of institutions and infrastructure. They found that countries that followed prudent macroeconomic policies and improved institutions translated growth into sustained growth. Nevertheless, there is no universal agreement on what determines growth. Different factors that determine growth are believed to vary from one country to another like macroeconomic policies, trade and investment, economic and political institutions, infrastructure and financial development, income distribution and human capital.

2.5 Overview of literature

Most of the studies done on growth determinants show the importance of institutional quality on economic growth and development. In spite of the fact that Results from different empirical analysis show the presence of economic growth-institution nexus, there is no statistical uniformity across all the institutional quality indicators. The results attained are mixed up depending on the group of countries in the analysis, institutional variables selected and the time the study was conducted. The limited number of studies conducted on east African countries about institutions and economic growth has not dealt with the issue conclusively. Instead they have included proximate causes to explain economic growth. For example, McAuliffe, Saxena and Yabara, (2012) uses investment and productivity, macroeconomic stabilization policies, external competitiveness, financial deepening, and quality of institutions to explain growth.

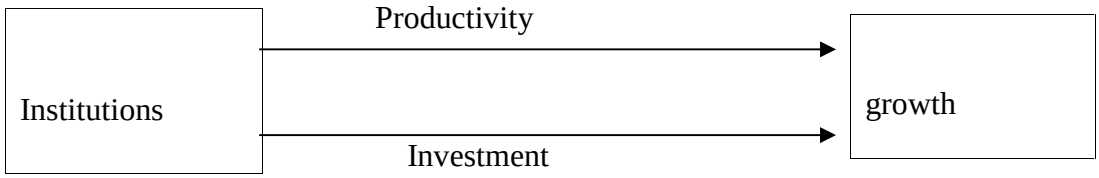
Also, questions arise from literature about which aspects of Economic institutions matter most for long run economic growth. This study seeks to investigate the impact of Economic institutions on economic growth and the mechanisms through which institutions affect economic growth in East Africa. This was necessitated by the fact that most Scholars have not focused their attention on Economic institutions as long term determinant of economic growth in East Africa.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Conceptual Framework

According to Hadhek (2012), institutions affect growth through productivity and investment mechanisms as shown in the diagram below



Ajab (2013) claimed that, growth in total factor productivity is attributed to output growth which is not caused by capital, labor or land which are the traditional production factors. He further suggested that total factor productivity does not measure technology alone because it could also be a function of some other variables. Accumulation of capital affects growth in the short run according to the neoclassical view, but diminishing returns to capital set in eventually. This means that productivity growth in the long term is completely as a result of technological progress which is determined exogenously (Stiroh, 2001).

According to Stiroh (2001), the Solow and the endogenous theories of growth give varied insights about growth and productivity. Solow argued that productivity in the long term is driven by technological progress which is determined exogenously. The endogenous growth theory on the other hand claimed that long run productivity is determined by avoiding diminishing returns to capital, and technological progress which is determined endogenously or internally**.** The model claimed that investment in research and development, innovation and improvement in the production efficiency would ensure absence of diminishing returns to capital.

Moreover, Harrod-Domar growth theory claimed that economic growth rate is determined by the savings ratio and capital-output ratio together. The theory implies that for an economy to grow, it must save and invest a certain fraction of their GDP. The more economies save and invest, the more rapid growth will be experienced (Todaro and Smith, 2006).

3.2 Theoretical framework

The Solow growth model uses capital, labor, technology and output to explain a country's growth path. It takes population growth; saving rates and technological progress as exogenously determined. Using these specifications, a production function can be set as follows

$$Y(t) = K(t)^{\tilde{}}\,(A(t)L(t)) \qquad (1)$$

$A(t)L(t)$ = the labor unit which is effective and grow at the rate of n+g. It is assumed a fraction of output, s, is saved and capital per effective unit of labor and output per effective unit of output is given as shown below respectively;

$$k = \frac{K}{AL}$$

$$y = \frac{Y}{AL}$$

Rewriting this production function in per capita terms we obtain the following equation

$$y(t) = k^{\tilde{}}(t)$$

According to this model, population and technology grow exogenously at rates n and g respectively.

Therefore, given initial levels of L and A, this will imply that labor and technology (knowledge) will grow exponentially as shown in the following equations.

$$L(t) = L(0)e^{nt}, \qquad (2)$$

$$A(t) = A(0)e^{gt} \qquad (3)$$

Where n is the population growth rate and g is the rate of technological growth.

Also, evolution of capital accumulation is expressed in the following equations;

$$\Delta K(t)/\Delta t = I(t) - \delta K(t) \quad (4)$$

Where;

I (t) is investment, δ is the depreciation rate and $\Delta K(t)/\Delta t$ is the rate of capital accumulation

Investment funding through savings shown as

$$I(t) = S(t)$$

$S(t) = sY(t)$ where $0<s<1$ is the marginal propensity to save. Therefore,

$$\Delta K(t)/\Delta t = sY(t) - \delta K(t)$$

In Per effective labor units, refer to the Appendix

North (1990) claimed that institutions determine the long run economic growth in a country. According to Polimeni et al (2007), we can augment further the Solow growth model to capture institutional variables. The production function now becomes

$$Y(t) = K(t)^{\tilde{}}\ H(t)\ \ (J(t)A(t)L(t))^{1-\tilde{}-} \quad (5)$$

Where;

J = a matrix of institutional variables that affect economic growth

K = physical capital

Y =output

H =human capital

(AL) =labor-augmenting technology

According to Polimeni et al (2007), physical capital and human capital per effective unit of labor can be expressed respectively as shown below

$$k(t) = s_k J^{1-\tilde{}-}\ k(t)^{\tilde{}} - (n + g + ¢)k(t) \quad (6)$$

$$h(t) = s_h J^{1-\sim-} \quad h(t) \quad -(n+g+¢)h(t) \tag{7}$$

These equations imply that, the economy converges to steady-state when

$$k^*(t) = J(t)\left(\frac{s_k^{1-} \; s_h}{n+g+¢}\right)^{\frac{1}{(1-\sim-)}}$$

(8)

$$h^*(t) = J(t)\left(\frac{s_k^{\sim} s_h^{1-\sim}}{n+g+¢}\right)^{\frac{1}{(1-\sim-)}} \tag{9}$$

Using equations (8) and (9), the steady-state growth path of $y^*(t)$ is expressed as follows

$$y^*(t) = J(t)s_k^{\left(\frac{\sim}{1-\sim-}\right)} s_h^{\left(\frac{}{1-\sim-}\right)} (n+g+¢)^{\left(\frac{-(\sim+)}{1-\sim-}\right)} \tag{10}$$

All the variables grow uniformly at the steady state at the rate g. Also the steady state economic growth depends on investment rate levels of both human and physical capitals and the quality of the institutions. By substituting equation (8) and (9) into equation (5) and taking the natural logarithms, we will obtain an equation for income per worker

$$\ln\left[\frac{Y(t)}{L(t)}\right] = \ln A(0) + gt + \ln J(0) - \frac{\sim+}{1-\sim-}\ln(n+g+¢) + \frac{\sim}{1-\sim-}\ln s_k + \frac{}{1-\sim-}\ln s_h \tag{11}$$

3.2 Empirical model

Mankiw, Romer and Weil (1992) used the neoclassical model to explain the impact of human capital on economic growth without neglecting the traditional factor inputs that is, labor and physical capital. Based on MRW (1992) model, we can formulate an estimation model for this study as shown below

$$Y_t - Y_{i,t-1} = g_{it} = \; Y_{i,t-1} + \; {}_i X_{it} + \sim_i IQ_{it} + C_i + Y_t + £_{it} \tag{1}$$

Where;

i is the country dimension and *t* is the time dimension.

g_{it} =the growth rate of real GDP per capita

$Y_{i,t-1}$=initial real GDP per capita

X_{it} =This is a vector of control variables

IQ_{it} =institutional quality indicators

C_{it}=denotes country specific effects

Y_t =denotes year effects

$£_{it}$ =the error term

One major challenge of estimating equation (1) using OLS is that presence of dynamic panel bias is experienced due to the fact that the lagged variable is endogenous to the fixed effects (Ci).OLS estimates therefore are biased and inconsistent because the error term will be correlated with the lagged variable. However, first differencing equation (1) eliminates the individual effects (Ci) thus removing the source of bias.

$$\Delta Y_{it} = \Delta Y_{i,t-1} + {}_i\Delta X_{it} + \sim\Delta IQ_{i,t} + \Delta Y_t + \Delta £_{it} \qquad (2)$$

Since we have variables that are not strictly exogenous, the moment they are first-differenced, they become endogenous due to the fact that the first difference and the error term will be correlated. Arellano and Bond (1991) came up with the generalized method of moments (GMM) for estimating dynamic panel models. This method solves the problem of endogeneity.

Panel data analysis was used and Hausman specification test conducted to choose between fixed and random effects models. This study employed generalized method of moments (GMM) to correct the problem of endogeneity.

3.3 Data variables and sources

Empirical analysis consists of the five east African countries that is, Kenya, Uganda, Tanzania, Rwanda and Burundi over the years from 1980-2015 .To come up with IQ; we used the

worldwide Governance Research Indicators of Kaufmann et al (2009). The data for the other variables comes from the world development indicators.

The definitions of the variables in consideration for the analysis are discussed as follows**:**

- The dependent variable (g_{it}) is the growth rate of real GDP per capita in US dollar current prices.
- Institutional quality *(IQ*) this denotes the six indicators of governance by (Kaufmann et al, 2009) .The indicators include; political stability and absence of violence, voice and accountability, government effectiveness, regulatory quality, Rule of law and control of corruption.

Besides the institutional quality indicator variables in the equation, we add several other variables to act as control variables

- Government consumption ($X1$): This is the government consumption expenditure calculated as a percentage of GDP. Acemoglu et al. (2003a) argued that government expenditure is powerless in relation to growth prediction, volatility of output or variations across countries in terms of per capita income the moment indexes for institutional quality are included in the analysis.
- Inflation volatility ($X2$): higher inflation is not good for the economy because it shows a macroeconomic instability in the economy. Consumer price index will be used as a proxy for inflation. Acemoglu et al. (2003a) argued that inflation is powerless in relation to growth prediction, volatility of output or variations across countries in terms of per capita income the moment indexes for institutional quality are included in the analysis.
- Trade openness ($X3$): The share for trade is computed as imports plus exports of goods and services. Easterly et al. (2004) also concluded that macroeconomic policies such as trade openness have no effect on performance of the economy once institutions are accounted for in the estimation.
- Investment in human capital ($X4$): This is the enrolment in secondary school expressed as percentage of GDP. Mankiw et al, (1992) controlled for human capital to show that there is conditional convergence among various countries with distinguishable endowments.

- Population growth ($X5$): the difference of current population and the initial. Nadeem and Riham (2008) used this as a control variable in their study on Gulf-countries and regional growth.
- Investment in gross fixed capital ($X6$): the gross fixed capital investment as a percentage of GDP. Nadeem and Riham (2008) used this as a control variable in their study on Gulf-countries and regional growth.

CHAPTER FOUR
DATA ANALYSIS AND EMPIRICAL RESULTS

4.1 Introduction

This chapter presents analysis of the empirical results of the study. It entails descriptive statistics, correlation matrix for the variables under study. Also, Pooled OLS, fixed and random effects models were applied. Hausman test was conducted to choose between fixed and random effects models. Finally system GMM was applied to correct the problem of endogeneity.

Table 4.1: Descriptive Statistics

Variables	Observations	Mean	Std. Dev.	Min	Max
Real GDP per capita growth	180	0.01	0.06	-0.58	0.37
Population growth (annual %)	180	2.89	1.47	-6.34	7.99
General final government consumption(% of GDP)	180	79.87	51.52	1.00	169
Consumer price index	180	74.64	50.41	1.00	163.00
Gross fixed capital formation(%of GDP)	180	79.87	51.52	1.00	169.00
Trade openness	180	4.19	6.85	0.02	61.50
Investment in human capital (%of GDP)	180	501.19	2120.85	0.58	12600.00
Control of corruption	180	-0.32	0.48	-1.44	0.83
Government effectiveness	180	-0.29	0.41	-1.73	0.07
Political stability and absence of violence	180	-0.48	0.68	-2.51	0.07
Regulatory quality	180	-0.22	0.39	-1.67	0.25
Rule of Law	180	-0.34	0.46	-1.73	0.08
Voice and accountability	180	-0.33	0.48	-1.75	0.00

Source: World development indicators

.

Table 4.2: Correlation matrix

	Real GDP per capita growth	Population growth (annual %)	General final government consumption(% of GDP	inflation	Gross fixed capital formation(% of GDP)	Trade openness	Control of corruption	Government effectiveness	Political stability and absence of violence	Regulatory quality	Rule of Law	Voice and Accountability
Real GDP per capita growth	1.00											
Population growth (annual %)	0.14	1.00										
General final government consumption(% of GDP)	-0.05	0.12	1.00									
inflation	0.22	0.10	0.14	1.00								
Gross fixed capital formation(% of GDP)	0.17	-0.05	0.32	-0.02	1.00							
Trade openness	-0.09	-0.03	0.04	0.13	-0.04	1.00						
Control of corruption	-0.06	-0.07	-0.16	-0.22	-0.27	-0.03	1.00					
Government effectiveness	-0.06	-0.07	-0.18	-0.22	-0.32	-0.00	0.86	1.00				
Political stability and absence of violence	-0.09	-0.09	-0.10	-0.26	-0.20	0.03	0.84	0.90	1.00			
Regulatory quality	-0.04	-0.08	-0.18	-0.22	-0.25	-0.04	0.67	0.90	0.77	1.00		
Rule of Law	-0.08	-0.08	-0.12	-0.24	-0.21	0.01	0.82	0.92	0.93	0.85	1.00	
Voice and Accountability	-0.14	-0.03	-0.04	-0.19	-0.19	0.08	0.51	0.72	0.77	0.73	0.79	1.00

The descriptive statistics guided on the estimation equation models which were able to give better results and highlighted the possible problems to encounter in the analysis. However, there was need to back up the statistics with a more incisive quantitative analysis such as the correlation matrix. This matrix was a crucial indicator that tested the linear relationship between the explanatory variables. The correlation matrix also aided in the determination of the strength of the variables in the model, that is, which variables best explained the relationship between real GDP per capita growth and its determinants. This was crucial because it helped in deciding which variable(s) to drop from some of the equations. The institutional variables were almost all of them 70% strongly correlated with each other. This meant that multicollinearity problem would arise in the regression. To solve this problem I ran different regressions with each institutional variable at a time.

4.2 EMPIRICAL RESULTS

This data analysis section is subdivided into several parts. To start with, we tested the impact of economic institutions on real GDP per capita growth by running several regressions. We included the institutional variables one by one in the regressions apart from the OLS pooled regression. We also used a calculated institutional index to find out how institutions impact on real GDP per capita growth. The other part would be to find out the mechanisms through which economic institutions affect growth. This was tested through interaction of terms. There is a very big problem in the estimation of the dynamic model by use of the OLS. This is due to the fact that, the lagged explained variable is endogenous to the fixed effects (Ci), which leads to dynamic panel bias. This implies that OLS estimates of this type of model would be biased and inconsistent. In this study, OLS estimates were not reliable since they were biased and inconsistent

Table 4.3

	Pooled OLS	fixed	random
Realgdppercapitagrowth_1	-0.16**	-0.27***	-0.27***
	(0.07)	(0.08)	(0.08)
Population growth (%annual)	0.0065*	0.0042	0.0042
	(0.00)	(0.00)	(0.00)
General government finalconsumption1(% of GDP)	-7.7E-05	-0.0000253	-0.0000253
	(0.08)	(9.2E-05)	(9.24E-05)
Inflation	0.00027***	0.00053***	0.00527***
	(0.08)	(0.00)	(0.00)
Gross fixed capital formation1(% of GDP)	0.00018**	0.0004***	0.0038***
	(8.61E-05)	(0.00)	(0.00)
Trade openness	-0.00104*	-0.0011	-0.00106*
	(0.000597)	(0.00064)	(0.0006)
Investment in humancapital1 (%of GDP)	-2.05E-06	-1.20e-06	-1.20E-07
	(2.10E-06)	(2.34E-06)	(2.34E-06)
Country effects		yes	yes
Time effects		yes	yes
Hausman test			prob>chi2=0.6026
constant	0.00383	-0.0218	-0.0404
Number of observations	180	180	180
R-Squared	13.27%	41.08%	47.09%

*Note: The asterisk ***, **,* shows 1%, 5% and 10% significant levels respectively and the standard errors are in parenthesis*

4.2.1 Results Discussion

Initial GDP per capita had the expected negative coefficient, which shows consistency with conditional convergence in income among countries and it was statistically significant in all the models on table 4.3.The results were consistent with those of Osman et al (2011). Trade openness coefficients were negative and statistically significant at 10% level of significance as shown in model 1 and 3.This meant that unfavorable trade would have adverse effects on economic performance in the region. This was consistent with results of Hadhek (2012) whereby he argued that trade openness could sometimes have a positive or negative coefficients. Gross fixed capital formation had positive and significant coefficients for all the three models. This implied that a one unit increase in investment in fixed capital leads to an increase in real GDP per capita by 0.00018, 0.004 and 0.0038 respectively as shown in the three models. These results were consistent with Artelaris et al (2010) who claimed that gross fixed capita formation was a crucial determinant of economic performance. Consumer price index had positive and significant coefficients in all the models. This was inconsistent with economic theory since we expected a negative coefficient. Population growth had a positive and significant coefficient in model 1.This implied that a one unit increase in population growth would lead to increase in real GDP per capita growth by 0.0065. The adjusted R-squared were 13.27%, 41.08% and 47.09% respectively for the three models in table 4.3.This implied that 13.27% of the variations in real GDP per capita were explained by the explanatory variables included in model 1.There was an improvement in the value of the R-squared in the fixed effect model where 41.08% of the variations in real GDP per capita were explained by the explanatory variables in the model. Again, for the random effects model estimation, the coefficient of determination improved further which meant that 47.09% of the variations in real GDP per capita were explained by the explanatory variables included in the model.

Table 4.5

Random effects models with institutional variables included

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Real GDP per capita growth_1	-0.29***	-0.27***	-0.27***	-0.28***	-0.27***	-0.28***	0.27***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Population growth (%annual)	0.004	0.0043	0.004	0.0044	0.004	0.0042	0.004
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Government consumption	-0.00	-2.4E-05	-3.5E-05	-0.00	-2.6E-05	-0.00	-0.00
	(9.15E-05)	(9.27E-05)	(9.28E-05)	(9.31E-05)	(9.27E-05)	(9.29E-05)	(9.26E-05)
Inflation	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***	0.0005***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Gross fixed capital formation	0.00041***	0.00038***	0.00038***	0.00038***	0.00038***	0.00039***	0.00038***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade openness	-0.0011*	-0.00115*	-0.00124*	-0.00099	-0.00113*	-0.00093	-0.00119*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Investment in human capital1	-3.99E-07	-1.17E-07	2.54E-07	-1.23E-07	-4.17E-08	-5.52E-07	3.54E-08
	(2.32E-06)	(2.34E-06)	(2.36E-06)	(2.34E-06)	(2.35E-06)	(2.42E-6)	(2.35E-06)
Control of Corruption	0.0278*						
	(0.01)						
Government Effectiveness		0.01					
		(0.02)					
Political Stability and Absence of violence			0.01				
			(0.01)				
Regulatory Quality				-0.00			
				(0.02)			
Rule of Law					0.00		
					(0.018)		
Voice and Accountability						-0.013	

						(0.0194)	
Institutional index							0.0156
							(0.0216)
Country effects	yes	yes	yes	yes	yes	yes	yes
Time effects	yes	yes	yes	yes	yes	yes	yes
constant	-0.0320	-0.0362	-0.0350	-0.0433	-0.0372	-0.0408	-0.0356
Number of observations	180	180	180	180	180	180	180
R-squared	48.51%	47.22%	47.56%	47.20%	47.19%	47.29%	47.67%

*Note: The asterisk ***, **,* shows 1%, 5% and 10% significant levels respectively and the standard errors are in parenthesis.*

The coefficient for control of corruption was found to be positive and statistically significant at 10% level. This meant that a unit increase in control corruption would increase real GDP per capita growth by 0.03units.This clearly shows that institutional quality has positive impact on economic performance. The positive coefficient of control of corruption is consistent with the results of Li et al (2000), Tanzi and Davoodi (2000) and Mauro (1995). Mauro argued that it was through investment mechanism that corruption affected economic performance. The results were also in line with the results of Ndikumana (2007) and Gyimah-Brempong (2002) on their African studies. Therefore, there is need for controlling corruption in East Africa to promote economic growth. Government effectiveness and Political stability and absence of violence had positive coefficients just like in the case of Aubeeluck (2014) but were not statistically significant. This meant that they were positively related to real GDP per capita growth but failed to cause any variation. Regulatory quality and voice and accountability coefficients were negative and statistically insignificant .The negative coefficients implied that they were negatively associated with economic performance in East Africa. Rule of law coefficient was positive and not significant. This was different from the results of Knack and keefer (1995) who argued that rule of law was significant in explaining growth. The positive coefficient meant that rule of law and economic performance in East Africa had a positive association. However, the institutional index had also a positive coefficient but not significant.

Table 4.6 System gmm results

Real GDP per capita growth	Coef.	Std. Err.
Real GDP per percapitagrowth_1	-0.19***	0.08
Population growth	0.006**	0.00
Gross fixed capital formation	0.00024***	0.00
inflation	0.00026***	0.00
General government final consumption	-6.5E-05	0.00
Investment in human capital	-1.97E-06	0.00
Trade openness	-0.0009	0.00
Control of Corruption	-0.021	0.02
Government Effectiveness	-0.03	0.04
Political Stability and Absence of violence	0.023	0.02
Regulatory Quality	0.024	0.03
Rule of Law	0.016	0.03
Voice and Accountability	0.044***	0.02
_cons	0.0001	0.01

Arellano-Bond test for	AR(1) in first differences: z = -4.42	Pr > z = 0.000
Arellano-Bond test for	AR(2) in first differences: z = -1.90	Pr > z = 0.057
Sargan test of overid.	restrictions: chi2(156) = 163.08 Prob	> chi2 = 0.333

*Note: The asterisk ***, **,* shows 1%, 5% and 10% significant levels respectively*

System Gmm results on real GDP per capita growth, control variables and institutional quality indicators whereby a sample consisting 5 countries from 1980-2015 are shown in table 4.5.Since economic growth can be affected by institutional variables and vice versa, and also that the explanatory variables are not strictly exogenous, we treated all the explanatory variables as endogenous. For the first difference equations we lagged the variables two periods to be used as instruments and for the levels equation we lagged once their first differences. Since the P-value of the sargan test was higher than 5%, the sargan test of over identification showed that the instruments used were valid.

The Arellano-Bond (AR2) showed that the error term of the differenced equation was not serially correlated with the explanatory variables particularly at the second order (AR 2). The initial GDP per capita has the expected negative coefficient, which shows consistency with conditional convergence in income among countries and it is statistically significant at all levels. This shows

convergence sign as argued in the theories of growth. The negative sign indicates that countries with lower initial GDP have the possibility of catching up with the other countries because they are experiencing higher growth rates. Population growth and inflation had statistically significant coefficients but had the unexpected sign. This result was different from Ari and Veiga (2012), who found that population growth and inflation were negatively related to economic growth. Trade openness coefficient was negative and statistically significant. This result also was different from Ari and Veiga (2012), who found that trade openness, had a positive impact on economic growth. However, the results were consistent with Hadhek (2012) who claimed that trade openness could bear a negative or a positive coefficient.

Also, government final consumption had a negative coefficient and not significant. This was in line with Acemoglu et al (2003a) who argued that macroeconomic variables such as government expenditure would be powerless in explaining economic growth the moment institutional variables were included in the analysis. Investment in gross fixed capital had a positive and statistically significant coefficient. This was the expected result and it implies that investment in gross fixed capital if increased by one unit will lead to increase in real GDP per capita by 0.00024 units. These results were also in line with Ari and Veiga (2012).Moreover, voice and accountability was the only institutional quality indicator with a positive and statistically significant coefficient. This means that increasing voice and accountability by one unit will lead to increased real GDP per capita by 0.044 units.

Table 4.7 System Gmm

Real GDP per capita growth	Coef.	Std Err.
Real GDP per capita growth_1	-0.20963***	0.08
Population growth annual (%)	0.005274**	0.00
inflation	0.000302***	0.00
Gross fixed capital formation(% of GDP)	-0.00022**	0.00
Government final consumption(% of GDP)	1.70E-06	0.00
Voice and accountability*investment in human capital	-7.4E-05	0.00
Investment in human capital(% of GDP)	-1.36E-06	0.00
Voice and accountability* Government final consumption	0.0004**	0.00
Voice and accountability*inflation	0.0002	0.00
Voice and accountability* investment in gross fixed capital	-1E-04	0.00
Voice and accountability* trade openness	0.00	0.00
Voice and Accountability	-0.0630**	0.03
_cons	-0.0103	0.02

Arellano-Bond test for	AR(1) in first differences: z = -2.87	Pr > z	=	0.004
Arellano-Bond test for	AR(2) in first differences: z = -0.81	Pr > z	=	0.416
Sargan test of overid.	restrictions: chi2(157) = 170.22 Prob	> chi2	=	0.223

*The asterisk ***, **,* shows 1%, 5% and 10% significant levels respectively*

After interacting the control variables with voice and accountability, the interaction term voice and accountability*government final consumption was positive and statistically significant. This means that with increased voice and accountability, government final consumption will be higher which in turn leads to increase in economic performance.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Summary

This study aimed at finding out the impact of economic institutions on economic growth in East Africa. In addition, it examined the mechanism upon which economic institutions affect economic growth in the region under study. Some of the institutional quality indicators were found to be important in explaining economic performance in East Africa .The results arrived at showed that control of corruption had a statistically significant effect on real GDP per capita growth as shown in the analysis. This implied that controlling corruption in the East African region would greatly improve the economic performance of the region. Voice and accountability also was found to be statistically significant in explaining economic growth in the region. In addition, the interaction term; voice and accountability*government final consumption had a positive and significant effect on real GDP per capita growth.

5.2 Conclusion

The study investigated the impact of economic institutions on long term economic growth in East Africa. The results arrived at showed that economic institutions are important in explaining long term economic growth across countries. This was consistent with the studies done by some authors such as Acemoglu et al (2005).This study found out that control of corruption and voice and accountability were significant in explaining economic performance in East African countries.

5.3 Policy Recommendations

The policy conclusion which we drew from our results is as follows; if the East African governments sought to increase their real GDP per capita growth, they must fight corruption and increase voice and accountability in their respective countries and improve their effectiveness in governance. This is due to the fact that corruption would lower Real GDP per capita if not dealt with as argued by different authors such as Mauro (1995). However, it is very challenging and tricky to control corruption in a country. Improved and strengthened governance and public institutions generally would reduce corruption. Even though it seems straightforward, reforming institutions might take long duration. One possible measure of curbing corruption which could be effective and able to implement might be the restructuring and reduction of government

consumption. This implies that public borrowing by the government must not only be reduced in spending but also restructuring the spending to ensure corruption prone programs do not get a lot of funding and that government funds are channeled towards programs which can be well managed and monitored. The restructuring of the institutions would bring down cases of corruption in a country. The institutional improvements would improve the economic performance of the region.

5.4 Limitations of the Study

The study used the Kaufmann et al (2009) governance indicators as measures of institutional quality of which data was missing for several years that is from 1980-1997.Also, obtaining data for the five East African countries was very challenging. This study did not factor in political institutions measures.

5.5 Areas for Further Research

Future research should be carried out on the effect of both economic and political institutions on real GDP per capita. This will be necessary in order to determine whether there will be any different results attained. It will be crucial to include the political institutions in the analysis because Acemoglu et al (2005) argued that good political institutions make it possible to have better economic institutions.

REFERENCES

Acemoglu Daron, Simon Johnson, and James A. Robinson. "Chapter 6 Institutions as a Fundamental Cause of Long-Run Growth." *Handbook of Economic Growth* (2005): 385-472. Web. 20 Aug. 2016

Acemoglu, Daron, and James Robinson."The role of institutions in Growth and Development.*"Review of Economics and institutions* 1.2 (2010):1-7.Web.24 Aug. 2016

Acemoglu, Daron, Simon Johnson, and James A. Robinson. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91.5 (2001): 1369-401. Web. 22 Aug. 2016

Acemoglu, Daron, Simon Johnson, James Robinson, and Yunyong Thaicharoen. "Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth." *Journal of Monetary Economics* 50.1 (2003a): 49-123. Web. 07 Sept. 2016.

Aisen, Ari, and Francisco JosÃ© Veiga. "How Does Political Instability Affect Economic Growth?" *IMF Working Papers* 11.12 (2011): 1. Web. 15 Nov. 2016.

Alston, Lee J., and Bernardo Mueller. "Property Rights and the State." *Handbook of New Institutional Economics* (2008): 573-90. Web. 07 Sept. 2016.

Alston, Lee J., and Joseph P. Ferrie. *Southern Paternalism and the American Welfare State: Economics, Politics, and Institutions in the South, 1865-1965*. Cambridge, U.K.: Cambridge UP, 1999. Print.

Amin, Aloysius Ajab. "Africa's Development: Institutions, Economic Reforms and Growth." *InternationalJournal of Economics and Financial Issues* 3.2 (2013): 324-36. Print.

Arellano, Manuel, and Stephen Bond. "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations." *The review of economic studies* 58.2 (1991): 277-297.web.15 Nov 2016.

Aron, J. "Growth and Institutions: A Review of the Evidence." *The World Bank Research Observer* 15.1 (2000): 99-135. Web. 15 Sept. 2016.

Artelaris, Panagiotis, Paschalis A. Arvanitidis, and George Petrakos. "Explaining Knowledge-Based Economic Growth in the World Economy." *Advances in Spatial Science Innovation, Growth and Competitiveness* (2010): 41-59. Web. 15 Nov. 2016.

Baliamoune-Lutz, Mina, Léonce Ndikumana, and Addis Ababa UNECA. "Corruption and growth in African countries: Exploring the investment channel." *University of Massachusetts Amherst Working Paper* 8 (2008).

Barro, Robert J., and Xavier Sala-i-Martin. *Economic Growth*. Cambridge, MA: MIT, 2004. Print.

Bassanini, Andrea, and Stefano Scarpetta. "The Driving Forces of Economic Growth." *OECD Economic Studies* 2001.2 (2001): 9-56. Web. 06 Sept. 2016.

Black, Harold, and Sidney Jones L. "The Development of Economic Policy: Financial Institution Reform." *Southern Economic Journal* 47.3 (1981): 855. Web. 15 Sept. 2016.

Collier, Paul. "Africa's Economic Growth: Opportunities and Constraints." *African Development Review* 19.1 (2007): 6-25. Web. 09 Sept. 2016.

Djankov, S., R. La Porta, F. Lopez-De-Silanes, and A. Shleifer. "The Regulation of Entry." *The Quarterly Journal of Economics* 117.1 (2002): 1-37. Web. 07 Sept. 2016.

Easterly, William, Ross Levine, and David Roodman. "Aid, Policies, and Growth: Comment." *American Economic Review* 94.3 (2004): 774-80. Web. 07 Sept. 2016.

Fosu, A. K. "Institutions and African Economies: An Overview." *Journal of African Economies* 22.4 (2013): 491-98. Web. 06 Sept. 2016.

Greif, Avner, and Christopher Kingston. "Institutions: Rules or Equilibria?" *Political Economy of Institutions, Democracy and Voting* (2011): 13-43. Web. 07 Sept. 2016.

Gyimah-Brempong, Kwabena. "Corruption, Economic Growth, and Income Inequality in Africa." *Economics of Governance* 3.3 (2002): 183-209. Web. 15 Nov. 2016.

Hall, Stephen G., and Mahyudin Ahmad. "Revisiting the Institutions–growth Nexus in Developing Countries: The New Evidence." *New Zealand Economic Papers* 48.3 (2014): 301-12. Web. 06 Sept. 2016.

Ilahi, Nadeem, and Riham Shendy. "Do the Gulf Oil-Producing Countries Influence Regional Growth? The Impact of Financial and Remittance Flows." *IMF Working Papers* 08.167 (2008): 1-12. Web. 09 Sept. 2016.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. "Governance matters VIII: aggregate and individual governance indicators, 1996-2008." *World bank policy research working paper* 4978 (2009): web. 09 Sept 2016

Knack, Stephen, and Philip Keefer. "Institutions And Economic Performance: Cross-Country Tests Using Alternative Institutional Measures." *Economics & Politics* 7.3 (1995): 207-27. Web. 20 Aug. 2016

Kumssa, Asfaw, and Isaac M. Mbeche. "The Role of Institutions in the Development Process of African Countries." *International Journal of Social Economics* 31.9 (2004): 840-54. Web. 06 Sept. 2016.

Li, Hongyi, Lixin Colin Xu, and Heng-Fu Zou. "Corruption, Income Distribution, and Growth." *Economics and Politics* 12.2 (2000): 155-82. Web. 15 Nov. 2016.

Mankiw, N. G., David Romer, and D. N. Weil."A Contribution to the Empirics of Economic Growth."*The Quarterly Journal of Economics* 107.2 (1992): 407-37. Web. 16 Aug. 2016

Mauro, P. "Corruption and Growth." *The Quarterly Journal of Economics* 110.3 (1995): 681-712. Web. 20 July 2016.

Mcauliffe, Catherine, Sweta Saxena Chaman, and Masafumi Yabara. "The East African Community: Prospects for Sustained Growth." *IMF Working Papers* 12.272 (2012): 1-30 Web. 15 Sept. 2016

Ménard, Claude, and Mary M. Shirley. *Handbook of New Institutional Economics*. Berlin: Springer, 2008. Print.

Ménard, Claude, and Mary M. Shirley."New Institutional Economics: From Early Intuitions to a new Paradigm?"*Ronald Coase institute Working papers* 08 (2011): web.07 Sept 2016

North, Douglass C. *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge UP, 1990. Print.

Osman, Rasha Hashim, Constantinos Alexiou, and Persefoni Tsaliki. "The Role of Institutions in Economic Development." *International Journal of Social Economics* 39.1/2 (2011): 142-60. Web. 15 Nov. 2016.

Parker, Jeffrey."Chapter 5 Theories of Endogenous growth."Economics 314 Course book (2012): 2-21.Web. 15 Sept. 2016

Polimeni, John M., Raluca Iorgulescu Polimeni, and W. Scott Trees. "Extending the augmented Solow growth model to explain transitional economies." *Romanian Journal of Economic Forecasting* 1 (2007): 65-76.web 09 Sept 2016

Powell, Walter W., and Paul DiMaggio. *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago, 1991. Print.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development." *Journal of Economic Growth* 9.2 (2003): 131-65. Web. 22 Aug. 2016

Rodrik, Dani. "Institutions for High-Quality Growth: What They Are and How to Acquire Them." *Studies in Comparative International Development* 35.3 (2000): 3-31. Web. 15 Sept. 2016.

Scott, W. Richard. *Institutions and Organizations: Ideas and Interests*. Los Angeles: Sage Publications, 2008. Print.

Sjostrand, S.E.*Towards a theory of Institutional Change*.Aldershot: Edward Elgar, 1995.Print.

Solow, Robert M. "A Contribution to the Theory of Economic Growth." *The Quarterly Journal of Economics* 70.1 (1956): 65. Web. 03 May 2016.

Stiroh, Kevin J. "What drives productivity growth?" *Economic Policy Review* 7.1 (2001):2-39.Web.08 Sept. 2016

Tanzi, Vito, and Hamid Reza Davoodi. "Corruption, Growth, and Public Finances." *IMF Working Papers* 00.182 (2000): 1. Web. 15 Nov. 2016.

Todaro, Michael P., and Stephen C. Smith. *Economic Development*. Harlow: Addison-Wesley, 2009. Print.

Todaro, Michael P., and Stephen Smith C. *Economic Development*. Boston: Pearson Addison Wesley, 2006. Print.

Zouhaier, Hadhek. "Institutions, investment and economic growth." *International Journal of Economics and Finance* 4.2 (2012): 152.web. 09 Sept 2016

APPENDIX A

In per effective labor units,

$$\frac{\dot{K}}{A(t)L(t)} = s\frac{Y(t)}{A(t)L(t)} - \quad ¢\ \frac{K(t)}{A(t)L(t)} \Rightarrow \frac{\dot{K}}{A(t)L(t)} = sf(k(t)) - ¢k(t) \quad (1)$$

$$\dot{K} \equiv \Delta\left(\frac{K(t)}{A(t)L(t)}\right) / \Delta(t) = \dot{K}\ A(t)L(t) - K(t)\left(\dot{A}\,L(t) + A(t)\,\dot{L}\right) / (A(t)L(t))^2 \quad (2)$$

Equation (2) implies that

$$\dot{k} = \frac{\dot{K}}{A(t)L(t)} - k(t)\left(\frac{\dot{L}}{L(t)} + \frac{\dot{A}}{A}\right) \qquad (3)$$

Where $\frac{\dot{L}}{L(t)} = n$ and $\frac{\dot{A}}{A} = g$; by substitution we have the following

$$\dot{k} = sf(k(t)^{\sim} - (n + g + ¢)k(t) \qquad (4)$$

Where the first term on the right hand side is the actual investment in physical capital and the second term is the effective depreciation of capital per unit effective labor. At steady state $\dot{k}^{*} = 0$ this implies capital per effective unit of labor converges to a steady state value as shown below

$$k^{*} = \left(\frac{s}{n + g + ¢}\right)^{\frac{1}{1-\sim}} \qquad (5)$$

Equation (5) will mean that capital at steady state rises with increased savings and goes down with increased growth in population. The Solow model argues that savings and population increase influence output per worker via capital per worker. When we substitute Equation (5) to the production function (1) and introduce natural logarithms, we get steady- state per worker income as shown below

$$\ln\left[\frac{Y(t)}{L(t)}\right] = \ln A(0) + gt + \left(\frac{\sim}{1-\sim}\right)\ln s - \left(\frac{\sim}{1-\sim}\right)\ln(n + g + ¢) \qquad (6)$$

However, the Solow growth model does not factor in human capital in the framework. Mankiw, Romer and Weil (1992) investigated impact of human capital, like education level on economic performance using the model. They found out that such a model fitted the data very well. This is expressed as follows

$$Y(t)=K(t)^{\alpha} H(t)^{\beta}(A(t)L(t))^{1-\alpha-\beta} \qquad (7)$$

This production function exhibits constant returns to scale in the three factors. That is, $\alpha+\beta=1$, and *t* is the time trend. Y denotes the output, H is the human capital, K is the physical capital and (AL) is the labor-augmenting technology. Physical and human capitals are both assumed to be accumulating factors. This implies that the representative agent saves a fraction of output to have more capital. Therefore, the equation of motion for the two types of capital will be;

$$\dot{K}(t) = s_k Y(t) - ¢K(t) \qquad (8)$$

$$\dot{H}(t) = s_h Y(t) - ¢K(t) \qquad (9)$$

Where s_k and s_h are the rates of saving for physical and human capital respectively and that they are given exogenously. Both physical and human capital are assumed to depreciate at a similar rate δ. we can now solve for the steady-state growth paths of output, physical and human capital. We will express everything in per effective labor terms. Therefore, the production function can be written in intensive form as follows

$$\frac{Y(t)}{A(t)L(t)} = \frac{K(t)^{\sim} H(t)^{\sim} [A(t)L(t)]^{1-\sim-\sim}}{A(t)L(t)}$$

$$y(t) = \frac{K(t)^{\sim} H(t)^{\sim} [A(t)L(t)]^{1-\sim-\sim}}{[A(t)L(t)]^{\sim} [A(t)L(t)] [A(t)L(t)]^{1-\sim-\sim}}$$

$$y(t) = k(t)^{\sim} h(t) \qquad (10)$$

$$\frac{\dot{K}(t)}{A(t)L(t)} = s\frac{Y(t)}{A(t)L(t)} - ¢\ \frac{K(t)}{A(t)L(t)} \Rightarrow \frac{\dot{K}(t)}{A(t)L(t)} = sf(\overset{*}{k}(t) - ¢\ \overset{*}{k}(t)$$

$$\overset{\circ}{k} \equiv d\left(\frac{K(t)}{A(t)L(t)}\right)/dt = \frac{\dot{K}(t)A(t)L(t) - K(t)(\dot{A}(t)L(t) + A(t)\dot{L})}{(A(t)L(t))^2}$$

$$\Rightarrow \overset{\circ}{k} = \frac{\dot{K}}{A(t)L(t)} - k(t)\left(\frac{\dot{L}}{L(t)} + \frac{\dot{A}}{A}\right) \Rightarrow \overset{\circ}{k} = sf(k(t) - (n + g + ¢)k(t)$$

At the steady-state, $\overset{\circ}{k}(t) = 0 \Rightarrow s_k f(k(t) = (n + g + ¢)k(t)$ (11)

Similarly, $\overset{\circ}{h}(t) = s_h f(k(t) - (n + g + ¢)h(t)$ (12)

Using these equations, we can find the steady-state values for output, human capital and physical capital per effective units of labor. Substituting equation (15) into equations (16) and (17) we will have the following derivations;

$$s_h k(t)^{\sim} h(t) = (n + g + ¢)h(t)$$

$$\overset{*}{h}(t)^{-1} = \left[\frac{n + g + ¢}{s_h}\right]k(t)^{-\sim}$$

$$\dot{h}(t) = \left[\frac{s_h}{n + g + ¢}\right]^{\frac{1}{1-}} k(t)^{\frac{\sim}{1-}}$$

Then we substitute the above expression into the other steady-state condition, and then solve for $k^*(t)$ as shown below

$$s_k k(t)^{\sim}\left[\left[\frac{s_k}{n + g + ¢}\right]^{\frac{1}{1-}} k(t)^{\frac{\sim}{1-}}\right] = [n + g + ¢]k(t)$$

$$k(t)^{\sim -1}\left[\frac{s_h}{n+g+¢}\right]^{\frac{-}{1-}} k(t)^{\frac{\sim}{1-}} = \left[\frac{n+g+¢}{s_k}\right]$$

$$k(t)^{\frac{(\sim -1)(1-\ )+\sim}{1-}} = \left[\frac{s_k}{n+g+¢}\right]^{-1}\left[\frac{s_h}{n+g+¢}\right]^{\frac{-}{1-}}$$

$$k(t)^{\frac{\sim -\sim\ -1+\ +\sim}{1-}} = \left[\frac{s_k}{n+g+¢}\right]^{-1}\left[\frac{s_h}{n+g+¢}\right]^{\frac{-}{1-}}$$

$$k(t)^{\frac{\sim +\ -1}{1-}} = \left[\frac{s_k}{n+g+¢}\right]^{-1}\left[\frac{s_h}{n+g+¢}\right]^{\frac{-}{1-}}$$

$$k^*(t) = \left(\frac{s_k}{n+g+¢}\right)^{-\left(\frac{1-}{\sim +\ -1}\right)}\left(\frac{s_h}{n+g+¢}\right)^{\left(\frac{-}{1-}\right)\left(\frac{1-}{\sim +\ -1}\right)}$$

$$k^*(t) = \left(\frac{s_k}{n+g+¢}\right)^{\frac{1-}{1-\sim -}}\left(\frac{s_h}{n+g+¢}\right)^{\frac{-}{1-\sim -}} \qquad (13)$$

Equation (12) shows the steady-state value of physical capital. Substituting this equation back into the expression for h (t), we will get

$$h^*(t) = \left(\frac{s_h}{n+g+¢}\right)^{\frac{1-\sim}{1-\sim -}}\left(\frac{s_k}{n+g+¢}\right)^{\frac{\sim}{1-\sim -}} \qquad (14)$$

By substituting equation (13) and (14) into equation (10), we will get the steady-state $y^*(t)$ as follows

$$y^*(t) = \left(\frac{s_k}{n+g+¢}\right)^{\frac{\sim}{1-\sim -}}\left(\frac{s_h}{n+g+¢}\right)^{\frac{-}{1-\sim -}} \qquad (15)$$

The normal Solow model results can be attained by imposing the restriction that β=0.