

**GOVERNANCE AND ECONOMIC GROWTH IN EAST
AFRICAN COMMUNITY COUNTRIES**

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DECLARATION

I declare that this is my original work and that it has not been submitted in any University for any degree award.

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SIGNATURE.....DATE.....

DEDICATION

I dedicate this work to my Mum Mrs. Odillia Nyambaka, who despite being a widow while I was a toddler ensured that I went to school and instilled virtues of hard work and determination in me during my tender age.

To my loving wife Grace and son Austin, who had to endure lonely days during my study period. I was doing all these for you.

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ABSTRACT

It is evident that good governance encourages investment which enhances growth as well as influencing other development conditions like poverty and inequality reduction. This study sought to explore the relationship between governance and economic growth in East Africa Community (EAC) countries. In particular, the study investigated the effects of the six World Governance Indicators which are computed by World Bank namely: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption together with Social and Macroeconomic factors that affect economic growth in the region.

The study utilized the panel data obtained from the five countries Burundi, Kenya, Rwanda, Tanzania and Uganda for the period 1999 - 2012. The study used the Random Effects Estimation technique after the Hausman test results preferred the random effect model. The results revealed that among the governance indicators proposed; Political Stability, Quality Regulatory and Control of Corruption were significant. Political Stability and Quality Regulatory were negatively related to Economic Growth Rate while Control of Corruption was positively related to economic growth rate. On the other hand, Population Growth Rate and Inflation Rates were both found to be negatively and significantly related to the Economic Growth rate in EAC countries.

TABLE OF CONTENTS

Declaration.....	ii
Dedication	iii
Acknowledment.....	iv
Abstract.....	v
Table of Contents	vi
List of Tables	ix
List of Figures.....	x
List of Acronyms	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background.....	1
1.1.2 East African Community (EAC)	3
1.1.3 Governance Trends in EAC countries.....	5
1.2 Statement of Problem.....	7
1.3 The Objectives of the Study.....	8
1.3.1 General Objectives of the Study.....	8
1.3.2 The Specific Objectives of the Study	8
1.4 Research Questions	8
1.5 Justification of the Study	8
1.6 Scope of the Study	9
CHAPTER TWO: LITERATURE REVIEW.....	10
2.1 Introduction.....	10
2.2 Theoretical Literature Review	10
2.2.1 Harrod-Domar Model	10
2.2.2 The Solow Model of long- Run Growth.....	11
2.2.3 Kaldor’s Growth Model.....	11
2.2 Empirical Literature	12

2.3 Overview of the Literature.....	14
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CHAPTER THREE: METHODOLOGY16

3.1 Introduction.....	16
3.2 Theoretical Framework.....	16
3.3 Model Specification.....	17
3.4 Estimation Techniques and Diagnostic tests.....	18
3.5 Data Source and Type.....	18

CHAPTER FOUR: DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF THE FINDINGS 20

4.1 Introduction.....	20
4.2 Descriptive Statistics.....	20
4.3 Trend Analysis.....	22
4.4 Fixed Effects Versus Random Effects model.....	28
4.5 Regression Results and Discussions.....	29
4.6 Post-Estimation Tests/ Diagnostic Tests.....	32
4.6.1 Multicollinearity Test.....	32
4.6.2 Unit Root Test.....	33
4.6.3 Heteroscedasticity.....	34
4.6.4 Autocorrelation.....	35

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS..... 36

5.1 Introduction.....	36
5.2 Summary and conclusions of the study findings.....	36
5.3 Policy Recommendations.....	37
5.4 Areas for further study.....	38

REFERENCES.....	39
APPENDICES.....	41
Annex 1: Summary statistics	41
Annex 2: Correlation matrix before first differencing	42
Annex 3: Correlation matrix after first differencing.....	43

LIST OF TABLES

Table 4.1: Summary statistics	41
Table 4.2: Hausman specification test	28
Table 4.3: Final Model; Random-Effects GLS regression	29
Table 4.4: Unit Root Tests	34

LIST OF FIGURES

Figure 1: Trends of Economic Growth Rate for the Period 1996 – 2010.....	4
Figure 2: Trends in GDP Rate	22
Figure 3: Trends in Governance indices	23
Figure 4: Trends in Population Rate	24
Figure 5: Gross Capital Formation	25
Figure 6: Inflation Rates	26
Figure 7: Openness to the Economy	27
Figure 8: Graph of Residual Square against linear prediction.....	35

LIST OF ACRONYMS

ADB	African Development Bank
EAC	East African Community
FDI	Foreign Direct Investment
FEM	Fixed effect model
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
ICRG	Research and Training
R&D	International Country Risk Guide
REM-	Random effects model
PE	Public expenditure
SSA	Sub Saharan Africa
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WGI	World Governance Indicators

CHAPTER ONE: INTRODUCTION

1.1 Background

Good governance has been touted as one of the emerging factors that are central to economic growth in developing countries. Importantly, for close to three decades, the concept of good governance has found a significant place in the discourse of African development agenda and other nations of the world in general. This is partly attributed in World Bank assertion in 1989 linking persistent poverty and other development challenges to governance crisis as affirmed by Brautigam and Knack (2004).

The term governance has a wide range of meaning depending on the context in which it is applied. However, it can be defined simply as the process in which decisions are implemented or not implemented or the manner in which public affairs are conducted. According to the World Bank (1994) “governance” is defined as the “manner in which power is exercised in the management of a country’s social and economic resources for development”. Kaufmann (2005) further looks at governance in three dimensions: political dimension-process by which those in authority are selected monitored and replaced, economic dimension-the government’s capacity to effectively manage its resources and implement sound policies, institutional respect dimension-the respect of citizens and the state for the country’s institutions.

Donor organizations such as the United Nations Development Program (UNDP) and other international agencies provide a more complex and elaborate concept of governance. According to UNDP (2002) good governance involves promoting the rule of law, being transparent, responsive, observing participation, equity, effectiveness and efficiency, being accountable and having a strategic vision in the exercise of political, economic, and administrative authority. On the other hand USAID (2002), defines governance as a complex system of interactions among structures, functions, traditions and processes reflected in three key values namely; accountability, transparency and participation. Broadly speaking therefore good governance entails carrying out the functions of government with due regard for law, without abuse and corruption and with central regard to the public interest. Kaufmann et al. (2000), conceptualizes governance as the traditions and institutions that determine how authority is exercised in a country.

The other broad governance issue is hinged on the concepts of democracy and the rule of law, respect for the human rights which are universally accepted as well as judicial independence. Further participation in the conduct of public affairs by the citizenry, electoral integrity, political plurality, freedom of expression and the independence of media allowing for free access to information held by public bodies are integral to effective participation and increased empowerment of the citizenry.

While literature gives diverse definitions of the term governance, there is agreement about its dimensions and in particular, public governance is linked with how governments are structured, what processes they use in governing and what results they are able to accomplish for the people they govern.

According to a study by Arndt and Oman (2006), the renewed growth of interest in governance is a combination of four reasons: firstly, the spectacular increase in international investment in developing countries; secondly, the end of cold war; thirdly, the failure of development policy reforms in the 1980s and the 1990s; and lastly, a new awareness of the importance of politics in economic development and policy reform. Consequently, consideration of governance and institutions as fundamental factor in explaining development models and policies over time has been cemented.

North (1990) further amplifies the role of institutions and how they link with governance and asserts institutions structures the incentives that shape human interactions, whether social, economic and political, and determine the policies likely to be chosen and implemented.

Good governance is at the core of the framework of fiscal prudence, proper utilization of resources in public domain and an accountable system. Good governance mitigates on corruption and rent tendencies which ensure resources are efficiently and effectively applied in pursuit of economic development in the country. Similarly, good governance promotes human rights, empowers citizenry and ensures democratic principle are respected and promoted. This creates conducive environment for donor support and generates investors confidence both local and foreign leading to economic growth.

Broadly speaking, the concept of good governance as an important source of growth has gradually been incorporated in the growth literature. Its assumed good governance augments other conventional sources of growth which hitherto dominated growth model such as the demographics, trade, donor aid, geography, foreign direct investment (FDIs), and investment in

physical and human capital amongst other variables. This position has been amplified by World Bank (1998) by asserting that allocating of resources to the right services and goods may not translate to desirable results when the institutions charged with budget management, planning and implementation do not exercise efficiency and accountability and are generally malfunctioning.

Another aspect which interfaces with good governance is the donor assistance conditionality and foreign investment. Good governance has for the better part of the last three decades been affirmed as conditionality for most external assistance by development partners, the World Bank and IMF. Wohlmuth, (1999) asserts good governance is a necessary pre-condition for development and international assistance and has been intensified since 80s.

Building on the ideas of neo-institutional scholars such as Douglass North, a number of cross-national empirical studies have found a positive relationship between the quality of institutions and governance structures and economic growth. It is therefore not surprising that a broad agreement among growth economists and development experts as well as international policy-makers have conceded good governance is a pre-requisite to sustained improvement in living standards (Kaufmann et al. 2000; Knack 2003).

The foregoing studies make a strong case that development is a multifaceted and multidimensional arena that requires concrete and substantive analysis. This study aims to address the key question of how governance affects overall development trends in with particular interest in East African Community (EAC) member states.

1.1.2 East African Community (EAC)

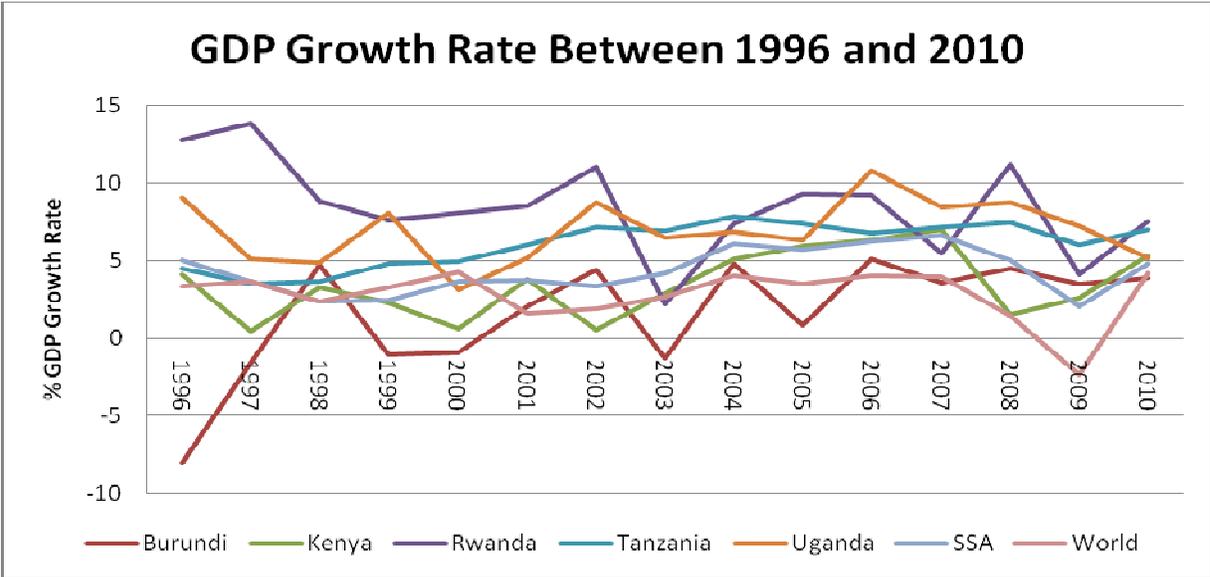
The EAC as currently constituted comprises of the Republics of Kenya, Tanzania, Uganda, Rwanda, and Burundi. Originally it comprised of Kenya, Uganda and Tanzania but since 2007, Rwanda and Burundi were incorporated, (EAC, 2013). The EAC aims at widening and deepening cooperation among the partner states for the political, economical and social benefits.

All the member states have gone through turbulent situations at different times in their history which have impacted significantly on their economies. Rwanda and Burundi for instance experienced horrible genocide in early 90s; Kenya has had electoral violence cycle while Uganda has had civil strife for decades. The tenets of governance have therefore been tested over time in these countries.

A review of economic performance for the EAC countries shows erratic and inconsistent trends. Rwanda has had the most impressive average growth rate at 8.5 percent followed by Uganda and

Tanzania at 6.9 and 6.0 percent respectively. Kenya 's growth rate has been low at 3.5 percent on average in the review period while Burundi has the worst record at 1.7 percent lower than the average world and Sub-Saharan average growth rates of 2.8 and 4.3 percent respectively. The trends can be observed in figure 1 and shows that Rwanda has had the highest growth rate 12.5 and 13.8 percent in the year 1996 and 1997 respectively while Burundi has growth rate of -8 and -1.59 in the same period. Among the five countries, Uganda and Tanzania has had the most consistent growth oscillating between 4 and 10 percent. Burundi has the most significant positive change moving from negative 8 percent to 5.12 percent between 1996 and 2006 and 3.9 percent in 2010.

Figure 1: Trends of Economic Growth Rate for the Period 1996 – 2010



Source: Own Graph with Data from World Bank

1.1.3 Governance Trends in EAC countries

Many African countries in general and EAC countries in particular have consistently been ranked poorly on governance indicators across the broad spectrum. Corruption, poor human rights record, rule of law, low accountability and transparency in the public sector and poor public involvement in running the affairs of the nation coupled with electoral malpractices are rife.

A review of the six indicators of governance stipulated by World Bank namely: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption in EAC shows overall the countries have not improved significantly over time. The indicator is measured on a scale of -2.5 which is poorly governed to 2.5 for well governed countries.

Voice and Accountability (VA)

In 1996, Burundi was the worst ranked among the five countries at negative 1.75 followed by Rwanda at -1.56 while Kenya at -0.67 was the highest ranked. The trend is sustained for Burundi and Rwanda up to 2000 and is reversed in 2002 with Rwanda ranking worst at -1.47 and Burundi at -1.24. Tanzania has been the best performing in this category improving from -0.74 to -0.11 a massive 84.84 percent increase. Kenya has also made significant improvement over the years rising from -0.67 in 1996, before sliding to -0.99 in 1998 and then improving to reach -0.12 in 2006 which is the second best ranking over the review period. Uganda has been the most unstable with erratic fluctuations while Rwanda registers a reversal of gains from 2005 to the year 2011.

Political Stability and Absence of Violence (PS)

Just like in voice and accountability, Uganda, Rwanda and Burundi were ranked lowest among the five countries in 1996 at -1.61, -1.95 and -2.24 respectively while Kenya and Tanzania were ranked highest at -0.74 and -0.71 respectively. In 1998 all the countries with exception of Tanzania deteriorated. Rwanda improved drastically from a low of -2.15 in 1998 to -0.05 while Kenya displays converse performance from -0.74 to -1.31 over the same review period. Tanzania had the best ranking at -0.01 in the year 2011 with Burundi having the worst at -1.81.

Government Effectiveness (GE)

Effective government is essential for promoting private ventures, reducing bureaucracy and spurring economic activities. Among the five countries, Tanzania and Uganda have been the most consistently effective while Burundi has been most ineffective. Rwanda made the most gains from -1.2 in 1996 to reach -0.07 in 2011 while Kenya depicts reversal from -0.34 to -.054 over the same period.

Regulatory Quality (RQ)

Consistent with all other indicators, Burundi ranks lowest at -1.67 with Uganda ranking best at -.20 in 1996. All countries with exception of Uganda improve in 1998 with Burundi posting highest change. The best score is by Uganda in 2003 and 2004 at 0.00 while Rwanda is the most improved from -1.47 to -0.12 while Tanzania is the only country that showed reversal in 1996 as compared to 2011. Kenya and Uganda seems to have the best regulatory framework over the review period.

Rule of Law (RL)

The assurance that the law enforcing agencies will apply the laws impartially, ensure protection of both human and property and thereby grantee investor's resources are safeguarded. This therefore is a critical component of governance which helps attract the private sector and foreign direct investment into the country.

In the reviewed period, Rwanda had the worst ranking followed by Burundi at -1.73 and -1.72 respectively. The indicator is also the worst for Kenya among the six indicators in the year 1996 at -1.04 while it is the best for Tanzania at -0.25. Rwanda is the most improved at 82.34 percent followed by Uganda at 38 percent. Tanzania on the other hand had a worsening record deteriorating by 103 percent for -0.25 to -0.52 score.

Control of Corruption (CC)

Corruption and rent seeking has in many instances been associated with lethargy in government services, weak institutional support, unfavorable investors environment and high cost of operations which discourages private sector input in the economy. This ultimately results to low levels of employment, high cost of goods and services as producer's pass on the cost of corruption to consumers resulting to reduced consumption and overall poor economic performance. Corruption undermines the economic development by introducing distortion and inefficiency in the economy. Further corruption hampers fight against poverty leading to a

widening gap between the rich and poor and erodes the purchasing power as cost is passed on to the poor.

Among the five countries, Uganda was ranked the least corrupt in 1996 at -0.6 while Burundi was ranked most at -1.39. This is however not sustained as Uganda ranking worsens in subsequent years reversing the gains to have a score of -0.92 in 1998, -0.91 in 2009 and -0.86 in 2011. Rwanda had the best ranking in the year 2007 at 0.01 and which improves to reach 0.45 in the year 2011, a whopping 148 percent positive change.

1.2 Statement of Problem

The EAC states just like any other developing countries have for a long time been castigated for not embracing reforms aimed at improving governance and enhancing public performance. The five member states of EAC in particular have consistently been ranked poorly on governance indicators across the broad spectrum. Corruption, poor human rights record, rule of law, low accountability and transparency in the public sector and poor public involvement in running the affairs of the nation coupled with electoral malpractices. These countries are putting huge resources on governance improvements through establishment of key institution of governance but with little gains on economic growth rates, thus begging the question if the reforms are giving returns commensurate to the funding.

The economic performance for the EAC countries in the reviewed period has been erratic. For instance Kenya 's growth rate has been low at 3.5 percent on average in the review period, while Burundi has the worst record at 1.7 percent lower than the average world and Sub-Saharan average growth rates of 2.8 and 4.3 percent respectively. On the other hand, Uganda posted 6.9%, Tanzania 6% while Rwanda has had the most impressive growth at 8.5%, these average growth rates differs significantly with the annualized rates. As a result we can associate poor governance to growth

Thus this paper intends to investigate the nexus between economic growth and governance with a view of laying salient grounds for a case of evidence based application of reforms in institutional framework of EAC countries.

1.3 The Objectives of the Study

1.3.1 General Objectives of the Study

The general objective of this study is to empirically analyze the effects of governance on overall economic growth through a panel data study of five EAC countries.

1.3.2 The Specific Objectives of the Study

The specific objectives are;

- i. To examine the effects of various governance indices on economic growth.
- ii. To test the influence of social and macro economic variables on growth in the EAC countries.
- iii. To draw policy implications from the findings of the study.

1.4 Research Questions

- i. What are the effects of various governance indices on economic growth?
- ii. What are other social and macro economic variables influencing economic growth in EAC countries.
- iii. What policy implications can be derived from the study?

1.5 Justification of the Study

Studies both theoretical and empirical conclusively submit on the relevance of good governance as an impetus for economic growth. These studies have not benefited from a detailed review of the nexus between governance and economic growth at a less vast level which is of critical importance to enriching existing studies.

Further, many countries have consistently improved key governance institutions, reformed public institutions and promoted laws intended to foster good governance. Their urge for changes and public sector reforms have a significant impact of the overall fiscal management in the country with a huge portion of the funds devoted to making them operational. The need to establish therefore how governance funding pays back through economic development is both timely and critical.

The study will therefore enrich existing studies and offer a more specific angle through a review of the five EAC countries by undertaking a panel study. This will provide a prudent and credible justification for the enormous resources that are devoted to governance institution and therefore ensure mainstreaming of good governance in the development agenda of the countries is factually supported by policy makers.

1.6 Scope and organization of the Study

The study examines economic growth in EAC countries for the period 1999 to 2012 and interrogates how governance fosters economic growth. This paper is organized in five chapters as follows; in Chapter one the background of governance and how it impacts on growth is analyzed. In chapter two, the theoretical and empirical literature review is presented. Section three highlights the methodology for this analysis, reviews the expected relationship among the variables and the data used is described. In chapter four, the findings of the regressions analysis are submitted and the concluding remarks and policy recommendations are presented in the final section, Chapter five.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews theoretical and empirical literature on governance and how it affects economic growth. The section discusses theoretical foundation on the linkage between governance and economic growth through review of studies. The chapter is divided into three parts; the first section reviews theoretical studies in the field of governance and economic growth, the second part discusses the empirical works on impact of governance on economic growth while the final section gives a brief summary of the literature.

2.2 Theoretical Literature Review

Economic growth theories have for a long time profoundly differed on what variables triggers economic growth. Some of these theories have argued the role of governments is minimal such as the classical economists, mainly resident in Adams Smith view of laizze-faire concept, others contend its clearly required in correcting market imperfections and boosting the economy during recession as happened during the Great Depression and this view is propagated by Keynes who concluded that governments are indispensable when it comes to economic activities.

Majority of these theories have largely been categorized as either such as endogenous or exogenous (Classical, Neoclassical). The main point of departure has been reflected in the variables selected and the argument of the economy experiences increasing or diminishing returns from capital investment. Similarly, issues of technology and Research and Development (R&D) have featured significantly in support or in refute of the theories. Some of the theories of economic growth include the following:

2.2.1 Harrod-Domar Model

This model of economic growth came as a result of two models one by Harrod and another one by Domar and they are more based on an advanced capitalist economy. They lay a lot of emphasize on investment to boost economic growth because they argue that investment will not only create the much needed income but it will also aid in the increase of capital stock, the two most important ingredients of any meaningful economic growth process. The models advance the arguments that if net investment is taking place then the levels of output and income will continue to rise and for the economy to maintain a full employment equilibrium levels of income then

output and real income should actually expand at the same rate as that of capital stock thus avoiding presence of excess or idle capacity which is detrimental to the economy.

2.2.2 The Solow Model of long- Run Growth

This model relaxes the assumption of fixed proportions in production as assumed by Harrod-Domar model but instead assumes that labor and capital are substitutable in the production function thus making the entire production process adjustable. He argues that in the long run the rate of economic growth is determined by expanding labor force and technical progress.

2.2.3 Kaldor's Growth Model

This model follows the dynamic approach adopted by Harrod-Domar model, but it lays more attention on the role of technical progress in the process of capital accumulation and productivity. The model operates under two main conditions namely; constant working population and expanding population which enables the model to analyze growth especially in the developing countries.

The endogenous growth theories have elaborately introduced R&D, technology and governance issues as central factors in achieving faster economic growth and development. The inter marry of economic growth and governance has therefore been advance mainly in its facilitative role of promoting technological advances and reducing barriers to investment through a responsive bureaucracy King and Rebelo (1990).

The importance of governance as a source of economic development is supported by economists who submit institutions are relevant in promoting development. These have their backing in economists such as North (2005) who have attributed good governance to good institutions which foster economic growth. Institutional reforms and good capacity creates structures that protect the individual rights and this boosts the levels of investment which creates conducive environment of economic flourishing.

In addition, corruption and bad governance are deemed as the primary barriers to economic development and social wellbeing in many countries. This has generated debate that good governance and quality public administration results to improved growth and development with governance aspects such as protection of property rights and rule of law being critical elements

for influencing development by attracting flow of long-term foreign investments which augment economic growth, Kaufmann, Kraay and Massimo (2009).

2.2 Empirical Literature

There is substantive empirical literature providing evidence that good governance is growth enhancing and affects other development conditions such as poverty and inequality reduction. The governance quality as captured in many studies emphasis the quality of institutional mainly reflected in the rule of law, political freedom and stability, civil liberties and human rights.

Among the studies conducted is one by Hall and Jones (1999) which attribute the huge differences in per worker output existing among nations in productivity as opposed to educational levels and capital intensity. They proffer differences in governance and institutions among countries to much of the differences in productivity hence output per worker. They use the International Country Risk Guide (ICRG) indices and the Sachs - Warner index measuring trade openness to construct a social infrastructure variable and their findings indicate the social infrastructure variable is highly significant in each of the model specifications thus holding that governance and institutions have a large effect on the performance of the economic.

A study by Rowley (1999) finds significant levels of rent seeking and extraction are deeply rooted in the colonial structures sustained after independence. He asserts most to the policies practiced such as price controls and interest rates regulation, import licensing and selective taxation induces rent seeking. Using examples of Kenya, Ghana, Nigeria and the Democratic Republic of Congo he concludes the policies and structures and lack of constitutionally guaranteed property rights in these countries avail space for rent-extraction which results to misallocation of public resources. This alludes to the importance of governance in determining resource allocation with poor governance leading to resource allocation to corruption prone sectors.

The colonial powers historical ties role in shaping Africa destiny is supported by Ndulu and O'Connell (1999) as possible determinants of Sub-Saharan Africa's poor institutions and low development. By analysing the transition of countries from colonial to civilian and later authoritarian regimes they attribute cold war as a possible explanation of the institutional development stage and consequently the economic performance of most countries. They also argue there is usually a conflict between the political rulers and the society and as such the

institutions developed are the ones that grantee maximization of the welfare of the political elite at the expense of the society.

Governance relevance in development outcomes is supported by Kaufmann, et al. (1999) where they use six aggregated governance indicators to examine their effects on per capita income, infant mortality and adult literacy. Their conclusion points a one-standard rise one of the six indicators of governance results to between two-and-a-half to four point rise in each of the development indicator and thus concur governance is critical for growth.

Chong and Calderon (2000) looked into the impact of political institutions on income inequality for One Hundred and twenty one countries (121) classified as both developing and industrial countries using the six indicators from the World governance Indicators data set and ICRG civil liberties and political rights indices as well as the country credit ratings being proxies for respective political institutions concluded poor institutions and income inequality reinforce each other irrespective of the political considerations and the political stability indicator hugely influences inequality aspects.

On the other hand Azfar and Gurgur (2005) analyzed corruption levels among communities in the Philippines provide valuable information on how corruption levels impact on development. The study found communities with higher levels of perceived corruption experienced worse health and education indicators. Specifically, they performed dismally in immunization and public health facilities access rates, school rankings and test scores, and parent satisfaction with schools. The study used the corruption level as perceived by residents, officials, and the administrators to undertake the analysis.

Quibria (2006) conducts a study to validate the governance- growth nexus in Asia by estimating the governance surplus and deficit for individual developing Asian economies by comparing an aggregated governance measure calculated from the six governance indicators of the 2002 WGI against per capita real income. The study uses 1998 data set covering 164-169 economies, and 2008 data set covering 166-168 economies. Per capita real GDP is measured in purchasing power parity (PPP) terms at constant 2005 international dollars. The findings show a positive relationship between the governance score and per capita real GDP for all six dimensions in 1998 and 2008. In 1998, for example, judging from the slope of the fitted regression lines and estimated R-squared coefficients, government effectiveness has the highest correlation with per capita real GDP, with a coefficient of 0.6145 and R-squared of 0.6494; followed by rule of law,

regulatory quality, control of corruption, political stability, and voice and accountability, which is least correlated with a coefficient of 0.4834 and R-squared of 0.4269. In 2008, the correlation between governance indicators and per capita real income remained more or less the same. Government effectiveness remained the most highly correlated; political stability, and voice and accountability remained the least correlated with the income level.

Another study by Akpan and Effiong, (2012) analysed panel data for 21 SSA countries for the period 1998 - 2007 on the relationship between governance and development using per capita income as the dependent variable. The study employs the use of the rule of law, regulatory quality as well as the political stability from WGI data set and concludes there is significant association with dependent variable.

A study by Kagundu (2006), finds positive and statistically significantly effect of governance on growth. The study employs panel data set from 100 sample countries covering the period between 1971 and 2000. The study uses governance indicators from ICRG and freedom house and further notes good governance influences the composition of Public expenditure with education and health sectors having high allocations while defence has low allocations. The study uses a dynamic panel data estimator to tackle some of the problems associated with economic growth studies.

Arusha, (2009) evaluates the role of the government in economic growth by incorporating both the size and the quality dimensions of government. The study concludes increased Public Expenditure (PE) and good governance spur economic growth outcomes. This study analyses cross section data from 71 economies and uses the Solow Augmented Mankiw-Romer-Weil (MRW) model. It employs PE as proxy for size of government and a governance indicator for quality of government. The findings affirmed improving the efficacy of public capital can result to improved growth and countries with good governance make more effective use of PE and further increased PE results to improved governance. These studies by and larger concur with studies by Prichett (1996) and Rajkumar and Swaroop (2002) hold a common position.

2.3 Overview of the Literature

The theoretical and empirical literature on the importance of governance on economic growth remains inconclusive. Most of these studies have used different variables to proxy for governance and are cross-country and panel data based. While most studies have employed WGI dataset to proxy for governance, others have used media access, mortality rates, literacy levels and civil

society's participation in budgetary process as instruments for governance among others. Most of the studies have largely concluded good governance arguments growth. One lingering issue however is the causality aspect since good governance may be a product of growth. From the review, it soundly manifest existing studies are inconclusive making the debate on the role of governance in fostering economic growth far from over and hence further studies are necessary.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the methodology and model specification used to examine the relationship between governance and economic growth in EAC countries. The theoretical framework is outlined followed by model specification and explanation of the variables used in the econometric regression. Lastly, the estimation procedures, the diagnostic tests employed to test the robustness of the results and the sources of data for estimation are discussed.

3.2 Theoretical Framework

The role of Governance as a factor for economic growth is well founded in the economic growth models majorly attributed to Institutional Economists. It's argued that good governance attracts investors by creating the environment that is conducive and this boosts employment. Further good governance leads to efficiency and effective processes, promotes accountability and transparency, reduced red tape and bureaucracy and overall promotes productivity North (2005).

Many economic growth models attribute Economic growth to be influenced by myriad of factors. The Solow model of long –run economic growth assumes that the labor and capital are substitutable in the production functions thus making the entire production process adjustable. He argues that in the long run the rate of economic growth is determined by expanding labor force and technological progress. Thus the production function is represented as shown with a constant return to scale.

$$Y = F(K, L) = AK^\alpha L^\beta \dots\dots\dots (1)$$

Where Y represents GDP, A represents level of technology, K represents capital and L represents Labor.

However, recent functions have been modified to accommodate other factors deemed as determinants of economic growth such as government expenditure and governance.

We postulate that growth in Human capital and investments are crucial to economic growth and further good governance arguments economic prosperity through adoption of better and effective processes. Technology also aids development by reducing cost and time and making processes more efficient and cheaper.

3.3 Model Specification

The study adopted and modified a model used by Bouoiyour and Naimbayel (2010) and incorporated variables used by Kagundu (2006) based on the Solow growth model.

The econometric model of analysis is based on dynamic panel model with both cross sectional and time series components. The functional model to be estimated is presented as

$$\text{GDPRATE}_{i,t} = \beta_0 + \beta_1 \text{POPRATE}_{i,t} + \beta_2 \text{GFCFRATE}_{i,t} + \beta_3 \text{INFRATE}_{i,t} + \beta_4 \text{OPEN}_{it} + \beta_5 \text{GOV}_{i,t} + \varepsilon_{i,t} \dots\dots\dots 2$$

Where;

GDPRATE= GDP per capita growth rate

POPRATE= Annual average population growth rate

GFCFRATE= Gross fixed capital formation (the average rate of investment) as a percentage of GDP.

INFRATE= Inflation rate.

OPEN=openness-the total volume of trade (sum of exports and imports divided by GDP)

GOV represents the governance indicators which include VA, PS, GE, RQ, RL, RC and CC.

$\beta_j, j = 1, 2, \dots, \text{and } 6$ are parameters to be estimated

ε = random error term

Data on the six governance indicators (WGI) are published by a team at the World Bank. Kauffman et al. (2009) present the methodology for constructing these variables, which are considered to have a great ability to positively influence the business environment and lead to lower risk in the country. They take the values of -2.5 to 2.5, with higher levels indicating greater efforts for good governance. The six governance indicators include; Voice and accountability (VA), The political stability and absence of violence (PS), The government effectiveness (GE), The quality of regulation(QR), Rule of law (RL) and Control of corruption(CC).

We expect economic growth to be positively influenced by good governance based on existing empirical literature, same for all explanatory variables except inflation. This priori hypothesis is however not cast on stone since there are other myriad of factors that are significant and perhaps not adequately taken care of in the model.

3.4 Estimation Techniques and Diagnostic tests

The study uses a panel data estimation technique because of its several advantages over both cross-section and time-series data sets. The technique has a greater degrees of freedom and less multicollinearity leading to more efficient estimates, (Hsiao, 2003) and gives greater flexibility in modeling differences in behavior across countries which enables us to control for unobserved heterogeneity.

The panel data analysis method has two main approaches, namely; the fixed Effects Model (FEM) which assumes omitted effects specific to cross sectional units are constant over time and the random effects model (REM) which assumes the omitted effects are random variables

In order to choose between the random effects and fixed effects, a Hausman test will be conducted. It tests whether the unique errors are correlated with the regressors; the null hypothesis is that they are not (Greene, 2008). If the null hypothesis cannot be rejected, then random effect is preferred because it is a more efficient estimator.

Other diagnostic tests based on the basic assumptions of OLS, include; Stationarity test to see if the variables are stationary using the Levin Lin Chu test. If the variables are found to be non-stationary, then they are differenced to make them stationary. In addition, the Multicollinearity test will be carried to find out if the explanatory variables are highly correlated with each other.

The specified model will be estimated using statistical programme (STATA) and the study objects are investigated through systematic tests.

3.5 Data Source and Type

The study adopts panel data estimation technique for the period 1999 – 2012 using secondary data. The choice of duration is informed by data availability especially for the governance variable and the fundamental governance changes which has occurred within the study period. The data would be obtained from the World Bank Development

Indicators database, the official government publications (Statistical Abstracts, Economic Surveys). World Bank Worldwide Governance Indicators, the ADB platform statistics and the UNESCO platform statistics.

CHAPTER FOUR: DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF THE FINDINGS

4.1 Introduction

This chapter details the results analysed from the consolidated secondary data collected from various sources for the years 1999-2012. Since the data has taken panel dimension, we are able to tell from the five countries considered; the various effects of governance indices despite their dynamism, on economic growth. A comprehensive technical and fundamental analysis undertaken investigates, using varied specific parameters; to identify other social and macroeconomic variables influencing economic growth in East African countries. Our findings are presented as descriptive in the form of tables and graphs and organized according to the core objectives of the study.

4.2 Descriptive Statistics

The study considered the following descriptive statistics; mean, standard deviation, minimum and maximum. The mean is the average value, standard deviation is a measure of dispersion that shows how the variables are scattered around their means, and the minimum is the least value while maximum is the highest value of that particular indicator under consideration.

The variables under study include; GDP per capita growth rate (GDPRATE), Annual average population growth rate (POPRATE), Gross fixed capital formation (the average rate of investment) as a percentage of GDP (GFCFRATE), Inflation rate (INFRATE), openness to the economy, sum of exports and imports divided by GDP (OPEN) and GOV is the governance indicators which include Voice and accountability (VA), Political stability and absence of violence (PS), Government Effectiveness (GE), Quality of regulation (RQ), Rule of law (RL) and control of corruption (CC).

Table 4.1: Summary statistics

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GDPRATE	75	2.432	2.943346	-9.2	10.6
VA	75	-0.7467746	0.4596858	-1.749844	-0.1074292
PS	75	-1.097462	0.6446634	-2.515943	0.0570998
RQ	75	-0.5163196	0.4566616	-1.672969	0.2496185
RL	75	-0.7776452	0.4042696	-1.730611	-0.1477047
CC	75	-0.7498242	0.4363853	-1.461707	0.6549896
POPRATE	75	3.022667	1.092922	1.2	10.3
GFCRATE	75	20.28267	6.811206	3	39
INF	75	9.652	6.08146	-1.4	28.2
OPEN	75	48.73333	15.54447	22	81

Source: Authors computation

According to Table 4.1, the GDP rate and the population rate have the means of 2.432 and 3.02 respectively. All the governance indices have got negative means whereby PS and RQ having the least and highest respectively. The other macroeconomic variables like inflation rate and openness of the economy have the means of 9.7 and 48.7 respectively.

4.3 Trend Analysis

In this objective we explored the nature of fluctuations of the parameters in different countries under study. We adopted diverse graphical illustrations in demonstrating the trend of all the variables of interest over the entire time periods across the panels.

Figure 2: Trends in GDP Rate

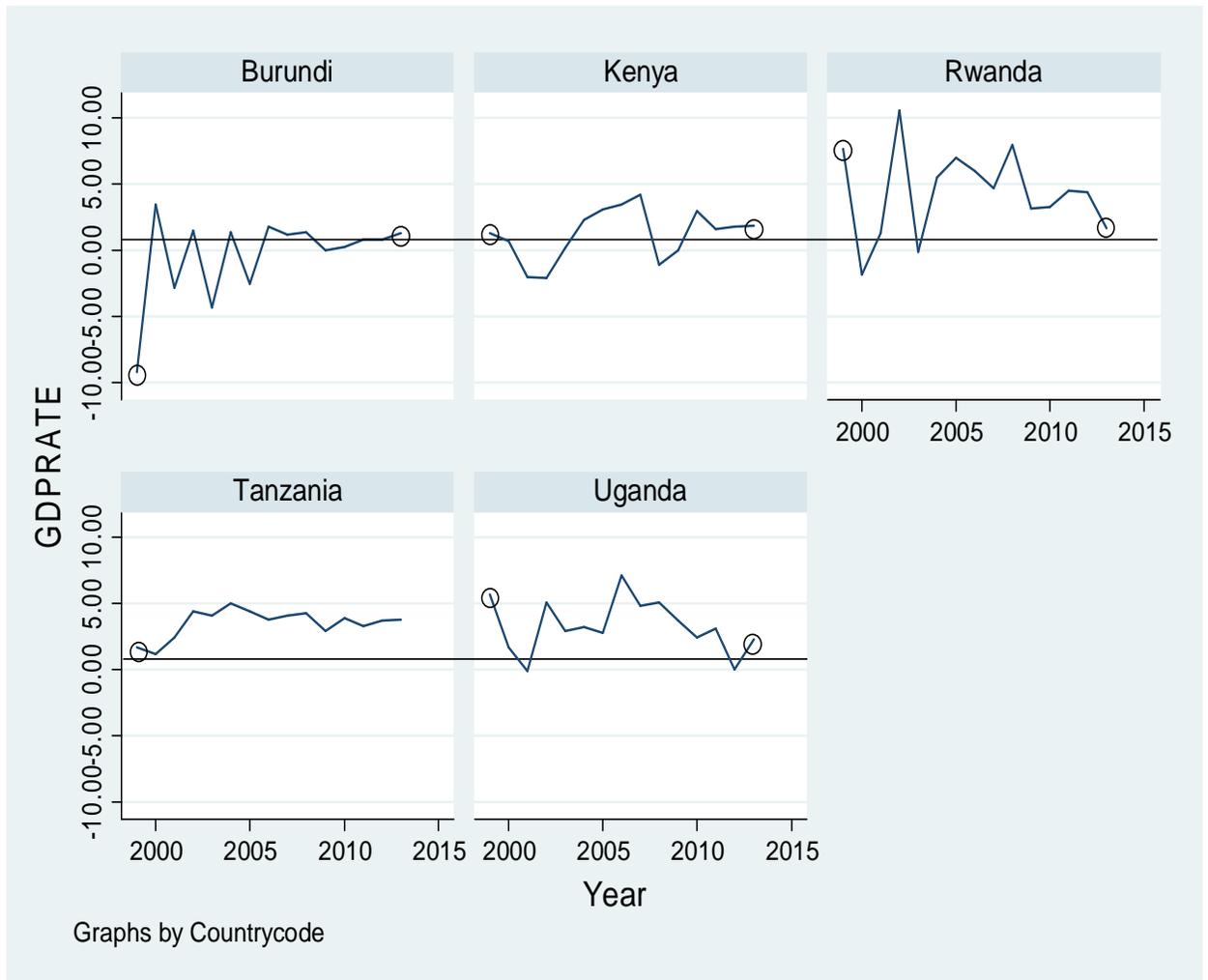
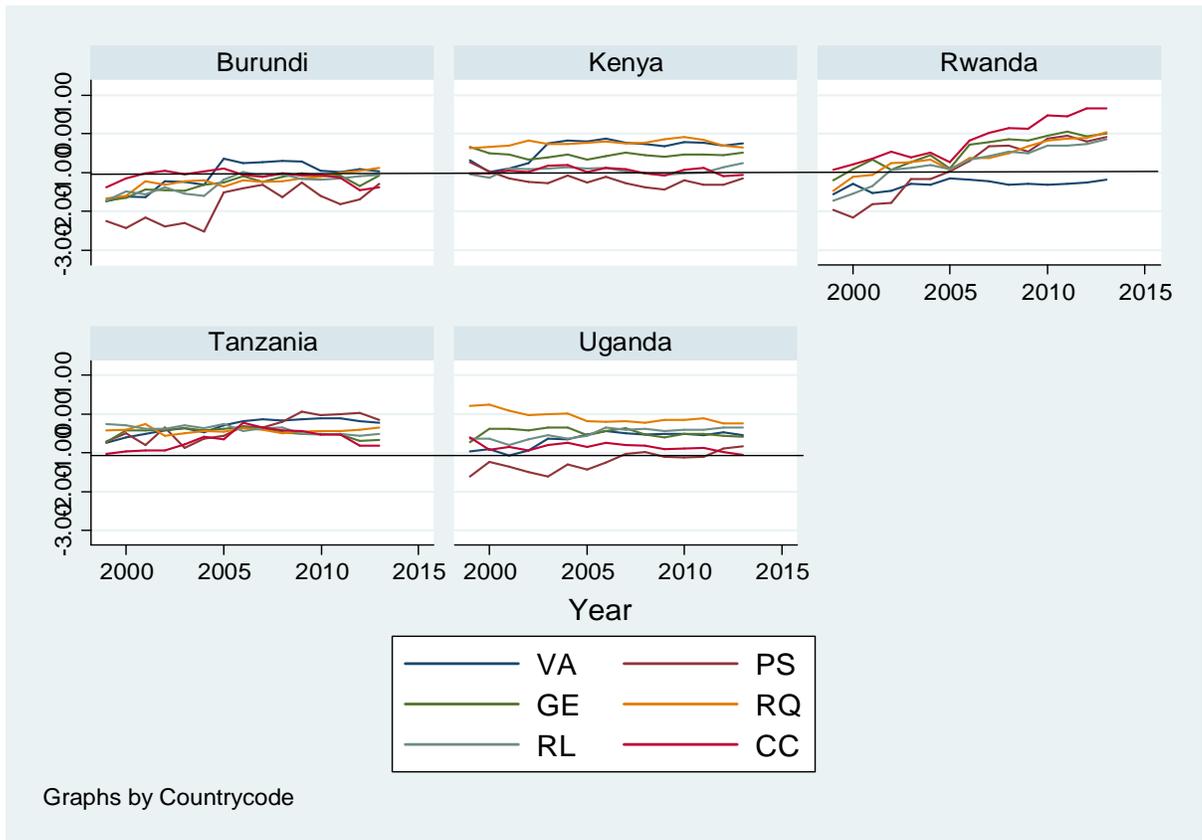


Figure 2 show more fluctuations in Burundi which were biased below the overall mean of 2.4 whereas Rwanda, Tanzania and Uganda illustrated sporadic movements above and around the mean. Kenya showed exceptional movements which can be termed as fairly balanced around the mean. The least GDP rate was exhibited by Burundi at about -9.7% against the highest GDP rate in Rwanda which was about 10.6 compared to other countries.

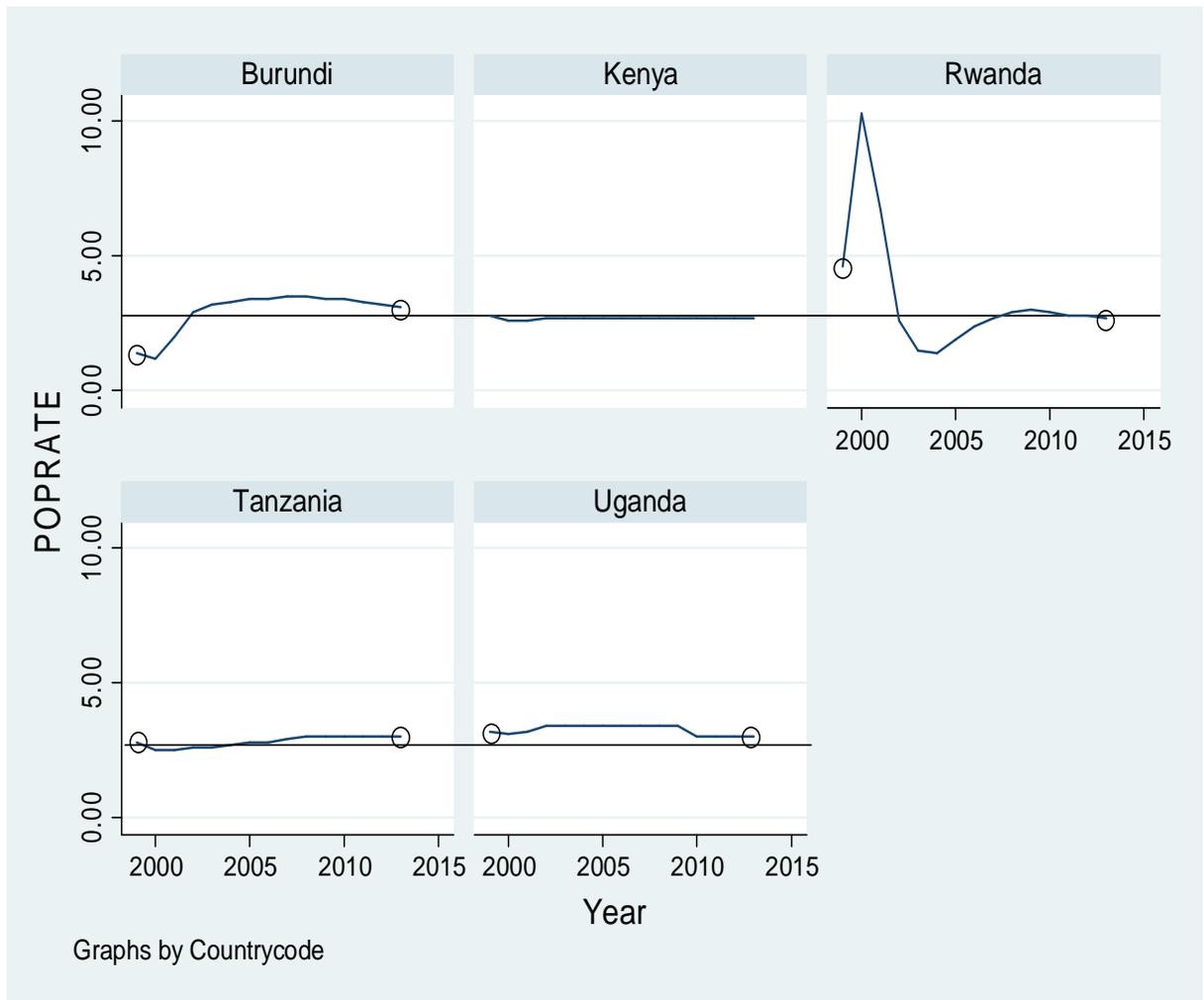
Figure 3: Trends in Governance indices



Governance indices shown in Figure 3 include voice accountability, political stability, government effectiveness, quality of regulatory, rule of law and control of corruption in EAC countries. In Burundi, most of the indicators showed poor governance as majority were below zero except voice accountability which from the year 2005 to about 2010 was above zero indicating improved governance. In the Kenya case, most indices except political stability demonstrated improved governance similar to Rwanda, where most indices showed a change in the year 2005. Control of corruption in Rwanda showed improvement over the study period. However, other indices like quality of regulatory, rule of law and political stability showed poor governance levels from the beginning of the study period to the years 2002, 2003 and 2005 respectively from which governance improved continuously until the end of the study period. Unfortunately, voice accountability remained poor throughout the study period.

Unlike the case of Burundi, Tanzania illustrated improved governance since most of the governance indicators were positive although they did not hit the target of 2.5 which was a threshold as expected. This situation was similar to Uganda which had only one governance index that is political stability trending below zero indicating poor state. On overall, Kenya, Rwanda, Tanzania and Uganda had better or improved governance compared to Burundi.

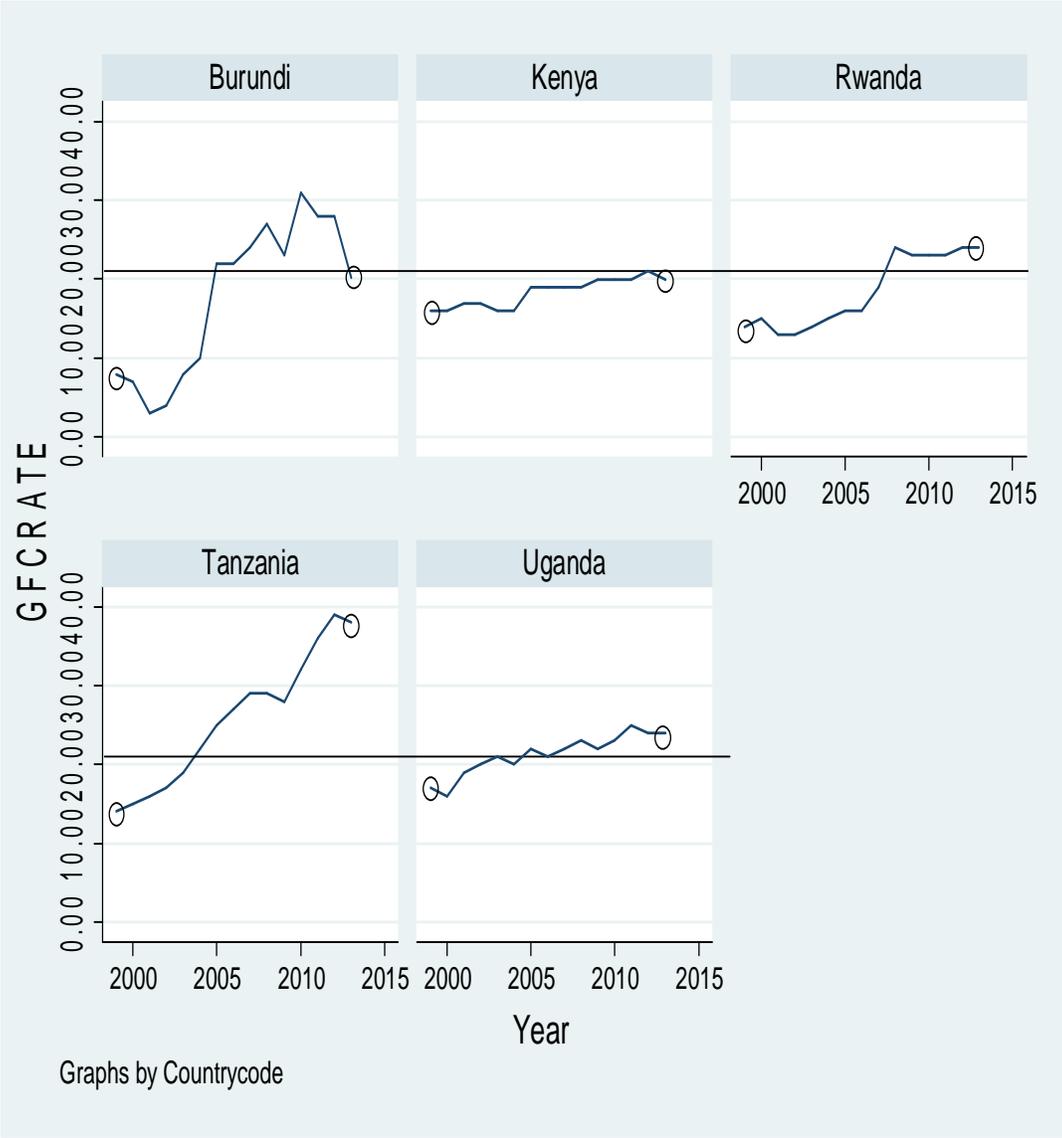
Figure 4: Trends in Population Rate



The population growth rate in both countries did not indicate systematic fluctuations. However, the trends were fairly constant except in Rwanda (See figure 4). It can be observed that between the years 1999 and 2001, there was a negative population growth

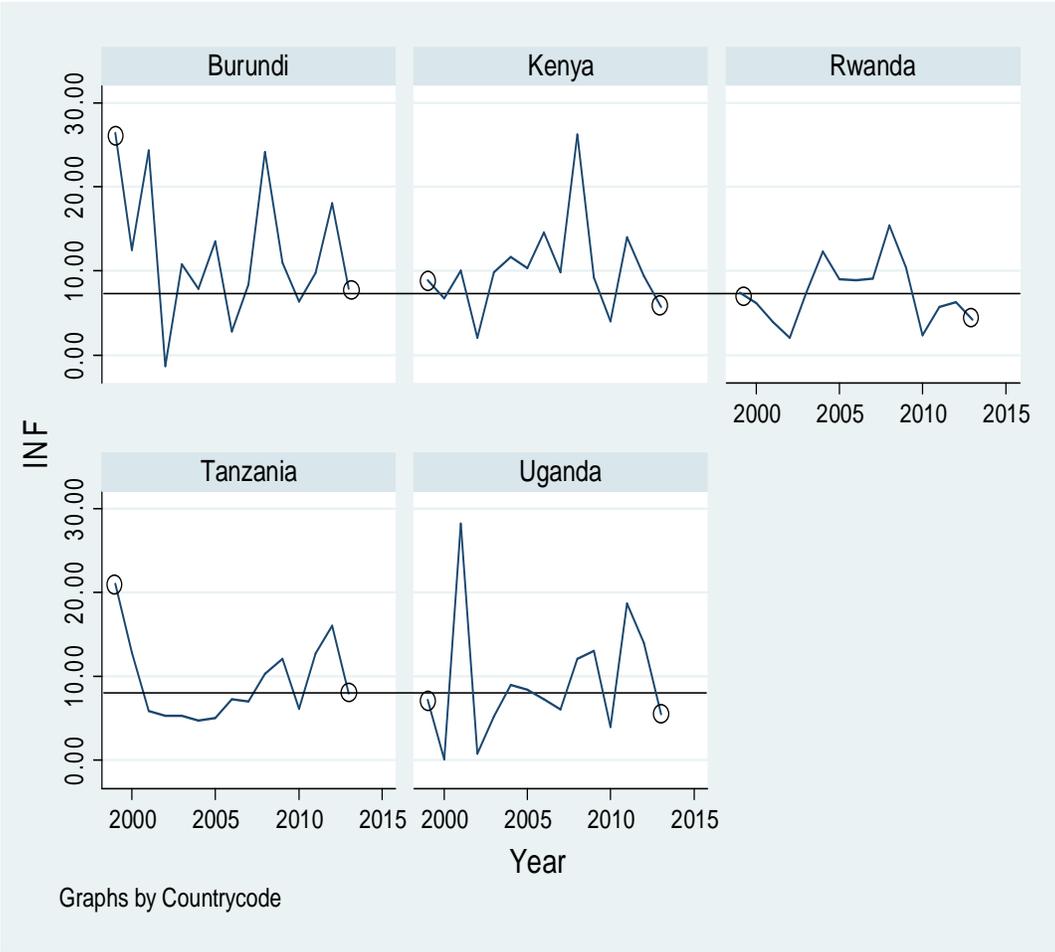
rate while a positive trend exhibited by the remained study period in Burundi. In Both Kenya, Tanzania and Uganda, an absolutely constant population growth rate around the mean was observed for Kenya and the rest exhibited somehow fluctuating rates. In the mid-year of 2003, the population growth rate was similar to the overall mean in the five countries. However, Tanzania and Uganda experienced a constant rise in terms of population growth.

Figure 5: Gross Capital Formation



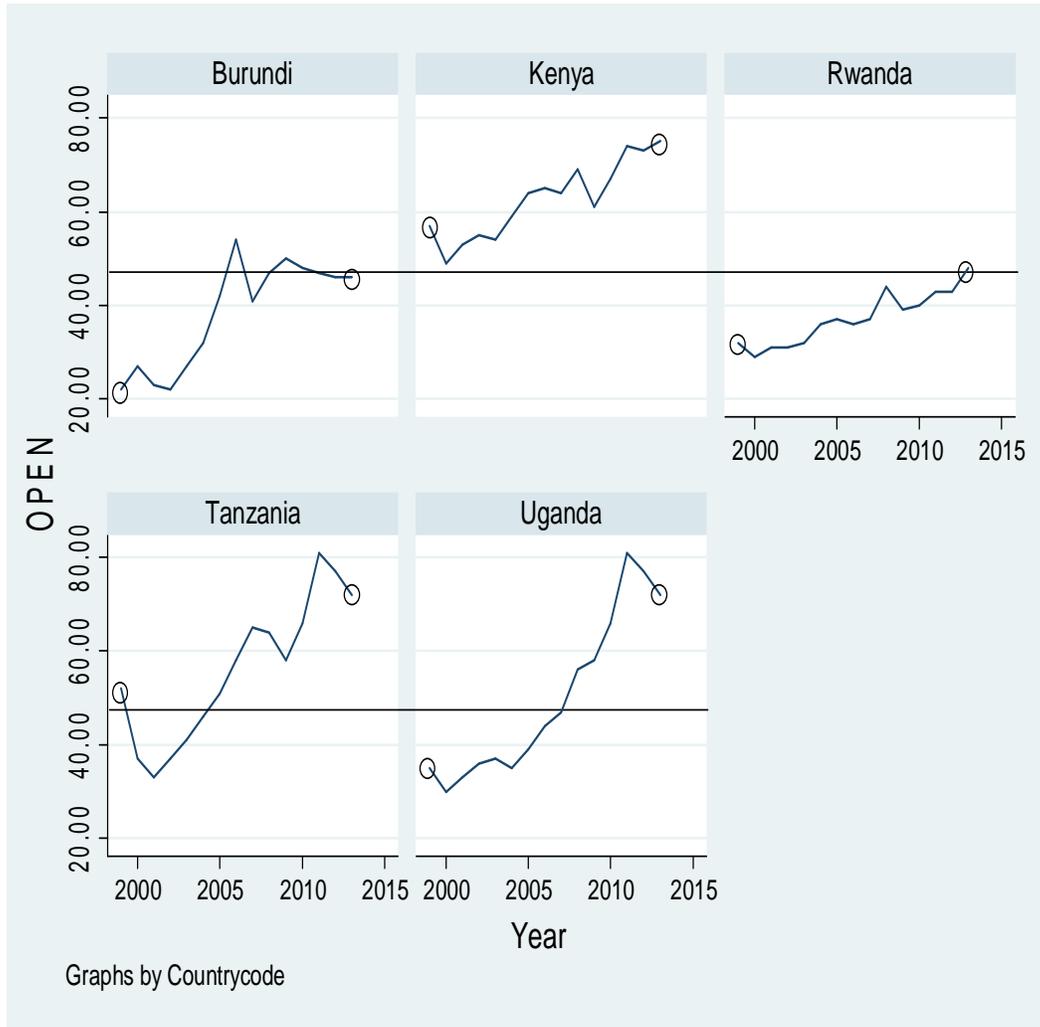
The gross capital formation of most countries as indicated by Figure 5 traded below average at the beginning for about half of the study period before they operated at above average except Kenya which operated below the overall average throughout the study period. Tanzania showed an increasing trend at increasing rate implying that Gross capital formation improved at higher rates compared to other countries.

Figure 6: Inflation Rates



Inflation rates fluctuated in both countries with highest fluctuation witnessed by Burundi while Tanzania and Rwanda showed few fluctuations. This implies that in Burundi, inflation rates were unstable compared to other countries in East Africa.

Figure 7: Openness to the Economy



Openness to the economy indicated similar trends observed by Gross capital formation in EAC countries. Both countries show a rise above the overall mean except Rwanda which still remained below the overall average and Burundi which rose and fluctuated around the mean. Tanzania and Uganda showed a consistent rise while Kenya was the only country which never operated below the average in the entire study period. This implies that in Kenya, the ratio of investment of GDP was high meaning that investments performed better in the economy compared to other economies.

4.4 Fixed Effects Versus Random Effects model

In model selection, we compared fixed effects and random effects where the former assumes that the real effect size is the same in all five countries and the summary effect is our estimate of this common effect size while the latter assumes that the true effects size varies from one country to another and that the countries under study represents a random sample of effects size that could have been observed and thus the summary effect is our estimate of the mean of these effects. Further, Borenstein (2009) suggests that under fixed effects, there is an assumption that all the dispersion in observed effect is due to sampling error whereas under random effects, there is allowance that some of the dispersion observed may illustrate real differences in effect size across countries.

In order to determine the best fitting model, the study adopted Hausman specification test where the fixed effects model specification was compared to the random effects model. The null hypothesis was that the differences in coefficients are not systematic. Consequently, on conducting the test, it was shown that P-value of 0.8854 implied that the individual level effects are best modelled using the random effects method.

Table 4.2: Hausman specification test

Variables	Coefficients of Fixed Effects (F)	Coefficients of Random Effects (R)	Difference (F-R)	S. Error
DVA	-3.196988	-2.459576	-0.7374119	0.4558133
DPS	-3.750682	-3.750753	0.0000717	0.368649
DGE	-3.835574	-3.455299	-0.3802755	0.2111949
DRQ	-7.921395	-6.810586	-1.110809	1.192318
DRL	5.765365	4.60532	1.160045	1.330086
DCC	7.676853	6.999353	0.6775001	0.5196623
DPOP RATE	-1.173894	-1.199167	0.0252738	0.0193365
DGFCRATE	-0.1658724	-0.1239902	-0.0418822	0.040378
DINF	-0.1426529	-0.1515121	0.0088592	0.0059758
DOPEN	0.1067099	0.1132393	-0.0065295	0.0093416
Chi2(10)5.09				
Prob>chi2=0.8854				

H₀: Difference in Coefficients not systematic

In our study, the Hausman test preferred random effects model to fixed effects model which allows estimation effects of the mean of the distribution effects rather than estimating one true effect. Since in each country represented in our study provides varied information about a different effect size, we thus had to ensure that all these effects size are represented in the summary estimate. According to Borenstein (2009), preference of the Random Effects, implies that we had to estimate the mean effect in the five countries. Under the random effects, the null hypothesis tested is that the mean effect is zero.

4.5 Regression Results and Discussions

Table 4.3 indicates the results of the regression.

Table 4.3: Final Model; Random-Effects GLS regression

Robust				
DGDPRATE	Coefficients	Std. Err.	Z	P>z
DVA	-2.459576	2.748811	-0.89	0.371
DPS	-3.750753	1.51073	-2.48**	0.013
DGE	-3.455299	2.83609	-1.22	0.223
DRQ	-6.810586	3.285724	-2.07**	0.038
DRL	4.60532	3.449574	1.34	0.182
DCC	6.999353	2.505299	2.79**	0.005
DPOPRATE	-1.199167	0.3899767	-3.07**	0.002
DGFCRATE	-0.1239902	0.1436649	-0.86	0.388
DINF	-0.1515121	0.0406376	-3.73**	0.000
DOPEN	0.1132393	0.0648145	1.75	0.081
Constant	0.1521733	0.3778652	0.40	0.687
Number of Observations = 70				
Number of Groups = 5				
R-Squared: Within = 0.5444, Between = 0.5064 and Overall = 0.5165				
Wald Chi2(10) = 63.03				
Prob > Chi2 = 0.0000				
Sigma_e = 2.6546166				

Source: Author's calculation based on the available data

The total variations explaining the economic growth in the EAC countries were 51.65% while the other proportion may have been factored in by other factors not considered by this study. Also, 50.64% of the variations explain economic growth in between the panels while 54.44% of the variations explain the economic growth within the panels.

The model for economic growth among the five countries in EAC was therefore expressed as shown below;

$$\begin{aligned} \text{DGDPRATE} = & 0.1522 - 2.4596\text{DVA} - 3.7508\text{DPS} - 3.4553\text{DGE} - 6.8106\text{DRQ} + 4.6053\text{DRC} \\ & + 6.9994\text{DCC} - 1.1992\text{DPOPRATE} - 0.124\text{DGFCFRATE} - 0.1515\text{DINFRATE} \\ & + 0.1132\text{DOPEN} \dots\dots\dots 4 \end{aligned}$$

Where;

DGDPRATE= the first difference of the GDP per capita growth rate

DPOPRATE= the first difference of the Annual average population growth rate

DGFCFRATE= the first difference of the Gross fixed capital formation as a percentage of GDP

DINFRATE= the first difference of the Inflation rate

DOPEN= the first difference of the openness to the economy (sum of exports and imports divided by GDP)

DGOV represents the first differences of the governance indicators (VA, PS, GE, RQ, RC and CC) respectively.

Table 4.3 indicated that the coefficients of the first differences of Political stability and absence of violence, quality of regulation, control of corruption, population growth rate and inflation rate were statistically significant since their p-values were 0.013, 0.038, 0.005, 0.002 and 0.000 respectively and none of their confidence intervals included zero. The overall regression fit is significant. This is because the overall P value 0.0000 is less than 0.05. The standard deviation of residuals within groups and variance attributable to the differences across the panels were omitted due to collinearity however, the standard deviation of residuals between groups is 2.6546 (sigma_e). There is no correlation between the error terms and the regressors.

We further explored significant factors whereby it was revealed that if all other factors were kept constant, a unit change in Political Stability and Absence of Violence, economic growth rate reduces by 3.75%. This implies that economic growth declines as destabilization of the government by unconstitutional or violent means increases. Therefore there is a negative and significant relationship between political stability and economic growth. This result is similar to the findings obtained by Chong and Calderon (2000) who examined the impact of political institutions on income inequality for One Hundred and twenty one countries classified as both developing and industrial countries using the six indicators from the World governance Indicators data set and ICRG civil liberties and political rights indices. They found out that political considerations and the political stability indicator hugely influences inequality aspects which made the authors conclude that poor institutions and income inequality reinforce each other.

There was established significant and negative relationship between quality of regulation and economic growth among East Africa countries. As the ability of government to develop and implement sound policies and regulations conducive to private sector development improves, economic growth rate declines contrary to our expectations. The study revealed that as quality of regulation improves, economic growth rate declines by 6.81% holding other factors constant. Quibria (2006) while conducting a related study to validate the governance and growth relationship in Asia, they estimated the governance surplus or deficit for each developing Asian economy. By comparing an aggregated governance measure calculated from the six governance indicators against per capita real income, they found that quality of regulation was ranked third with high correlation with per capita real GDP. Contrary to our study findings, both of these ranked indicators had a positive relationship with per capita real GDP.

It was revealed that control for corruption and economic growth had a positive and significant relationship which implied that as the use of public positions for private gain, including petty and grand corruption, as well as the elite and private interests taking the State hostage increases, economic growth rate approximately increases by 7% holding other factors constant. Azfar and Gurgur (2005) undertook a similar study among communities in the Philippines where they analysed corruption levels and obtained valuable information on how corruption levels impact on development. Their findings

concluded with our study findings as they established that communities with higher levels of perceived corruption experienced worse health and education indicators.

Population growth rate was revealed to have a significant and negative relationship with economic growth rate among the countries in EAC. As population growth rate increases by a unit, economic growth rate declines by 1.2% holding other factors constant. This implies that the rate at which population grows is higher compared to the economic growth rate. There is scanty empirical literature on population growth rate and economic growth. However, economic theory postulates that as population increases, so does the economic growth. High population provides cheap labour and thus high economic activities in any economy. Our study findings indicate the reverse of the economic theory.

Finally, a negative and statistically significant relationship was established between inflation rate and economic growth rate. For a unit increase in inflation rate, economic growth rate decreased by 0.15% holding other factors constant. High inflation rates lead to the increase in the overall price levels in the country. As one of the macroeconomic factors, it was revealed to influence the economic growth rate in EAC countries significantly.

4.6 Post-Estimation Tests/ Diagnostic Tests

The random effects model due to time series component makes assumptions on normal distribution of the stochastic random error term, constant variance of error terms across observations, linearity, no serial autocorrelation of the error terms, no perfect correlation between any pair of independent variables and stationarity. Therefore, diagnostic tests were undertaken so as to validate the yielded estimates.

4.6.1 Multicollinearity Test

Multicollinearity is considered to exist when there is perfect linear relationship between the variables under the study.

This study considered correlation matrix which shows various relationships between the pairs of dependent and independent variables. From Appendices (Annex 2) we found that there were some pairs (starred) which were highly correlated indicating the presence of

Multicollinearity which may lead to spurious regression. Multicollinearity was considered present if correlation coefficient exceeded the absolute value of 0.5 which is the threshold. We corrected the problem of Multicollinearity as indicated in Annex 3 in the Appendices and all pairs of independent and dependent variables were less than absolute 0.5 as required.

The first difference of the GDP per capita was negatively related with all other independent variables except first differences of rule of law and control of corruption which portrayed a positive relationship.

4.6.2 Unit Root Test

To avoid change of the estimates over time due to non stationarity, we applied unit root tests to investigate or detect non stationarity in all the study variables which in turn leads to spurious estimates. We applied Levin-Lin-Chu unit-root test for every variable under study. This reduced the number of periods to fourteen. Therefore, if variables are found to be non-stationary, first differencing or successful lagging is applied until the bias is eliminated. The null hypothesis in this case was that the variable under consideration was non-stationary or has unit root and in our case, it was stated as;

H_0 : Panels contain unit roots

H_1 : Panels are stationary.

Table 4.4 shows the Levin-Lin-Chu unit-root test and it was revealed that all variables had the p values greater than 0.05 which led to non-rejection of the null hypothesis (that the variables had unit root). Therefore, the first differences were conducted in an attempt to correct for non stationarity.

Table 4.4: Unit Root Tests

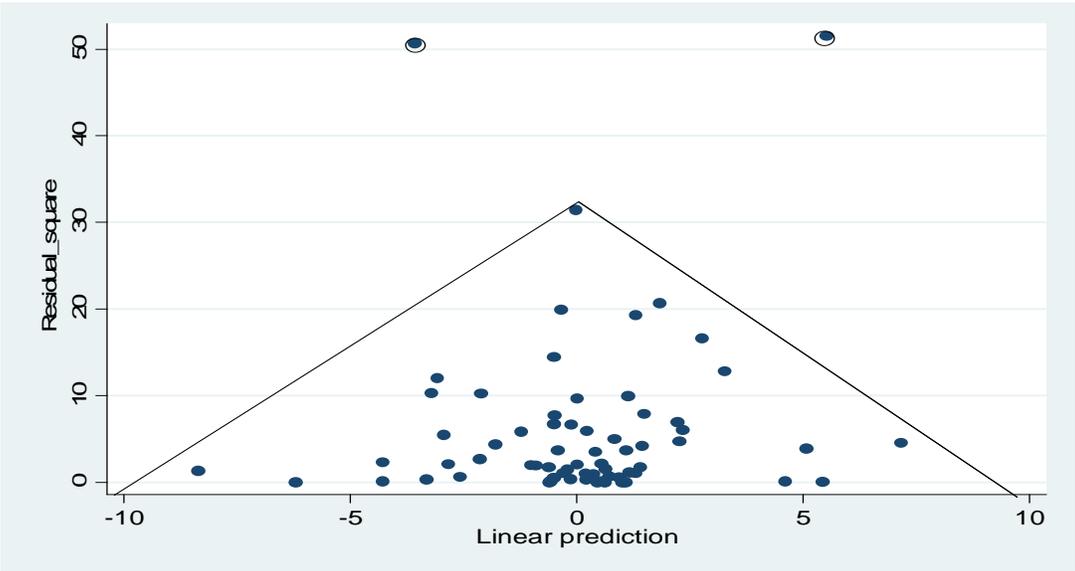
Variables	Unadjusted t statistic	P value at lag(0)	Unadjusted t statistic after 1st differencing	P value at lag (0) after 1st differencing
GDP RATE	-2.9054	0.07143	-12.1022	0.0000
VA	-3.9829	0.0598	-10.8510	0.0000
PS	-4.6042	0.05113	-9.4529	0.0000
GE	-0.0721	0.8712	-6.8043	0.0017
RQ	-3.2636	0.1011	-11.4714	0.0000
RC	-1.9194	0.1224	-10.4633	0.0000
CC	-2.6824	0.1013	-10.9616	0.0000
POP RATE	-0.3509	0.2052	-9.5902	0.0000
GFCRATE	-4.6563	0.1236	-9.4676	0.0000
INF	-2.9957	0.3201	-12.7068	0.0000
OPEN	-3.1376	0.0632	-9.7350	0.0000

Source: Author's computation

4.6.3 Heteroscedasticity

Due to time series component in panel data, the study explored the presence of constant variance of the error terms across all the observations in the panels. Therefore, the study utilized the residual plot method to confirm it. The scatter plots exhibit a systematic pattern. This implies that heteroscedasticity is present. The study utilized robust standard errors to avoid spurious estimates as a remedy.

Figure 8: Graph of Residual Square against linear prediction



4.6.4 Autocorrelation

If there is a suspected or proved correlation between random error terms of the subsequent time periods, then there is high likelihood of the existence of serial correlation. If present, the bias leads to spurious estimates of economic growth. The Durbin-Watson statistic results was found to be 1.8972 (positive autocorrelation) which is close to two (2) implying that adjacent observations were not correlated. Therefore, the random effects regression did not underestimate the coefficients of the standard errors.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study variables. Conclusions are thereafter made with a key focus on the established linkage between governance and economic growth in EAC countries. Later, relevant policy recommendations and areas of further research are suggested.

5.2 Summary and conclusions of the study findings

Upon reviewing diverse literature we concurred on the dimensions and in particular, public governance is linked with how governments are structured, what processes they use in governing and what results they are able to accomplish for the economy and the people they govern. Despite the fact that good governance forms the core framework of fiscal prudence, proper utilization of resources in public domain and an accountable system, our study focused in exploring the relationship of various governance indices and the regional (EAC) economic performance. Study variables involved were the GDP per capita growth rate, Annual average population growth rate, Gross fixed capital formation (the average rate of investment) as a percentage of GDP, Inflation rate, openness to the economy and GOV is the governance indicators which included Voice and accountability, Political stability and absence of violence, Government Effectiveness, Quality of regulation, Rule of law and control of corruption. It was revealed that economic growth was significantly influenced by political stability, quality of the regulation and control of corruption as governance indicators while population growth rate and inflation rate also contributed significantly to economic growth rate as macro-economic variables.

Further, apart from control of corruption which shows a significant and positive relationship with economic growth, political stability or absence of violence, quality regulation, annual population growth rate and inflation rates were revealed to significantly reduce economic growth in EAC countries.

In conclusion, factors which need attention by the governments of the respective states and the region as a whole include political stability, quality regulation, population growth rates and inflation rate which influence economic growth negatively.

5.3 Policy Recommendations

To be eligible as a country to receive foreign aid or donor support, there is need to create conducive environment which could also encourage and increase confidence from both local and foreign investors.

Based on the study finding, poor regulation consequently leads to decline in economic growth. Therefore, the governments need to relook at the existing institutions and how they link with governance. Further, institutions structures should be reorganized in a manner likely to shape diverse interactions, whether social, economic and political, and determine the policies likely to be chosen and implemented to enable sustainability.

Political stability should be enhanced through fostering national cohesion among the inhabitants of a nation. This is because in EAC country, member states have diverse cultures which mostly ignite violence for example Post election violence experienced in Kenya in 2007/2008 which was attributed to ethnicity.

Population and inflation should be considered as they also contributed to the decline in economic growth. More attention is required by the government in order to control the population of these countries so as not to constrain the economies. This may be attributed to increase in young and old population which does not work and thus little contribution to the economic growth. Similarly, inflation rates need to be controlled. This can be achieved through re-examining the fiscal policies which regulates money supply in the respective economies.

Therefore, as a region, there is need to improve key governance institutions through advocacy of reforms in public institutions and promotion of laws intended to foster good governance. Public sector reforms have a significant impact on the overall fiscal management of the economy. The need to establish on how to improve our economies as developing countries through governance funding is to focus on the these suggestions as their pay back is timely and critical through economic development.

5.4 Areas for further study

Our study mainly focused on the six governance indicators (WGI) published by the team of the World Bank and few macroeconomic variable. Therefore, there is need for more studies of the same utilizing other indicators like human rights, access to information and literacy levels in relation to economic growth.

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APPENDICES

Annex 1: Summary statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
GDPRATE	overall	2.432	2.943346	-9.2	10.6	N = 75
	between		1.93008	-.32	4.4	n = 5
	within		2.375468	-6.448	8.632	T = 15
VA	overall	-.7467746	.4596858	-1.749844	-.1074292	N = 75
	between		.4325762	-1.309127	-.3134561	n = 5
	within		.2441114	-1.423131	-.3115696	T = 15
PS	overall	-1.097462	.6446634	-2.515943	.0570998	N = 75
	between		.5383345	-1.835862	-.3599104	n = 5
	within		.4249879	-2.368348	-.2627295	T = 15
GE	overall	-.6495277	.3909285	-1.726847	.0654321	N = 75
	between		.3596496	-1.290052	-.4486483	n = 5
	within		.2189713	-1.400334	-.1354473	T = 15
RQ	overall	-.5163196	.4566616	-1.672969	.2496185	N = 75
	between		.4426137	-1.223337	-.0774315	n = 5
	within		.222927	-1.377013	.1274981	T = 15
RL	overall	-.7776452	.4042696	-1.730611	-.1477047	N = 75
	between		.3541194	-1.28177	-.3986381	n = 5
	within		.2485112	-1.750288	-.1673818	T = 15
CC	overall	-.7498242	.4363853	-1.461707	.6549896	N = 75
	between		.3711697	-1.114398	-.153408	n = 5
	within		.2805873	-1.527147	.0585735	T = 15
POPRATE	overall	3.022667	1.092922	1.2	10.3	N = 75
	between		.3003553	2.693333	3.413333	n = 5
	within		1.05893	1.009333	9.909333	T = 15
GFCRATE	overall	20.28267	6.811206	3	39	N = 75
	between		3.346499	17.68	25.73333	n = 5
	within		6.108373	5.602667	33.60267	T = 15
INF	overall	9.652	6.08146	-1.4	28.2	N = 75
	between		1.726804	7.366667	12.14667	n = 5
	within		5.879322	-3.894667	28.54533	T = 15
OPEN	overall	48.73333	15.54447	22	81	N = 75
	between		11.03107	37.2	62.6	n = 5
	within		11.9569	25.86667	80	T = 15

Source: Authors computation

Annex 2: Correlation matrix before first differencing

VARIABLES	GDPRATE	VA	PS	GE	RQ	RL	CC	POPRA TE	GFCRATE	INF	OPEN
GDPRATE	1.0000										
VA	0.1216	1.0000									
PS	0.3900	0.4308	1.0000								
GE	0.4527	0.3448	0.7559*	1.0000							
RQ	0.3057	0.4938	0.5261*	0.8299*	1.0000						
RL	0.4857	0.4511	0.8087*	0.7997*	0.7198	1.0000					
CC	0.4317	-0.1900	0.6076*	0.6447*	0.3208	0.5149*	1.0000				
POPRA TE	-0.0674	-0.0850	-0.2095	-0.0427	-0.1303	-0.2063	-0.0273	1.0000			
GFCRATE	0.2591	0.5597*	0.6409*	0.3676	0.3135	0.5234*	0.2239	0.0691	1.0000		
INF	-0.3679	-0.0121	-0.1128	-0.2598	-0.1630	-0.1875	-0.2426	-0.1711	-0.0124	1.0000	
OPEN	0.0783	0.7790*	0.4589	0.3158	0.4316	0.3621	-0.0739	-0.1023	0.6443*	0.1058	1.0000

***This pair is highly correlated.**

Annex 3: Correlation matrix after first differencing

VARIABLES	DGDPRATE	DVA	DPS	DGE	DRQ	DRL	DCC	DPOPRATE	DGFCRATE	DINF	DOPEN
DGDPRATE	1.0000										
DVA	-0.0877	1.0000									
DPS	-0.2250	0.2409	1.0000								
DGE	-0.1497	0.0284	0.2862	1.0000							
DRQ	-0.1114	-0.1964	-0.1260	0.3713	1.0000						
DRL	0.2668	0.3770	0.1355	0.2105	0.1500	1.0000					
DCC	0.1743	0.0896	0.0420	0.4506	0.3778	0.2748	1.0000				
DPOPRATE	-0.3967	0.2401	-0.1670	0.1645	0.0794	-0.1514	0.0063	1.0000			
DGFCRATE	-0.0650	0.2090	-0.0094	-0.2106	-0.2589	0.1213	-0.0114	0.0988	1.0000		
DINF	-0.3683	-0.0907	0.0611	-0.0780	-0.0185	-0.2231	0.0487	0.0019	0.2209	1.0000	
DOPEN	0.1568	0.0826	0.0506	-0.0250	-0.1245	0.2324	0.0942	-0.0587	0.3047	0.2352	1.0000