Regional Integration and Sustainable Growth in Sub-Sahara Africa: A Case Study of the East Africa Community

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PhD

2011

Abstract

In an attempt to save their national economies individually and collectively from declining growth, macroeconomic instability, and crippling external debts, East African countries have broadened their past narrow nationalism and expressed strong support for a revival of the East Africa Community in 1993. The motivation for this is to create a larger and better-integrated market within which trade liberalization in goods and services, factor mobility, and the removal of payment transactions could take advantage of economies of scales.

It is believed that regional integration is necessary and successful if member countries are converging in income per capita and macroeconomic stability indicators. In this study, growth and macroeconomic convergence are understood as the ability the regional economies to minimize the disparities of income across countries, inflation, fiscal and currents account deficit and external debts. In order to achieve this objective, the East Africa Community has set its four macro-economic convergence criteria (growth rate, rate of inflation, the ratio of the budget deficit to GDP, and taking into account the sustainability of fiscal and current account and external debt as outlined in East African Development Strategy 1999-2005. These are the benchmarks that have been used to assess a trend towards growth and macroeconomic convergence.

Using coefficient of variations as pre-assessment and cointegration analysis, this study has assessed whether regional policy has contributed to into growth and macroeconomic convergence. The results show that there is complete convergence in income per capita and weak convergence in macroeconomic stability indicators.
The implication of the results is that while acknowledging the growth convergence as essential for successful East African integration, but such progress toward growth convergence is likely to be undermined by the lack of macroeconomic policy discipline in the region and the lack of understanding the initial conditions and specific factors that drive growth in each country.

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Abbreviation and Acronyms

AAS-SAP	African Alternative Framework to Structural Adjustment Programme
ACP	African, Caribbean and Pacific Countries
ADB	African Development Bank
ADF	African Development Fund
ADF test	Augmented Dickey Fuller test
AERC	African Economic Research Consortium
AGOA	African Growth Opportunities Act
ARIMA	Auto-regressive Integrated Moving Average
ASEAN	Association of South Asian Nations
AU	African Union
CARA	Council Academic for Refugee Assistance
CEPGL	Economic Community of the Great Lakes
CODESRIA	Council for Development of Social Science Research in Africa
COMESA	Common Market for Eastern and Southern Africa
CEMA	Communaute Economique et Monetaire de l' Afrique Centrale
CPI	Corruption Perception Index
DI	Democracy Index
EAC	East Africa Community
EADB	East African Development Bank
EFI	Economic Freedom Index
EDB	Ease of Doing Business Index
ECOWAS	Economic Development of West African States
EU	European Union
FDI	Foreign Direct Finance
FAO	Food Agriculture Organisation
FOB	Free on Board
FTA	Free Trade Arrangement
GATT	General Agreement on Tariffs and Trade
GPPP	Generalised Purchasing Power Party
GLR	Great Lake Region

HDI	Human Development Index
HPI	Happy Planet Index
Ho	NUll Hypothesis
H1	Alternative Hypothesis
ILO	International Labour Organisation
IMF	International Monetary Fund
ISI	Import Substitution Industrialization
LDC	Least Developed Countries
LPA	Lagos Plan for Action
MERCOSUR	Mercado Commun del Sur (Southern Cone Common Market)
MFA	Most Favoured Nation
NAFTA	North America Free Trade Agreement
NBER	National Bureau of Economic Research
OAU	Organization of African Unity
OCA	Optimum Currency Area
OLS	Ordinary Least Squares
OECDE	Organisation for Economic Cooperation and Development.
PTA	Preferential Trading Arrangements
DRC	Democratic Republic of Congo
REGAV	Regional Average
RIA	Regional Integration Arrangements
SACU	Southern African Customs Union
SADEC	Southern African Development Community
SAP	Structural Adjustment Programme
SDREG	Standard Deviation from Regional Average
TICPI	Transparency International Corruption Perception Index 2007
UNCTAD	UN Conference on Trade and Development
UNESCO	United Nations Education, Science and Cultural
WTO	World Trade Organisation
WEFN	World Economic Freedom Network

Preface and Acknowledgements

The causes of Africa's slow growth and development strategies have been controversial issues debated intensively among economists and policymakers. While the general explanation has blamed internal factors, little has been said about external factors. Our main interest in this study is to understand how external and internal factors have interacted to contribute to the current situation. Given the role of international and regional dimensions in economic growth and development, this study investigated how East African regional integration can contribute to sustainable growth. Such task would have been impossible without the financial support of the Council for Academic Refugee Assistance (CARA) and academic support from Northumbria University, particularly my Supervisors, Dr Majid Taghavi, Professor Brian Snowdon, Dr Dilek Dermibas, and Andrew Hunt. I am also grateful to the University of Nairobi and the African Research Economic Consortium in Nairobi (Kenya) for advice and documentation. I would thank my colleagues and friends for their cooperation during my research programme. I am indebted to Mr Ray Holmes, Mr Nitin Shukla, and Mrs Maureen Kesteven for their sympathy and support. Finally I express my deepest gratitude and love to my wife Genevieve Nyirarukundo and children Munyaneza Darius, Mugiraneza Marius, Akimpaye Cleopatra and Munyawera Chritian for their love, support, and encouragement.

To all of you I am grateful.

Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been discussed with the Principal Supervisor on 25 May 2003. As the research used the secondary data, there were no ethical issues.

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Date : 23 May 2011

Chapter I

Introduction

1.1 Background and Introduction.

From an historical perspective, a remarkable achievement since the end of the Second World War has been the rapid improvements in growth and welfare in industrial countries and in the newly industrialized nations of East Asia which have achieved satisfactory levels of prosperity. In contrast, African countries have experienced what Easterly and Levine (1997) call *Africa's growth tragedy*. This situation raises important questions that lie at the heart of the debate on economic growth and convergence. Why are some nations poor and others rich? Have income inequalities across countries fallen or risen over the years? Why are some developing countries catching up with the rich, while African countries are falling behind in spite of economic reforms? Can theories and policies that explain growth convergence in OECD countries and newly industrialized countries also apply to African countries? Economists have asked these questions for decades, but after more than 200 years of the discipline, the mystery of economic growth has not been solved *(*Helpman, quoted in Snowdon and Vane, 2005).

Regarding the question of what should be done to improve and sustain Africa's growth, the debate is essentially a sterile and confusing one (Fafchamps, 2000). Following the 1980s economic crises characterised by declining growth, high inflation, unsustainable fiscal and current account deficits and huge external debt, the IMF and World Bank imposed structural adjustment programmes (SAPs). However, despite economic reform, it was recognised by the end of the 1990s that structural adjustment programmes had failed to bring about growth and macroeconomic stability. Given these disappointing results, East African countries are increasingly turning to an ambitious regional integration project as an extension of the structural adjustment programmes. Regional integration is defined as a

process in which countries enter into regional agreements for cooperation in the economic and political fields through free trade areas, customs unions, common markets, economic unions, and political federation (Balassa, 1962).

In order to rescue their economies from persistent declining growth and macroeconomic instability, East African countries moved in 1993 towards the resuscitation of the old East Africa Community. The signing of the Treaty establishing the new East Africa Community in 1999 represented a new vision: the creation of trade, monetary and political integration to achieve sustainable growth and macroeconomic stability. The need for growth and macroeconomic convergence in East African countries stems from the legacy of a long history of East African integration with its rise from 1917 to 1965, fall in 1977 and resuscitation in 1993. This legacy includes the perception that one country, Kenya benefited disproportionately from the old East Africa community compared to Uganda and Tanzania. With new and poorer members countries (Rwanda and Burundi) there is recognition that a successful East African integration project requires the member states to converge in income per capita in order to avoid tensions among member states. According to Rassekh (1998), growth convergence is desirable because inordinate income disparity between rich and poor economies is offensive to human dignity, and it also continues to fuel the international tensions. The member states must follow similar macroeconomic policies in order to avoid economic disturbances in the regional economies. To achieve these objectives, the member states considered it necessary to expedite the successive stages of regional integration, so that the whole process could be achieved through a fast track mechanism[1] (Nzioki Kibua and Tostensen, 2005). In pursuing this fast tracking process, the East African countries have set benchmark criteria: sustained growth, price stability, sustainable fiscal and current account deficits and external debt (EAC, 2005). However, given the problems related to the implementation of different stages of regional integration, one can conclude that fast tracking and the setting of macroeconomic convergence criteria are unrealistic and unfeasible.

[1] The proposed 2004 fast track mechanism included customs unions in 2005, a common market in 2007, monetary integration in 2009 and political federation in 2010. Given the challenges in negotiating the issues in labour, capital and monetary markets and political issues such as democratic deficits and internal security, this time frame seem somewhat unrealistic.

1.2 Motivation of the Study

Despite considerable political goodwill and efforts to speed up the regional integration process and to achieve convergence in per capita income and macroeconomic convergence in the short-term, much more research remains crucial in order to guide policymakers. The old East Africa Community collapsed in 1977, partly because of political tensions, the unequal distribution of incomes and divergent macroeconomic performance between member states. In addition, the enlargement of the EAC with the entry of the poor countries Rwanda and Burundi in 2007 will radically change the landscape of regional income disparities. Consequently, achieving income convergence among member states remains a significant challenge for economic development and social cohesion. The combination of regional income disparities, unbalanced development and uncontrolled macroeconomic policies would inevitably hamper the success of the new East Africa Community. There is a need to consider the well-researched and empirical evidence that guides policymakers on unsolved problems such as those of the equitable distribution of the costs and benefits of regional integration, imperfect competition, the protection of infant industries, labour market rigidities and labour mobility, disharmony in taxation structure, financial and current account liberalisation, national sentiment and sovereignty, and unstable macroeconomic management.

To date there are a few empirical studies by such as Mkenda (2001), IMF (2004), Buigut and Valev (2005 and 2006), UNECA (2008) and Opolot (2010) that provide some empirical evidence on the problems of coordination and harmonisation policies and on the suitability of a common currency for East African countries. Using different methodologies, these empirical works have reached different conclusions that can mislead policymakers. The motivation of this study is therefore twofold. Firstly, the study is motivated by the need for well-researched empirical evidence to guide policymakers in East African countries in their ambitious programme to speed up the regional integration process and achieve growth and macroeconomic convergence in the region. Secondly the study is motivated by the desire to contribute to current knowledge and general understanding of regional integration, growth and macroeconomic convergence.

1.3 Research Questions

Taken as an extension of the structural adjustment programme, East African integration has come to be seen as an important factor that will facilitate growth and macroeconomic stability. For deeper economic integration, East Africa countries have set growth and macroeconomic convergence and sustainability criteria concerning sustainable growth, price stability, sustainable fiscal and current account deficits and external debt. After decades of the implementation of regional integration policy, the following crucial research questions now arise: As an extension of the structural adjustment programme, has East African integration policy contributed to sustainable growth and convergence in income per capita in order to improve social cohesion? Are East Africa countries conducting similar macroeconomic policies to avoid disturbances in regional economies? Are East Africa countries improving their external position by making sustainable their current account deficits and external debt? These research questions indicate what the study seeks to investigate and help make the theoretical and empirical framework more explicit.

1.4 Aims, Objectives, and Contribution of the Study

Generally, the aim of scientific research or investigation is to contribute to existing knowledge or to understanding and/or solving a problem within society. According Sarantakos （1993; p. 31);

> *"The purpose of research is to review and synthesise existing knowledge, to investigate existing situations or problems, to provide solutions to a problem, to explore and analyse more general issues, to construct or create a new procedure or system, to explain a new phenomenon or to generate new knowledge".*

Unfortunately this purpose cannot be fully achieved in the present study due to lack of the time and budget necessary to conduct qualitative research exploring new issues related to the desirable and undesirable effects of regional integration. However, in taking the research questions mentioned above, this study is purely quantitative and aims to investigate using an integrated macroeconomic framework

how regional integration can contribute to growth and macroeconomic convergence. Therefore the study will contribute to ongoing debates about income disparities due to trade integration and the desirability of monetary integration.

The specific objectives include to:

- Propose an integrated theoretical framework by combining the existing theories and empirical studies;
- Construct economic and econometric specifications that capture the short-run and long-run relationships between the variables under investigation in integrated framework;
- Investigate the growth and macroeconomic convergence hypotheses and, using the empirical results, to generate policy implications in designing regional integration policy as development strategy.

1.5 Research Hypotheses

The overall goal of this study is to investigate whether or not East Africa regional integration has reduced income disparities and improved key macroeconomic stability indicators. From the growth, macroeconomic and sustainability criteria set by the East African Development Strategy 1999-2006, in the light of subsequent theoretical and empirical literature, three important research hypotheses emerge that must be tested against the data.

1.5.1 Regional Integration Contributes to Growth and Convergence.

The existing literature suggests that increased regional trade is linked with economic growth via factor mobility and technology transfer, and therefore leads to more convergence in per capita income among member countries. Convergence in GDP per capita is the tendency towards the reduction over time of income disparities across member countries as a result of intra-trade[2] (De la Fuente, 2000).

[2]There is no agreement on whether intra-trade can foster catch-up convergence. However there is evidence that some European countries, like Ireland, Spain, and Portugal, have converged in GDP per capita with respect to richer countries.

Some economists, such as Snowdon (2006), assume that trade is an unquestionable force promoting convergence in per capita income.

1.5.2 Regional Integration Contributes to Macroeconomic Convergence

As the regional integration of trade becomes successful, this can be expected to lead to monetary, fiscal and financial policy coordination and harmonisation. When regional integration is successful in markets for goods and services, this can be expected to lead to the integration of financial and monetary markets, and thus macroeconomic convergence. Broadly speaking, macroeconomic convergence refers to macroeconomic policy stability in terms of price stability and fiscal deficits consistent with current account-to-GDP ratios and with sustainable external public debt-to-GDP ratios. In the context of monetary integration, macroeconomic convergence in key macro-aggregates seeks to eliminate policy shocks and reduce the costs of monetary integration. Macroeconomic convergence among given countries can be seen as either a prerequisite for, or the outcome of, a successful monetary integration agreement. In this sense, the study of macroeconomic convergence deals the feasibility/optimality (ex ante), or sustainability/stability (ex post) of a given monetary integration agreement. This prompts the third research hypothesis (Bagnai, 2010).

1.5.3 Regional Integration Leads to the Sustainability of Macroeconomic Policies

The inclusion of sustainability hypothesis in East African macroeconomic convergence criteria is a reflection of great concern about unsustainable fiscal and current accounts deficits and external debt, which have been the most serious growth constraints in East African countries. From a regional integration policy perspective, the macroeconomic policy convergence hypothesis posits that regional economies should be similar over time not only in terms of economic growth and macroeconomic policies, but also in terms of sustainable fiscal deficits, currents accounts and external debt (Chalk and Hemming, 2000).

1.6 Research Methodology

Having formulated research questions and hypotheses, the next step concerns the choice of a research methodology which clarifies the appropriate methods and procedures to be used for testing the growth and macroeconomic convergence and sustainability hypotheses as mentioned above. As in any scientific inquiry, the methodology underlying this research is based on the choice of theoretical perspectives related to the research topic under study, collecting and testing models, and interpreting the results in comparison with existing theories and empirical studies. Given the nature of its topic, research questions and hypotheses, it is obvious that the methodology underpinning the present study is essentially a positivist methodology. The ontological and epistemological assumptions of positivist methodology will be discussed in more detail in chapter V.

Regarding the methodology used in most previous empirical studies on the effects of regional integration on the economy, such as Enders and Hurn (1994), Mkenda (2002), Buigut and Valev (2004) and Falagiarda (2010), among others, employ positivist quantitative methodology including the use of applied general equilibrium (AGE), vector autoregression (VAR) model, gravity models, and G-PPP-cointegration analysis. These methodologies have major limitations. The AGE, VAR cointegration analysis models suffer from the problem of identification which cannot be solved by a purely statistical tool. This is because it is still difficult to differentiate between correlation and causation, meaning that these methodologies combine the effects of shocks and responses. Using regional integration as dummy variables, the gravity models are mis-specified from an econometric point of view, which leads to incorrect interpretations of the dummy regional variable(s) and improper economic inference.

This study differs from these methodologies in that it tries to isolate the effects of regional integration on key macro-aggregate variables such as per capita income and macroeconomic stability indicators by using historical data and a ‘before and after approach, to the East Africa Community. Although this approach does not cover a long enough period of time to yield more reliable results, it is still give a clear picture of common stochastic trends since the East Africa Community was resuscitated in 1993. This methodology is uses time series econometrics. Since the

new East Africa Community is considered as government intervention in international/regional trade activities, and therefore as a shock to the regional economies, time series econometrics is an appropriate methodology for measuring its impacts in the short term long-term. That is what Enders and Hurn (1994) calls a gradually changing impulse function analysis, because government intervention may be prolonged for a considerable period of time. Since the East Africa Community is a government intervention starting in 1993, this study applies a before-and-after approach; that is a time series econometric analysis[3]. The rationale of this methodology is to look at historical data and understand what happened to data over the time in the past. Time series econometric analysis also helps to predict the future and improve policy implication in realistic way.

1.7 Significance of the Study

Firstly, the study is important for the academic community interested in theoretical and empirical studies of regional integration. So far, most theories on regional integration have focused separately on the impact of trade integration and the suitability of adopting a single currency in the region, but little attention has been paid to an integrated macroeconomic framework. The rationale behind the choice of an integrated macroeconomic framework stems from the definition of regional integration as a process involving different stages: trade integration, monetary integration and financial integration. The intricate interaction between trade integration and monetary integration can be found in the growth and macroeconomic stability effects of regional integration. It is important to note that the relationship between growth and macroeconomic stability was not discernible until the theory of endogenous optimum currency areas suggested that monetary integration necessarily leads to higher volumes of intra-trade, and thus growth and convergence among member states (Ben Hammouda *et al*., 2007).

Although the microeconomic and macroeconomic dimensions of regional integration are intimately related, no universally agreed theoretical framework covers them in explaining the linkage between trade and monetary integration. This study

[3] Time series econometrics helps in looking at the historical data, to describe and summarise data, make predictions or forecasts and improve policy advice in a much more realistic way than applied general equilibrium models (Stock and Watson, 2001).

cannot pretend to find one either. However, although the study cover only a little aspect of the economics of regional integration, it does seek to provide an overall critical assessment of all forms of regional integration in an integrated framework covering different approaches; namely, regional integration and growth convergence(Chapter II) and regional integration and macroeconomic convergence (Chapter III). Another contribution of the study will be to stimulate further research into the field of regional integration using an integrated macroeconomic framework.

The study will also be beneficial for policymakers who need theoretical and empirical foundations for policy decisions. So far, at least, in the available academic literature there are no empirical studies testing the growth and macroeconomic convergence and sustainability hypotheses using an integrated framework. Moreover, although it was believed that trade integration could lead to greater convergence in income per capita among member countries; one cannot deny other causes of convergence. Monetary and financial integration are other forms through which regional integration might affect economic growth and welfare. The case of European monetary integration is a good example where the co-ordination of monetary, fiscal and exchange rate and trade policies is an important factor in economic growth. East African governments can benefit from such results and undertake more sound economic policies that can boost sustainable growth and macroeconomic stability in the East Africa Community. This study attempts to shed light on controversial issues in the East Africa Community about the unsolved problems of trade imbalances and the unequal distribution of benefits, as well as the persistent macroeconomic instability. The study tries to find out which country is benefiting the most from East Africa Community, in terms of increasing intra-trade and income per capita and macroeconomic stability indicators.

1.8 Limitations of the Study

In order to conduct research on growth and macroeconomic convergence satisfactorily, it was necessary to comprehend existing growth theories and the economics of regional integration. This area of study is too broad, covering general growth macroeconomics and international economics. It was necessary to narrow this field down to manageable propositions related to growth and macroeconomic

convergence and sustainability hypotheses as set out within the EAC Development Strategy 1999-2005. In investigating these hypotheses a number of limitations have been identified, including time and budget constraints on the collection of qualitative data, and theoretical and methodological limitations.

One of the specific objectives of this study is to propose an integrated theoretical framework for discussing regional integration, growth and macroeconomic convergence. Such an integrated framework[4] requires a so-called 'social accounting matrix' with detailed information on each sector of the regional economies (Agenor and Prasad, 2000). Such detailed information cannot be obtained in the context of African countries. Therefore the study is limited by a lack of any existing unique theory underpinning regional integration and as well as the lack of detailed information on different economic sectors.

Furthermore the quantitative analysis of the impact of regional integration policy should be complemented by qualitative analysis giving information on the public opinion about the desirability of regional integration. The time and budget available were again the enormous constraints on collecting and analysing such qualitative data. In addition, methodological limitations such as sample size, lack of available and/or reliable data, and the glaring paucity of prior empirical studies on the topic were the significant constraints beyond author' s control. With a small sample size it was difficult to find significant long-run relationships since time series econometrics requires a larger sample. This was a significant obstacle in finding a definite trend and meaningful relationships among variables.

1.9 Structure of the Study

1.9.1 Chapter I: Introduction

This chapter outlines what the thesis is about, briefly summarising the situation investigated and presenting the research problem and questions. Explaining the reasons why these questions are worthwhile, the methodology used to answer the research question and the objectives of the study are then discussed. The chapter identifies the problems of persistent declining growth and macroeconomic instability in East African countries. Regional integration policy has been proposed as an

[4] The integrated and consistent framework is a set of economic accounts based on the national account identity (Y = C + I + G + X – M) and balance of payments accounting (CA + KA + dR = O).

appropriate development strategy aimed at promoting growth and macroeconomic convergence. The chapter also explains the rationale for investigating this issue by using econometric methodology.

1.9.2 Chapter II: Literature Review on Regional Integration, Growth and Convergence

Regional integration is successful if the member states are converging in growth and macroeconomic indicators. Chapter III provides a critical assessment of the theoretical and empirical literature underpinning regional integration and growth convergence. A comprehensive literature review is undertaken on studies of the determinants of growth and the channels through which regional trade integration contributes to growth and convergence. These are capital and labour mobility and technology transfer. A full understanding of the theoretical and empirical literature allows the most relevant studies of growth and convergence, and the important controversies in the topic, to be highlighted. The overview of the empirical literature then allows an assessment of the appropriateness of methodologies used so far to investigate the convergence hypothesis. The theoretical and empirical literature review also helps in discussing the results of this study and to analyse whether or not the findings agree or contrast with previous findings.

1.9.3 Chapter III: Literature Review on Regional Integration, Macroeconomic Convergence and Sustainability

In order to make progress in further trade integration the East African countries have decided to cooperate in monetary and financial matters and ultimately reintroduce East African monetary union with a single currency and a Central Bank. The member states have to fulfill macroeconomic convergence and sustainability criteria. The rationale for these criteria is a reflection of the great concern about the strong macroeconomic relationships between unsustainable fiscal and current account deficits and external debt on the one hand, and high external burdens on domestic economies on the other hand. Chapter III contains a full survey of the theoretical and empirical literature on traditional and endogenous optimum currency area theory, and the costs and benefits of monetary union.

The empirical literature indicates the nature of economic methodology and the tools of investigation used for measuring macroeconomic convergence and sustainability hypothesis.

1.9.4 Chapter IV: An Overview of Economic and Institutional Features in East African Countries

Past experience and common sense suggest that growth and macroeconomic convergence depend significantly on the nature of the interaction of the economic, social and political conditions in which East African integration has been and is taking place. During recent decades, empirical studies have shown how economic and political institutions have shaped economic performance in developing countries. Slow growth and macroeconomic instability in these countries have been explained in terms of institutions failing to constrain corruption among political elites and political instability. Using the East Africa Community as a case study, Chapter IV presents an in-depth analysis of the background of the East African economies, analyses how well they have been performing in terms of key macroeconomic variables, and explores the economic performance of the alternative trade-led growth and macroeconomic stabilisation policies. These include the 1940s-1960s preferential trading arrangements, the 1960s-1970s import-substitution industrialisation, the 1980s-1990s trade liberalization or structural adjustment programmes, and the 1990s regional integration policies.

1.9.5 Chapter V: Methodology and Data Collection

Chapters II and III give a critical assessment of the theoretical and empirical literature on growth theories and convergence and sustainability hypotheses, identify operational variables, and suggest an appropriate methodology to be used in this study. Chapter IV presents an in-depth analysis of key macro-aggregates related to growth and macroeconomic convergence, namely GDP per capita, inflation, exchange rates, fiscal and current account deficits, and external debt. Chapter V focuses on methodology and data. The chapter begins with the philosophical

questions underlying the quantitative methodology, and then considers on the issues of measuring growth and macroeconomic convergence. This includes **the** identification of **economic** and econometric models, econometric specification, obtaining data, and estimating the parameters of the econometric model.

1.9.6 Chapter VI: Estimation of Econometric Models and Discussion of Findings

This chapter focuses on answering the main question of interest is, which is: Have the research findings confirmed or rejected the research hypothesis according to which East African integration has contributed to growth and macroeconomic convergence. Inspecting the data and using unit root and cointegration techniques, Chapter VI investigates macroeconomic convergence and sustainability criteria as set out by East African countries in their EAC Development Strategy 1999-2005. The chapter also presents the estimated results. This presentation includes tables and figures complemented with explanations related to data inspection (coefficient of variation, correlation matrix) and econometric tests of stationarity and short-run and long-run relationships between variables. The chapter also indicates how the findings are related to the existing empirical studies and past experience in the East Africa Community. The results lead to general conclusion and important theoretical and policy implications.

1.9.7 Chapter VII : General Conclusion and Implications

Based on the findings from this study and from existing empirical studies and past experience in the East Africa Community this chapter draws conclusions and important theoretical and policy implications. Having discussed the findings and explained their implications the chapter will discusses the limitations of the study and makes recommendations for further research.

1.10 Conclusion

This introductory chapter is one of the most important in this thesis. It starts with a statement of the context of the research which is Africa's growth tragedy and macroeconomic instability, and growth policies and macroeconomic stabilisation adopted so far in African countries. It provides a clear statement of the research questions and hypotheses concerning whether or not these government policies can contribute to growth and macroeconomic stability. The chapter shows that the aim of the study is to investigate growth and macroeconomic convergence in East Africa countries and the results are expected to be beneficial for academics and policy makers. The chapter explains the rationale and the appropriateness of time series econometric methods in testing the research hypothesises. Although the study is significant for both academics and policy makers, the chapter show that it suffers from certain theoretical and methodological limitations: the lack of a unique theoretical foundation underpinning the research, time and budget constraints and the scarcity of reliable secondary data. Finally the chapter outlines the content of the study in seven chapters: introduction, literature review on regional integration and growth convergence, literature review on regional integration and macroeconomic convergence and sustainability, methodology and data, overview of economic performance and institutional features of East African economies, data analysis and findings, and general conclusions and implications.

Chapter II

Literature Review on Regional Integration, Growth and Convergence

2.1 Background and Introduction

The observed large differences in income per capita across countries and over time has led economists to seek answers to questions such as why some nations are poor and others rich. Has income inequality across countries fallen or increased over the years? Why are some developing countries catching up with the rich while African countries are falling behind in spite of economic reforms? Can growth theories and policies that explain growth performance and convergence in OECD countries and newly industrialized countries also apply to African countries? Economists have asked these questions for decades, but even after more than 200 years the mystery of economic growth and convergence has not been solved *(*Helpman, quoted in Snowdon and Vane, 2005). These are fundamental questions that lie at the heart of debates on national and world income distribution and poverty reduction. The convergence debate is vital, as economists and policy makers are interested in knowing whether or not the distribution of income per capita across countries or regions is changing over time or if poverty tends to persist. In international economic relations, the issue of convergence is concerns the question of whether gaps in income per capita between industrialised and developing countries are narrowing or rather widening across countries and over time (Pritchett, 1996).

The existing literature suggests that income per capita tends to converge in industrial countries and in some emerging and East Asia developing countries growing at faster rates than the richer countries. But African countries are lagging behind. The crucial question is how to accelerate growth in African countries. Despite economic reforms crafted by international institutions and foreign donors, Africa countries still face persistent declining growth and macroeconomic instability.

It is against this situation that African countries are increasingly turning to regional integration policy as a development strategy for achieving growth and development.

According to UNECA (2008, p.iv),

> "*there is a consensus that by merging African economies and pooling their capacities, endowments and energies, the continent can overcome its daunting development challenges. Deeper integration would allow it not only to achieve sustained and robust economic growth but it will also ensure poverty alleviation, enhanced movement of goods, services, capital and labour, socio-economic policy coordination and harmonization, infrastructure development as well as the promotion of peace and security within and between the regions. The wider economic space created will strengthen Africa's voice and bargaining power in its international relations with the rest of the world".*

The ultimate objective of regional integration is to generate dynamic income growth and convergence. The convergence idea presumes that economic cooperation would enable poor countries to catch up with rich ones. In this respect, the economic rationale for regional integration is found in both the static and dynamic effects, the accumulation of factors of production, and macroeconomic stability effects that find expression in tangible or observable outcomes like improvements in increasing growth and material welfare in the region. Successful regional integration policy requires the member states to remove all trade barriers (tariff, non-tariff and costs of payments transactions) and to converge in income per capita and follow similar macroeconomic policies to avoid disturbances in the regional economies. In this sense trade integration and monetary integration are intimately related.

By definition, regional integration is a process towards trade, labour, financial and monetary integration. Consequently the growth and convergence effects of regional integration and the convergence hypothesis can be studied in different disciplines: growth accounting, trade theories, labour market economics, financial economics, and monetary economics. In order to understand the growth and convergence effects of regional integration, the objective of this chapter is to seek a comprehensive microeconomic analysis in an integrated framework[5].The chapter starts by exploring the neoclassical and endogenous growth models and the

[5] Chapter IV is devoted to the analysis of macroeconomic aspects of regional integration (monetary integration), another channel through which regional integration affects growth and convergence.

mechanisms through which trade affects the economic fundamentals. The following sections explore how neoclassical and endogenous growth models explain the main determinants of growth and convergence. Then other determinants of growth and convergence in developing countries are examined. The final sections look at the channels through which international/regional trade contributes to growth and convergence; and empirical studies and experiences of trade integration in East African countries.

2.2 Definitions of Regional Integration, Sustained Growth and Convergence

2.2.1 Definition of Regional Integration

Regional integration is defined as a process involving cooperation in economic and political fields. According to Balassa (1962), regional integration is expected to evolve progressively in the following stages.

- Free Trade Areas, in which member countries reduce or eliminate trade barriers between each other, while maintaining barriers for non-member countries.
- Customs Unions, in which member countries reduce or eliminate barriers to trade between each other and adopt a common external tariff towards non-member countries.
- Common Markets, in which member countries expand the basic customs union by reducing the barriers to the movement of factors of production (labour and capital).
- Economic Unions, in which member states aim at the harmonisation and coordination of national economic policies, including fiscal, monetary and exchange rates (e.g. common currency areas).
- Political Integration, in which member countries hand over their individual sovereignty to a supranational organization.

2.2.2 Definition of Sustained Growth

The term economic growth is often confused with economic development. Simply defined, economic growth refers to the capacity of the economy to produce goods

and services and to improve the welfare of the population. What causes and makes economic growth sustainable is a matter of controversy. According to Lora *et al.* (2003), sustained growth is the result of an increase of the factors of production and their productivity. This has been mostly affected by technological innovation, the quality of institutions, macroeconomic stability, the quality of financial systems, the quality of infrastructure, and finally the relative position of dominance in the international economy. In this view, non-economic factors are stressed as essential elements for economic growth since they allow the factors of production to grow in a sustainable manner. In this respect regional integration contributes to sustainable growth by affecting the quality of public and private institutions, the macroeconomic environment, financial and monetary systems, infrastructure and services, and the position of dominance in the global economy. Economic growth is related to the concepts of convergence as the history of economic growth and development path is dominated by income inequality. Economists have begun to examine the reasons why countries grow differently over time.

2.2.4 Definitions of Convergence

The concept of convergence is not easy for laymen to understand. Generally speaking convergence is the approach toward a definite value, a definite point, a common view or opinion, or toward a fixed or equilibrium state. It is commonly applied in several disciplines (mathematics, natural sciences and social sciences). In economics, the ordinary definition of convergence states that it occurs if the standard deviation of per capita income across-countries decreases over time. In the literature there are three definitions of convergence: sigma convergence, beta convergence, and convergence to a common stochastic trend.

A) *Sigma Convergence*

The neoclassical growth theories assume that poor countries with little capital grow faster than rich ones with large capital; thus, over time, they should tend to converge or catch up with rich ones according to the law of diminishing returns on capital (Barro and Sala-i-Martin, 1992; Baumal, 1986). This is known as the absolute convergence hypothesis or sigma convergence (α-convergence). The concept of α-

convergence refers to the dispersion trend of incomes per capita for a group of countries or within a country. The concept is important to policymakers as it is important for the government to know whether the actual per capita income between regions within a country, families or individuals is decreasing or increasing.

B) *Beta Convergence*

Another type of convergence, β-convergence stems from the neoclassical assumption of diminishing returns and it tries to answer the question: why do countries tend to grow at different rates? In other words countries grow differently as long as they do not have similar characteristics. The concepts of α-convergence and β-convergence sound similar, but they are different. While α-convergence deals with income disparity across countries or regions within a country, β-convergence studies the mobility of income within the same distribution (Barro and Sala-i-Martin, 1995). As income per capita disparities among countries cannot be reduced unless the poor countries grow faster than the rich ones, the two approaches are related. Therefore β-convergence is a necessary condition for α-convergence. But it is not a sufficient condition for observing a reduction of income disparity across countries.

Taking into consideration the different conditioning characteristics of economies, Sala-i-Martin (1990) and Barro and Sala-i-Martin (1995) distinguish between absolute/unconditional convergence and conditional convergence. As mentioned above, if economies have similar characteristics, the Solow growth model predicts that both poor and rich countries will approach the same steady states known as absolute convergence.

C) Absolute Convergence

Absolute convergence occurs if the dispersion of income per capita across integrated economies tends to decline over time (Barro and Sala-i-Martin, 1992). In this sense, the concept of convergence usually refers to a process in which national economies display increasing similarities in the patterns of their economic performance and the reduction of existing gaps in income level between countries (UN/ECE, 2000). The question is whether or not absolute convergence applies for all countries and over time. The absolute convergence hypothesis seems to be unrealistic in the real world. After the Second World War, when the capital stocks of

Japan and German were destroyed, the same characteristics such as technological capabilities, savings propensity, population growth rates (fertility and birth rates), were similar to other industrialised countries before the war. According to the absolute convergence hypothesis the two countries grew faster and converged with other industrialised countries. Of course, this example cannot be generalised for other countries in the world, as nations are not so similar to one another. When confronted with data on groups of countries, empirical studies have found that the absolute convergence hypothesis applies for a homogeneous group of OECD countries, but does not apply for a broad cross section of countries over time (Ben-David, 1995).

D) Conditional Convergence

Given that all economies do not have the same parameters and thus the same steady state positions, it is difficult to imagine that all countries could converge to the same growth rate. The incomes per capita of countries which are identical in their structural economic characteristics (such as preferences, technologies, rates of population growth, government policies) converge in the long–run independently of their initial conditions. It is typically the case, however, that these conditioning variables, such as savings rates and capital-labour ratios, population growth rates and technology, change over time (Abramovitz, 1986). This suggests that absolute convergence should not apply when comparing industrial countries and developing countries. In reality, it is difficult to presume that poorer and richer countries would converge to the same growth rate, because the levels of savings, population growth rates, technology and population growth rates and education attainment are so different, but countries could converge to their own steady states. This is known as conditional convergence (Barro and Sala-i-Martin, 1991, 1992). According to Valdes, 2003, p. 61),

> *"every economy has its steady state, that is a kind of growth ceiling to its own possibilities of sustained per capita income growth. This state is determined by the economy's level of technology, savings rate (therefore also investment in physical and human capital), rate of population growth, and rates of physical and human capital depreciation".*

Generally a specific-steady state level of a country is characterised as a function of the rate of savings and investment in human and physical capital, share in human

and physical and capital in production processes, and their respective depreciation rates (Mankiw *et al.*,1992). A number of other variables such as the state of financial market development, national endowments, position in global trade, macroeconomic stability, political institutions, and social cohesion characterise a country-specific stead state (Tirelli, 2010 and Bassanini *et al.,* 2001)). These factors may explain some recent stories of growth success and recent experiences of convergence and divergence in income per capita and productivity growth in some developing countries.

E) *Convergence to a Common Stochastic Trend*

The modern statistical definition of convergence states that it occurs if the difference between the GDP per capita of two countries evolves towards a stationary process. If there are more than two countries there is convergence if differences between the GDP of the leading economy in the group and the average GDP per capita of the group evolve towards a stationary process, meaning that each country converges towards the regional average (Bernard and Durlauf, 1995).
However, if the variables are nonstationary and share a common stochastic trend, they form a cointegrating relationship and therefore there is convergence (Carmignani, 2005). Having defined the definitions of growth and convergence, the next section analyses how the two concepts are related.

2.3 Main Determinants of Long Run Economic Growth and Convergence

The growth literature has provided both theoretical and empirical studies. Yet the factors explaining growth performance are often inadequately conceptualised and poorly understood. The main explanation for this is lack of a generalised or unifying growth theory and inadequate econometric model specification (Artelaris *et al*, 2007). Despite the lack of unifying theory and standard recipes for rapid growth, this section identifies numerous factors that determine the growth and convergence process.

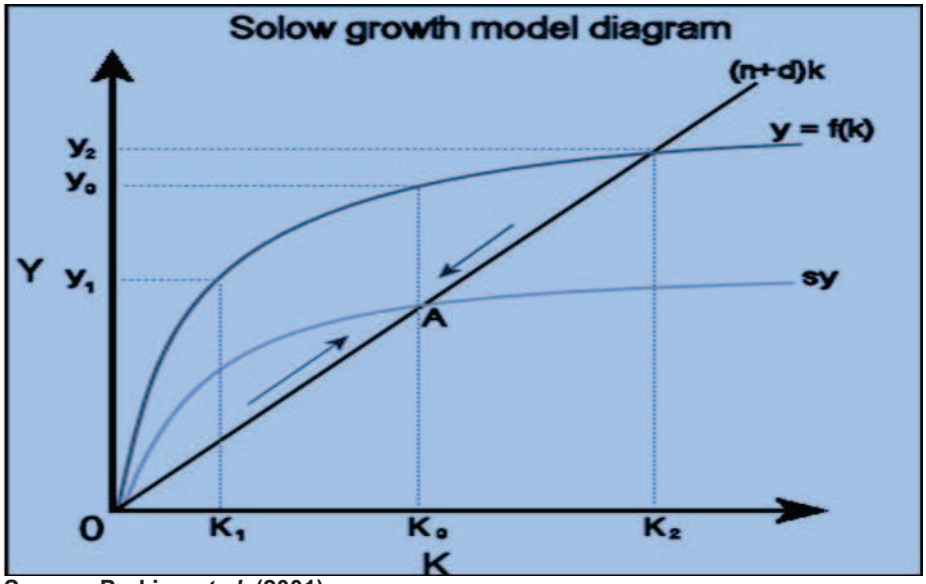
2.3.1 The Solow Growth Model and the Convergence Hypothesis

The Solow growth model, also known as the neoclassical growth model, is the starting point for studying growth and the convergence process. The model starts with the Cobb-Douglass production function. This standard neoclassical function states that growth is driven in the long-run by increases in factors of production and their productivity; that is, the accumulation of human and physical capital and technological progress:

$$Y = AK^{a}L^{1-a} \tag{2.1}$$

where, Y represents output growth, K represents physical capital, L represents labour, the variable A represents the total factor productivity (often generalized as technology or knowledge capital), and α and 1- α represent the output elasticities of labor and capital, respectively. The Cobb-Douglass function exhibits considerable possibility for substitution between the two inputs K and L. The elasticity of substitution is constant and equals to 1; that is, α + (1 - α) = 1. The values of α and 1- α are determined by available technology. The Solow growth model assumes constant returns to scale, labour and capital substitutability, diminishing returns to capital, which drives income per capita convergence. As for convergence assumptions, the Solow growth model predicts that poor countries with lower capital stock tend to grow faster than rich countries with larger capital stock, and thereby catch up with them. As can be seen in Figure 2.1, the Solow growth model is described by the interaction of basic equations: the production function (f(k)), savings function (sy), and the term (n+d)k which represents population growth and capital depreciation.

Figure 2.1 Diagram Representation of Solow Growth Model



Source: Perkins *et al.* (2001)

At point A, the amount of savings, sy, equals the amount of new capital needed for population growth, sy = (n+d) k or sy - (n+d)k = 0. At point A, the amount for capital per worker (k) is constant. Since savings per worker depends on output per work, it also remains constant at point A. Thus capital stock will not change over time because its two determinants balance ($\Delta k = 0$). This situation is known as the steady state level of capital per worker. To the right of point A, the savings function curve (sy) is smaller than the savings needed to compensate for population growth and depreciation ((n+d) k). As long as the amount of capital per worker increases, the savings function curve is below (n+d) k, and the economy will decrease until it reaches point A. In terms of the production function, f(k), movement to the left implies that output per worker, y, is falling from y_2 to y_o.

The Solow growth model diagram shows something of interest about the growth rate of capital per worker (k) and the corresponding output per worker (y) at different points away from the steady state at point A. If we consider the case of rich countries with higher income levels (where the capital-labour ratio, k_2, is higher), as long as their economies move towards the right of the steady state (point A), the rate of output per worker is smaller. Similarly, in the case of poor countries with lower income (where the capital-labour ratio, k_1, is lower), as long as their economies move to the left of the steady state (point A), the rate of output per worker is greater.

Figure 2.1 shows that smaller values of k are associated with larger values of y. The question of interest is whether or not this property means that countries with lower capital per worker (poor countries) tend to grow faster than with those with larger capital per worker (rich countries). A key prediction of the Solow growth model for a closed economy is that a group of countries which have the same population growth rate (n), the same savings propensity (s), access to the same technology, and only differ in terms of their initial capital-labor ratio (k), will converge to the same steady-state capital-labor ratio (A) known as the convergence point or convergence hypothesis.

2.3.2 Endogenous Growth Models and the Convergence Hypothesis

The neoclassical growth models predict growth and convergence in a closed economy with constant saving rates. This would occur even in the absence of the international trade in goods and services, and capital and labour. In the absence of international capital mobility, various countries will reach their steady states at different levels of output per capita, and thus with different levels of per-capita income. However, if per-capita growth in the steady state depends exclusively on exogenous technical progress which is available to all countries, then all countries will grow at the same rate. The neoclassical growth model has been criticised by endogenous growth economists for its assumptions of diminishing returns to capital and exogenous technology; that is, technological progress which is not produced by the realm of economics, but the field of fundamental and applied scientific research. In this case technological change occurs outside of the economic model. Hence, these are known as exogenous growth models. The neoclassical growth model has the merit of introducing the idea of technological change, but it fails to explain the determinants of technological progress. More importantly, neoclassical growth models ignore the role of government policies and international trade in the growth process.

It is against these limitations that growth theorists elaborated new theories known as endogenous growth theories. These are a reaction to the assumptions of neoclassical growth models, in particular the diminishing returns to capital. Endogenous growth models provide theoretical explanations of growth with increasing returns -to-scale and production technology, which prevents rich countries

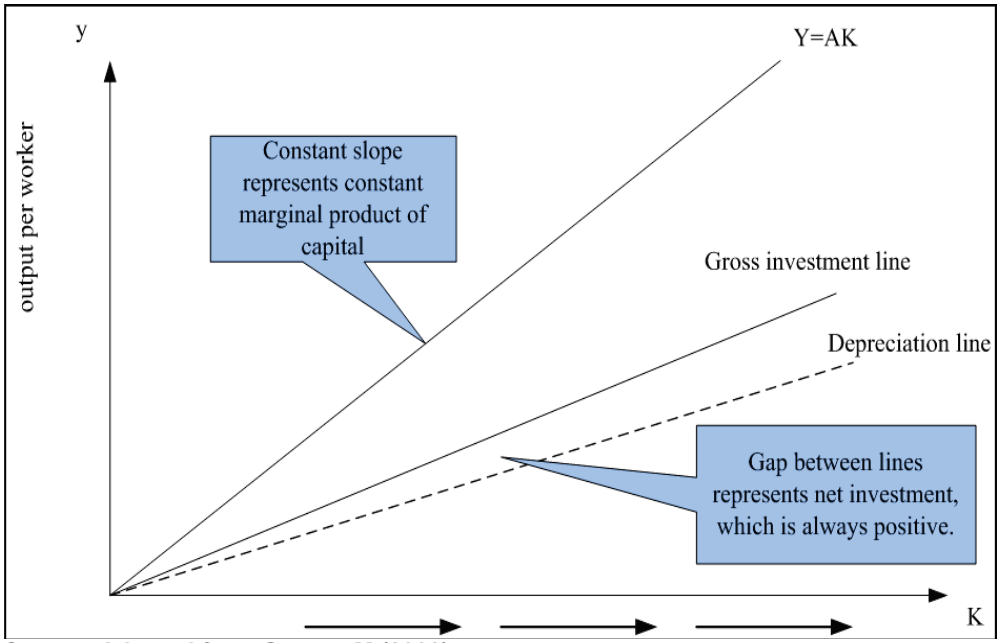
from diminishing returns and maintains or even increases their lead over poor countries. According to endogenous growth models, all factors of production may be variable in the long run. Firms may expand their existing plant, and the state of technology and management methods may change. To escape from diminishing returns and to allow sustained growth in the long-run, a group of growth theorists led by Romer (1986) disagreed with the exogenously driven explanation of technological progress and developed a new growth theory in which technological progress is driven endogenously, In endogenous growth models, technological improvements over time may lead to increasing returns to scale, which occur if equal increases in factors leads to proportional increases in output.

According to Barro and Sala-i-Martin (1995) the endogenous growth model is AK function - the simplest version of a production function without diminishing returns. The AK production function is a special case of a Cobb-Douglas production function (2.1) where a = 1. In the Cobb-Douglas production function there is decreasing return for any value of a, between 0 and 1. If a = 1, the Cobb-Douglas production function becomes a linear function without decreasing returns to scale in capital stock as is shown in Figure 2.2. The endogenous growth model becomes linear function of capital, K, and total productivity, A.

$$Y = AK \tag{2.2}$$

The new growth theorists concentrate on specifying the microeconomic foundations of accumulation by treating technological progress and advances in knowledge as endogenous factors. In his article '*Increasing Returns and Long-Run Growth',* Romer (1986) explains why private sector, profit-seeking maximisation firms would invest in R & D even though such investment displays the characteristics of the public sector producing public goods such as infrastructure. He argues that technological innovations are the results of conscious investment decisions taken by entrepreneurs and individual firms. The latter are assumed to invest in research and development activities for the same reasons that they invest in other factors of production; that is, on the basis of the expected profits on investments. The issues of endogenous growth models have been addressed by the leading economists such as Helpman and Krugman (1989), Romer (1990), Grossman and Helpman (1991), Krugman (1991), Rivera-Batiz and Romer (991), Baldwin (1992), and Aghion and Howitt (1998)

Figure 2.2: Diagram Representation of Endogenous Growth Model



Source: Adapted from Gartner.M,(2003).

The neoclassical growth model for a closed economy has been extended to allow the free movement of goods and services, international borrowing and lending and the possibility of migration in response to economic opportunities. This process modifies the country's production frontier possibility by increasing its financial capacity and labour force. Endogenous growth models for open economies recognize the role of the profit seeking R&D sector, human capital accumulation, the role of government and international trade in the economy and in the growth and convergence process. According to some Keynesian economists such as Thirlwall and McCombie (2004), who believe in a demand-driven growth model, it is impossible to understand differences in the economic growth rates of nations without making reference to the role of the government in increasing effective demand[6] and international trade and finance; and in particular balance of payments constraints. This is because exports are important from the demand side, as they allow other components of demand (consumption and investment) to grow.

Exports are also important from the supply side as they allow a faster growth of imports of the capital goods and raw materials necessary for production (Thirlwall and McCombie, 2004).

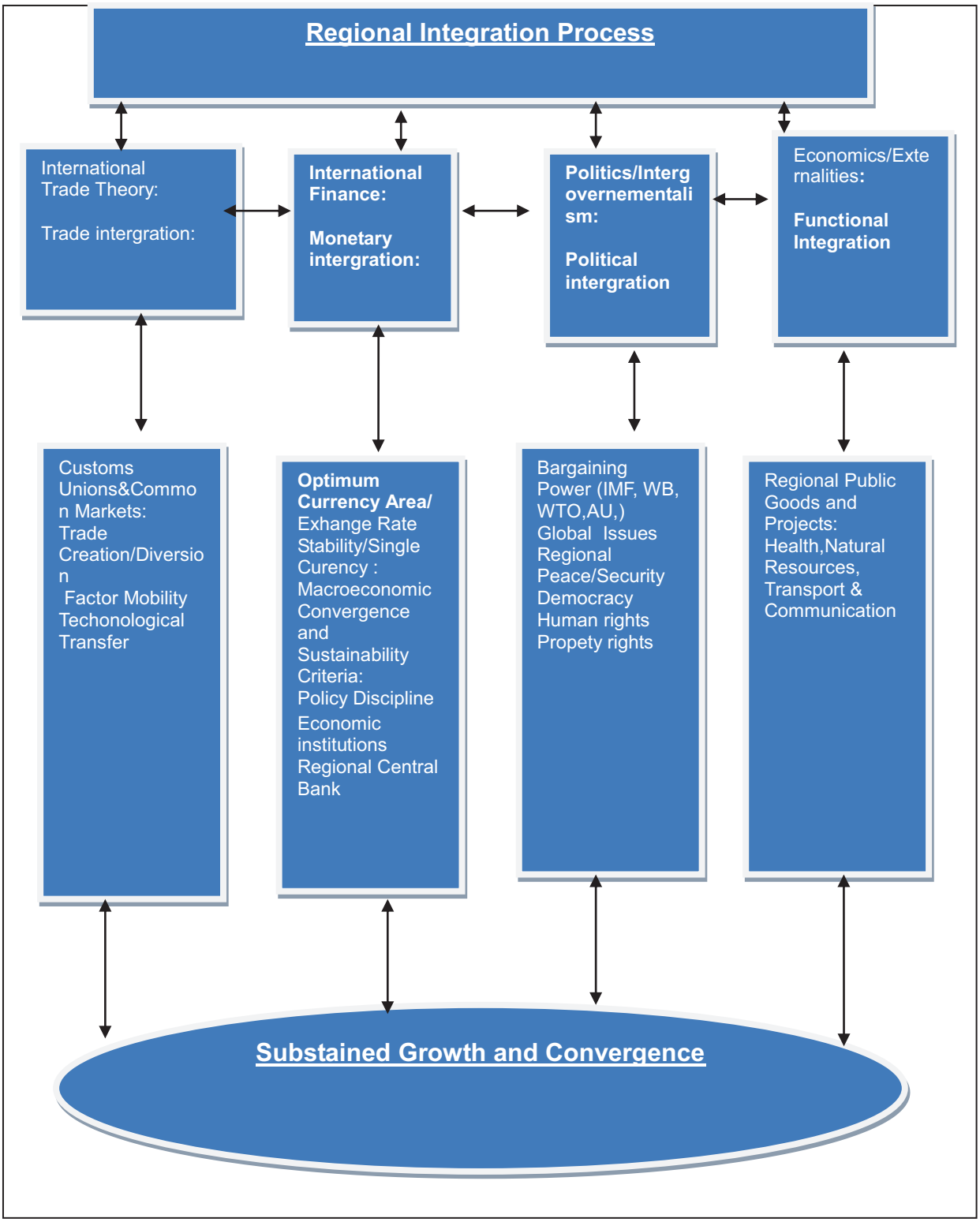
[6] The demand constraints include two types of financing gap (savings-investment gap, and foreign exchange gap) and fiscal constraints.

2.4 Regional Integration, Growth and Convergence: Towards an Integrated Conceptual Framework

The growth models provide insight into the relationship between regional integration, growth and convergence. Since Viner (1950) published his book, '*The Customs Union Issues*', a lot of empirical studies have examined the trade creation and trade diversion effects of regional integration. The trade creation effect is the shifting of production of some goods from a less efficient member to a more efficient member. The trade diversion effect is the shifting of production from efficient non-members to less efficient members. The desirability for welfare of a customs union would depend on the balance between trade creation and diversion effects. More recently economists have begun to extend trade effects to growth effects. Regional integration can also affect growth through dynamic output and productivity effects such as through economies of scale, increased competition, and the attraction of foreign investment. Gains from intra-trade arise when a member country specialises its production according to comparative advantage and then trades with other countries in one large market. In that sense regional integration affects growth and convergence via several channels, mainly via trade in goods and services, free movements of labour and capital and technology transfer. If prices, wage rates or returns on investment differ between two countries, they will eventually be equalised by trade and/or factor mobility, leading to growth and convergence among trading partners.

Economists such as Ethier (1998), McKay *et al*.(2000), and McCulloch *et al*. (2001) have begun to address the effects of trade and finance on growth and poverty, but unfortunately, the theoretical and empirical studies have not been put together into an integrated framework to map the relationship between regional integration, growth and convergence. Figure 2.3 provides such a framework by examining some channels through which regional integration affects growth and convergence.

Figure 2.3 Integrated Framework for Regional Integration, Growth and Convergence



Source: Elaborated by Author from Different Sources

As it can be seen, the integrated framework includes other channels (functional integration) that may matter for growth and convergence, but they are beyond the

scope of this study. These are political institutions, the production of public regional goods such as infrastructure for transport and communication. This section focuses on the channels that affect growth and convergence in the long-run; namely, capital and labour mobility and technological transfer.

2.4.1 Theoretical Foundations of Factor Mobility

Theoretically, international/regional trade can contribute to growth and convergence only via factor mobility. Many historical examples that come to mind are mass immigration to America and Europe in the eighteenth and nineteenth centuries and the recent financial globalisation process. There is no doubt that mass migration and the worldwide spread of global capitalism account for a large share of the 1870-1980s convergence in labour productivity and real wages among the OECD member countries. Theoretically, free movement of labour and capital and technology transfer across countries can promote growth in the countries with scarce endowments resources.

The Heckscher-Ohlin (H-O) theorem provides the first theoretical framework for analysis factor mobility. It suggests that with increasing production costs a country has a comparative advantage in the production of goods whose relative prices are lower there than in the other country. Countries possess different productive endowments, such as natural resources, labour, capital, and technology that lead to different relative production possibilities. When international trade is free, a country will specialise in and export the goods in which it has comparative advantage (goods that use the country's abundant factor intensively which increases the demand for that factor), and import goods in which it has comparative disadvantages (goods that use the country's scarce factors intensively, which reduces the demand for them). In this case the outcome would be a reduction in the differences in factor prices between the countries, and therefore international trade liberalisation would lead to a tendency towards the equalisation of factor prices. Factors of production will tend to move from places with low rates of return to those with high rates of returns or other favourable conditions. In this process factor mobility tends to speed up an economy's convergence towards its new steady state position (Samuelson, 1949; Mundel, 1957; Helpman and Krugman, 1985). Capital,

labour and technology would flow from countries where they can receive a low reward to those where they receive a high reward. Today firms in industrial countries are moving their capital to the developing countries to take advantage of lower cost labour. As trade integration takes place, industrial and other economic activity tend to migrate in search of lower costs of production, large markets, cheaper and more skilled labour, and natural resources (Elbadawi and Mwenga, 1997). Developing countries can gain from factor mobility and industrial relocation, but this requires the cooperation between North-South regional arrangements, sound government policy; good transport and communication infrastructure, a sound legal framework, progress with economic reform, less government intervention, the promotion of the private sector, and economic and political stability (Puga and Venables, 1998).

Growth economists such as Abramovitz (1986), Grossman and Helpman (1991), Barro and Sala-i-Martin (1995), Romer (1999), and Lane(2001) have identified the main channels through which international/regional trade affects growth and convergence, namely technological transmission, capital mobility, and labour mobility.

2.4.2 Technological Transfer and Growth

The first channel through which international/regional trade affects growth and convergence is technological transmission. Scientific revolutions and technology have changed the techniques of production by producing new goods and services (Aghion and Howitt, 1998). According to endogenous growth economists, physical and human capital accumulation and technological innovation are essential inputs for long-run economic growth, where innovation raises the marginal product of capital and profit accruing to capital. Barro and Sala-i-Martin (1995) suggest that developing countries can copy the new ideas patented by leader countries. They can absorb foreign technologies and adapt them to their own needs. The followers will be in a better position to grow quickly than the technological leader, who will have to assume the costs and time lags associated with the development of new leading-edge technologies. Technology is as costly as any marketable product. Therefore financial capital is necessary to buy technology through foreign trade and finance (such as foreign direct investment, FDI). In order to reap gains from foreign capital flows, a country needs to integrate its financial system into the global economy.

2.4.3 Capital Mobility and Growth

Factor mobility and technological transfer may accelerate the convergence toward long-run levels of output per capital. However, empirical studies do not provide clear-cut and robust support for growth effects of capital flow on growth. On one hand, Gourinchas and Jeanne (2005) found elusive gains from international financial integration to be relatively small even for countries that stand to receive a lot of capital inflows. On another hand, Blanchard and Giavazzi (2002) and Prasad *et al*. (2003) confirm that while there is no evidence for a perceptible influence of foreign capital on domestic growth, more international capital has been seen as a key factor that has facilitated an economic growth and convergence process in open economies.

Although it is hard to find unambiguous empirical evidence that capital yields growth, it is also hard to deny a number of direct and indirect channels through which international financial integration has helped to promote economic growth and convergence in the developing countries. These include: (1) complementing domestic savings for investment; (2) transfer of technology and managerial know-how through multinational enterprises; (3) stimulation of domestic financial sector development; (4) promotion of specialization; and (5) commitment to better policies (Prasad *et al.,*2003). Historically the developing countries have relied heavily on external grants and borrowing to finance the investment necessary for growth. Because of a combination of insufficient savings, exports earnings and poorly developed financial markets developing countries need foreign capital to finance investment. The good economic performances in 1970s Latin American and African countries and the astonishing economic growth in East Asia countries provide evidence of the role of foreign capital flows on growth. The contemporaneous literature on growth and income convergence emphasized the role of financial capital on growth and convergence.

A) The Failure of Capital to Flow from Rich to Poor Countries

The neoclassical growth models predict that capital mobility results from inter-country differentials in marginal product to capital. In the face of such return differentials all capital should flow from rich countries to poor countries, under the assumption of diminishing returns to capital, leading to increases in investment, growth and convergence in poor countries. For the surge in capital mobility in some countries in East Asia and China, investment and rapid growth is consistent with the predictions of the economic model of a capital-scarce economy opening itself to foreign capital. However, Lucas (1990) observed that it was a paradox that more capital flows did not happen between rich countries (capital-abundant) and poor countries (capital-scarce). The main theoretical explanations of the Lucas Paradox range from differences in fundamentals such as human and capital accumulation that affect the production structure of the economy to international capital market imperfections, mainly sovereign risk and asymmetric information (Alfaro *et al*., 2003). According to Reinhart and Rogoff (2004, p.15),

> *"There is no doubt that there are many reasons why capital does not flow from rich to poor nations yet the evidence we present suggests some explanations are more relevant than others. In particular, as long as the odds of non repayment are as high as 65 percent for some low income countries, credit risk seems like a far more compelling reason for the paucity of rich-poor capital flows. The true paradox may not be that too little capital flows from the wealthy to the poor nations, but that too much capital (especially debt) is channelled to debt intolerant serial defaulters".*

For poor developing countries with high records of debt defaults there is a compelling reason why capital does not flow to them from rich countries. In order to reap the rewards from foreign capital flows a country needs to liberalise its domestic financial liberalisation and capital account liberalisation. There is no doubt that full financial liberalization-domestic financial sector deregulation and capital account liberalisation-has played a key role in linking the domestic economy with the rest of the world. It can provide the funds necessary for investment in developing and emerging countries. Unfortunately, this role has been distorted by capital flight and frequent historical financial crises[7]

[7] Historically there are : the 1980s international crisis, the 1994 Mexican Peso crisis, the 1997 East Asia financial crisis, the 1998 Russian financial crisis, and the 2007 global financial crisis.

B) Capital Mobility and Financial Crises

There is a huge empirical literature showing that capital account liberalisation can bring further financial and macroeconomic crises as the domestic economy is opened to more volatile foreign capital (Glick and Hutchinson, 1999, Kose *et al*., 2003). Financial crises have serious consequences in terms of declining growth, macroeconomic instability, and social costs, causing intense debate in both academic and policy-making circles about the impact of capital mobility for developing economies (Akyüz and Cornford, 1999; Prasad *et al.,* 2003**)**. It is believed that foreign direct investment can also create a serious problem in both home and host countries. The most important complaints in home countries are a loss of domestic jobs, tax evasion, and loss of monetary control in international capital markets. Host countries have an even more serious problem with FDI flows. The foremost complaint is domination over their economies. In developing countries, FDI in minerals and raw materials production leads to complaints about foreign exploitation in the form of low prices paid to the host country, the use of high-technology and lack of training for local labour, overexploitation of natural resources, and the creation of dualistic enclave economies.

C) Capital Mobility and Capital Flight

Regarding the magnitude of capital flight, the problem is more serious in developing countries; in particular for African countries since the 1970s where according to Boyce and Ndikumana (2001), capital flight has totalled more than $285 billion (in 1996 dollars). The combined external debt of these countries stood at $178 billion in 1996. Taking capital flight as a measure of private external assets, for the 25-country sample as a whole, external assets exceeded external debts by $107 billion, meaning that Sub-Saharan Africa is far from being heavily indebted, but it appears to be a net creditor vis-à-vis the rest of the world. Capital flight consists of legal and illegal components. The legal component consists of capital movements which arise as a result of macroeconomic conditions such as private investors' portfolio decisions in response to interest rate differentials, changes in tax policy, and expectations of exchange rate depreciation, losses of confidence in a country's economic strength

and other financial risks (stock price, interest, exchange rate volatility, fears of political and economic instability. Legal capital flight is recorded in a country's balance of payments and it is the source of financial crises discussed above. In contrast, illegal capital flight is intended to disappear from official records and earnings on it do not return to the country of origin. Taking into account the different channels that fuelled capital flight, illegal capital flows from developing countries have been estimated at $859 billion to $1.06 trillion per year. Such flows from Africa are estimated at some $1.8 trillion from 1970 through 2008 (Kar and Cartwright-Smith, 2008; 2009). Capital flight is fuelled by several channels including corruption, governance failures, lax lending practices by foreign banks and multilateral financial institutions, irresponsible debt management, tax havens, secrecy jurisdictions, disguised corporations, anonymous trust accounts, fake foundations, trade mispricing, bribery and theft by government officials drug trafficking, racketeering, counterfeiting and money laundering techniques and other illegal activities(Ajayi 1992; Smit *et al*, *1996;* Ndikumana and Boyce 1998; Kar and Cartwright-Smith 2008; 2009).

The consequences of capital flight are enormous as the drainage of national savings has undermined investment and growth. Furthermore, capital flight has had adverse welfare and distributional consequences on the overwhelming majority of poor populations perpetrated mainly by wealthy political leaders who take advantage of their positions to expatriate money into their bank accounts abroad. Capital flight drains hard currency reserves, heightens inflation, reduces tax collection, cancels investment, and undermines free trade. It has its greatest impact on those at the bottom of the income scales in their countries, removing resources that could otherwise be used for poverty alleviation and economic growth (Ndungu, 2007).

In circumstances of financial crises and capital flight and rapid capital account liberalisation, a polarised debate arose among academics and policymakers on the costs and benefits of rapid capital account liberalisation. Some economists, such as Fischer (1998) and summers (2000), argue that a complete openness to capital flows has proven essential for developing countries aiming at sustained growth while significantly enhancing stability among industrialized countries. Others, such as Bhagwati (1998), Rodrik (1998), and Stiglitz (2002), view increasing capital account liberalization and capital flows as a serious impediment to international financial stability, leading to calls for capital controls and the imposition of restrictions, such as

taxes on international asset transactions. The most neo-liberal of international institutions, the IMF/World Bank, recognise that short-term capital flows are the main cause of financial turmoil. Capital restrictions might be unavoidable in order to mitigate the effects of financial crisis and to stabilise economic development (World Bank, 2009). The interconnections between domestic financial and capital account liberalisation and the international financial sector require minimum levels of market efficiency and government institutional regulation to safeguard financial stability and macroeconomic stability, in particular to avoid the problems of exchange rate appreciation/depreciation, liquidity volatility, and higher domestic inflation.

2.4.4 Labour Mobility and Growth

Migration or labour mobility is analogous to capital mobility. The migration of persons is one mechanism for change in the economy's population and labour supply. It refers simply to a workforce, one of the factors of production alongside capital and technology. In endogenous growth models human capital refers to the stock of knowledge embodied in the labour force through formal education, training and experience (Barro, 1997). Economists such as Lucas (1988) and Romer (1990) have stressed the importance of human capital accumulation and have argued that countries with higher human capital proxied by school-enrolment can expect higher growth rates than countries with lower human capital. According to Baumol (1994, p. 65),

> *"only countries with an adequate initial level of human capital endowments can take advantage of modern technology to enjoy the possibility of convergent growth. Poor countries can be able to bridge the gap in technology and knowledg*e".

The stock of knowledge affects the rate at which new knowledge is generated in high long-run growth rate. Improved dissemination of technologies and the spread of the ideas forces firms to develop technologies that are innovative on a global scale and not only new to domestic markets (Henrekson *et al.*, 1997). In the case of labour mobility, wages for identical jobs such as unskilled jobs in member states tend to approach each other. Labour would flow from countries with low wages to those with high wages, thereby raising wages in low wages countries and lowering wages in

high wages ones. As educated individuals often migrate from countries with lower return to those with higher wages, a country can boost its human capital by promoting immigration. The migration of workers with low human capital from poor to rich economies tends to speed up growth convergence *(*Barro and Sala-i-Martin, 1995). This suggests that countries which are integrated into the world or regional economy have access to a larger stock of ideas than more closed countries, and more opportunities to increase economic growth and convergence. One of the issues in labour mobility is that developing countries complain about brain drain. Brain drain is defined as the tendency of the most highly skilled, trained, and educated individuals from developing countries to move to different places all over the world, in particular in industrialised countries such as the USA and European countries, in search of high living standards, wages, access to high technology and more stable conditions. This movement of educated people from developing countries raises questions about its impact on growth and distributional income. Developing countries claim that they have invested in workers' education, and the brain-drain prevents them from reaping the future rewards of their investments in the form of the highest productivity and tax revenues. Developed countries argued that if such workers (doctors, scientists and engineers) make scientific discoveries and breakthroughs in industrialised countries, the whole world would benefit. In some cases, countries of origin obtain benefits from migrant workers who send significant shares of their earnings back to their countries of origin known as remittance workers.

According to Lundborg and Segerstrom (2000), there no doubt that the factor mobility can contribute to growth and convergence among developing countries. However, the assumption that goods and services, labour and capital move freely across countries seems to be unrealistic in the real world. The barriers to factor mobility range from government restrictions, the psychological costs of overcoming cultural and language barriers, and political and financial risks associated with capital in foreign countries. As in international trade in goods and services, the gains from labour and capital mobility are not divided equally among countries. This is because factor mobility raises the issues of brain-drain, financial crises, and capital-flight (Meyer and Brown, 1999; Ratha, 2003).

2.5 Key Determinants of Growth and Convergence in Developing Countries

The neoclassical and endogenous growth models are the standard analytical frameworks for analysing long-run economic growth and convergence. Economists believe that differences in output growth are explained by differences in the rates of growth of labour input, capital accumulation and technological progress as determinants of productivity growth. However, the causes of economic growth are too complex to be captured solely by supply-side theories which focus on the accumulation of capital and labour and technological progress and give little attention to other determinants of economic growth, including the structural factors and external factors which are beyond the control of policymakers. Tables 2.1 and 2.2 identify such factors, with their degree of significance. Internal factors include savings and investment, population growth rate, human capital, R&D expenditure, government size, inflation, macroeconomic stability, property rights, corruption, the rule of law, democracy and political stability, ethnic diversity, civic participation, religion, life expectancy, and geographical factors such as climate and landlockedness, natural resources and agglomeration. External factors consist of international trade, technology transfer, capital flow, migration of skilled and unskilled labour, oil prices and geopolitics (Petrakos *et al*., 2007; Artelaris and Arvanitidis, 2008). More importantly, while economic activities take place in free markets, the role of the public sector for the decision-making process of economic agents cannot be ignored.

The public sector has a crucial role in the functioning of the market economy, setting up institutions that aim at ensuring the rule of law, the protection of property rights, well-functioning public administration, and market integration by reducing barriers to trade, fighting crime and corruption, providing macroeconomic stability, good infrastructure, and legal procedures for the enforcement of contracts. Efficient institutions provide incentives for economic agents to invest, produce and trade (Bassanini *et al*. (2001).

Table 2.1 Factors Advancing Economic Growth

Rank	Factors	Significance %
1	High quality of human capital	53
2	High technology, innovation, R & D	50.16
3	Stable political environment	40.58
4	High degree of openness (networks, links)	38.98
5	Secure formal institutions, legal system, property rights, tax system, financial system	36.74
6	Good infrastructure	32.91
7	Capacity of adjustment (flexibility	31.63
8	Specification in knowledge and capital intensive sector	29.71
9	Significant foreign direct investment	23.32
10	Free market economy (low state intervention)	22.36
11	Rich natural resources	22.04
12	Sound macroeconomic management	21.73
13	Low level of bureaucracy	18.21
14	Favourable demographic condition (population size, synthesis and growth	18.21
15	Favourable geography (location, climate)	13.1
16	Strong informal institutions (culture, social relation, ethnics, religion)	12.46
17	Significant urban agglomeration (population and economic activities)	11.82
18	Capacity for collective action (political pluralism and participation, decentralisation)	8.31
19	Random factors (unpredictable shocks)	4.79
20	Others	2.56

Source: Artelaris and Arvanitidis (2008)

Table 2.2 Factors Hindering Economic Growth

Rank	Factors	Significance %
1	Unsustainable political environment	57.19
2	Low quality of human capital	51.12
3	Insecure formal institutions (legal system, property right, tax system)	48.24
4	High level of public bureaucracy	42.49
5	Low technology, innovation, R & D	37.7
6	Low degree of openness (networks, links)	35.78
7	Inadequate infrastructure	34.82
8	Poor macroeconomic management	30.99
9	High degree of state intervention	23.96
10	Low foreign direct investment	17.57
11	Rigid formal and informal institutions	16.61
12	Unfavourable geography (location, climate)	14.7
13	Specialisation in labour intensive sectors	12.46
14	Lack of natural resources	12.14
15	Weak informal institutions (culture, social relation ,ethnics, religion)	11.5
16	Unfavourable demographic condition (population size, synthesis and growth)	10.22
17	Lack of urban agglomeration (population and economic activities)	9.9
18	Inability of collective action (political pluralism and participation, decentralisation)	9.27
19	Random factors (unpredictable shocks)	5.75
20	Others	0.64

Source: Artelaris and Arvanitidis (2008)

Although these factors in advancing and hindering growth may be common in developing countries, understanding the underlying reasons for Africa's poor performance is still a challenge for the economics profession.

2.6 Explaining Africa's Slow Growth

Sustained economic growth is taking place in developed countries and some developing countries of Asia and Latin America, but it has largely not taken place in Sub-Saharan Africa. This raises two essential questions without definitive answers so far: What causes economic growth in African countries? Why has it not occurred in African countries? To answer these questions this section explores theoretical and historical explanations for Africa's slow growth.

2.6.1 Theoretical Explanations of Africa's Slow Growth

The recent literature on growth has produced a number of theoretical and empirical studies explaining the causes of long-run growth, but they do not help enough African policymakers to either understand the reasons why their countries are getting stuck in persistent poverty traps or propose appropriate growth policy. The neoclassical growth models explain how a country grows and converges to its steady state. The steady state characterises a state or phase of a dynamic economic system where change is no longer occurring and a stable situation has been achieved (Solow, 1956). But this does not mean that the forces influencing the dynamic system are unchanging or that it has become static or stagnant. On the contrary, the forces influencing the stability or instability of the dynamic system are in constant flux. In the Solow growth model the determinants of steady state are the rates of savings, population growth and technological progress. Any change in these forces will move the system until it reach a new steady state. If these determinants of the steady state are at very low levels, a country may remain in poverty. On this point, Africa is the region in the world most suffering from persistent negative growth. Structural factors that push Africa into poverty include low savings rates, low technological progress and total productivity and high population growth. In explaining Africa's slow growth, economists have focused on other internal factors such as the importance of geography, culture and history, the role of institutions, political instability, dictatorship, ethnic diversity and widespread civil war, macroeconomic policy mistakes, bad trade policy, corruption, rent-seeking, declining growth in agriculture and industry, fiscal and external debt, and the deterioration of social institutions. While there are internal and external factors explaining slow African growth, the general explanation considered so far by international institutions like the IMF and World Bank has placed the blame on internal factors (World Bank, 1981). Although the negative effects of internal factors are obvious, there is also the need to know why they are more chronic or inherent in African countries in order to control them domestically.

The current literature explains the stagnation of African countries according to several internal and external factors that have made them most vulnerable to remaining in persistent poverty. These are listed in Table 2.3.

Table 2.3 Comparisons of Recent Empirical Studies on the Growth Process in Africa

	Sachs Warner (1997)	Easterly Levine (1997)	Temple (1980)	Ghura Michael (1996)	Savides (1995)	Asiama Krugler (2004)
Variables	Cross Section	Cross Section	Cross section	Feasible GLS	Fixed Effects Panel	Dynamic Panel GMM
Initial Income	–	+	–	–	–	–
Savings	+			+	+	+
Population Growth			+	–	–	–
Literacy Rate						xx
School Enrolment		+	+	+	xx	
Life Expectancy	+		+	+		xx
Government Spending					–	–
Infrastructure		+	+			
Black Market Premium		–	–			
Fiscal Deficits/Surplus		+	+	–		
Social/Political instability		–	–	–	–	
Openness	+		+		+	+
Geography	–		+			
Climate				–		
Natural resource Abundance	–		–			
Institutional Quality	+	+	+			
Inflation				–	xx	–
Financial Development		+	+		+	+
Dummy Africa	+	–	–			
FDI						+
Poverty						–
M2GDP						–
Neighbourhood Effects	–	–				
Terms of Trade					+	xx
Real Effective Exchange Rate				–	xx	

Source: Asiama and Kugler (2004)

Note: A negative sign denotes that the factor has a negative effect on growth. A positive sign denotes that the factor has a positive effect on growth. The double cross denotes that the factor has no significant effect on growth.

In explaining Africa's slow growth, empirical studies include a wide range of explanatory variables as summarised by Asiama and Kugler (2004) in Table 2.3 Some empirical studies claim to have found relevant variables that have positive

effects on growth, including savings, life expectancy, school enrolment, financial development, and openness. Other variables such as initial income, black markets, and political institutions have negative effects on growth. The number of determinants of African growth raises the question of whether these variables are actually robust. The empirical results are mixed and contradictory. Natural resources are not the most important factor for growth. Government spending does not appear to matter much for growth, whereas inflationary policies do. The relationship between terms of trade and growth is weak. Levine and Renelt (1992) argue that the inconsistent findings could be attributed to deficiencies in econometric specification[8]. While econometricians have had much success in recent years using computer software in empirical studies, they have failed to transform all determinants of growth into a mathematical expression. Empirical studies have often been plagued by the nature and complexity of the economy, lack of reliable data, and severe methodological problems such as the inappropriate treatment of measurements and specification errors. The fundamental problem is the accurate measurement of explanatory variables such as human and physical capital, total productivity and R&D in the context of African countries (Grossman and Helpman, 1991). Durlauf and Quah (1999) argue that school enrolment rates have been used as a proxy for measuring human capital accumulation. This measure is defined as the number of students enrolled in different levels of schooling compared to the population of the age group that officially corresponds to each level of education. Other studies have used the health status of the labour force as a proxy of human capital accumulation.

2.6.2 The Role of External Factors in Africa' Slow Growth

While internal factors were blamed as responsible for Africa's slow growth, little has been said about the role of external shocks. Many economists such as Mendoza (1995), Hoffmaister (1998), Grier (1999), Nureldin (1999), Agenor and Prasard (2000), Mussa (2000), Ajayi (2001), Bertocchi and Cannova (2002), Maddison (2002), Num (2004), (Mokyr, 2005; 2007) have started to explore the role of external

[8]An econometric model is a group of equations, each one representing a different relationship in the economy. All the equations of an econometric model can be solved simultaneously to determine the levels of variables and what changes would occur with differing economic policies.

factors and generally concluded that they have impinged crucially on what has happened domestically. Trade-related factors such as, the slave trade, colonialism, external debt and unfair trade conditions, the collapse in the international prices of primary commodities, world economic recession, decreases in foreign capital (loans and foreign direct investment), volatility and misalignment in the exchange rates of major currencies, and the worsening balance of payments positions have had permanent effects on poor economic performance in African countries.

Mussa (2000) attributed the 1980s African crisis to the worldwide recession and the tightening of American monetary policy in 1981 which adversely affected the export earnings of many debtor countries and thereby contributed to doubts about their creditworthiness. In addition, the increase in protectionist policies in developed countries has tended to discriminate against developing countries' exports, thereby lowering the export earnings of many debtor countries.

By examining the main international transmission channels in trade and financial markets, Mendoza (1995), Hoffmaister (1998) and Agenor and Prasard (2000) found that economic fluctuations in African developing countries since the 1980s are likely to be more dependent on external shocks. As developing countries are becoming more closely linked to industrial countries through trade and financial linkages and technological progress, macroeconomic fluctuations in developing countries have become increasingly affected by external shocks. Easterly (2001a) stressed that the slowdown in developed countries may have had a big effect on growth in the developing world. The extent of output fluctuation was explained by four key factors: (1) increased international trade and financial integration within the global economy; (2) the size and volatility of capital flows; (3) the structure and size of developing economies; and (4) aggregate productivity shocks (from technological progress emanating from advanced countries).

More recently, Maddison (2002) has identified the forces that explain the success of the rich countries and explored the obstacles which have hindered advance in the developing countries. He scrutinised the interaction between the rich countries and the poor countries to assess the degree to which the backwardness in developing countries may have been due to Western policy. Over the past millennium the sustained growth in developed countries has been attributed to the interaction of three factors: (1) the conquest or settlement of relatively empty areas which had fertile land, or new natural resources; (2) trade liberalisation and factor

mobility; and (3) technological and institutional innovation (Maddison, 2002). The unequal relationship between rich and poor countries and the integration of Africa into the world economy since the slave trade and colonialism have played a key role in its under-development. Africa has provided free labour forces and low-cost raw materials for developed countries (Kapstein, 2006).

Economists interested in explaining Africa's poor performance must also pay more attention to external factors; particularly the history of African integration into the international economy. This argument is relevant because the disparities in growth rates among nations may be historical phenomena. In praising the role of economic history in their book *Modern Macroeconomics: Its Origins, Development and Current State*, Snowdon and Vane (2005) argue that explaining differences in economic growth rates requires an understanding of the history of the countries being investigated as well their economic policies and political institutions. Knowledge of economic history is important in understanding how societies and economies change. Economic history tells us that growth and development in Western Europe is an historical process by which science and technology have been applied to the mode of production of new products and services. The commonly cited example is the scientific enlightenment in Europe, and particularly the industrial revolution which started in Britain in the nineteenth century. It progressively spread from there all over the world through the process of imitation or the sharing of the results of scientific and technological discoveries and international trade (Mokyr, 2005; 2007). Technological progress in developed countries has increased human and capital productivity, and thus sustainable growth. Many economists such as Grier (1999), Ajayi (2001), Bertocchi and Cannova (2002), and Num (2004) considered the impact of the integration of Africa into the international economy to provide a strong explanation of Africa’s poor economic performance. Trade-related factors, such as slave and colonial trade and unfair international trading systems, the 1980 world economic recession, the decrease of official development aid, international loans and foreign direct investment, volatility and misalignment in the exchange rates of major currencies, worsening balances of payments and increasing debt crisis, are all assumed to have contributed in large measure to deepening poor African performance.

Despite the devastating impact of African integration into the international economy, one can ask whether or not economists have offered any useful growth

policy prescriptions for policymakers in African countries. The trade-led growth strategies are considered as the sole engine of growth and convergence in developing countries. But the debate about the link between growth and trade is ongoing.

2.6.3 Trade and Growth: A Never-ending Debate

The debate about the link between trade and growth is never-ending debate. The first view of many economists, such as Bhagwatti and Srinivasan (1991), Sachs and Warner (1997), Edwards (1998), Krueger (1998), Vamvakidis (1999), and Dollar and Kraay (2002), suggests that sustained economic growth can be attributed to the sustained accumulation of human and physical capital and technological progress. But, even though a country is not endowed with high levels of these factors, international trade is a channel through which they can move across political boundaries so as to contribute to growth and development. Others, such as Rodriguez and Rodrik (1999), are more sceptical about the link between trade and growth.

While not contradicting the first view, a second view is associated with the structuralist school and dependency theory. The most influential unequal exchange thesis, first popularised by Prebisch (1957), Myrdal (1957), and Furtado (1970), agreed that such gains from international trade are unlikely to be significant among developing countries, because they are less developed and lack the responsiveness to both market opportunities and the dynamic influence of international trade. The Prebisch-Singer thesis predicts a decline in the terms of trade of primary commodities compared to manufactured goods. This is because primary commodities have a low value-added and a relatively low income elasticity of demand in world market. Discrepancies in the rates of growth of exports have been even wider because the terms of trade have deteriorated vis-à-vis developed countries. Moreover the lack of access to developed markets limits the possibility of gains from international trade. International trade has actually operated as a mechanism of international inequality, widening the gap in standards of living between rich and poor countries.

A more radical view is dependency theory, which predicts exploitation and impoverishment via international trade where poverty and underdevelopment are by-

products of the transnational expansion of capitalism. The spread of world capitalism has enabled the industrial countries to exploit poorer nations, thereby exacerbating economic inequalities and so increasing poverty. Today many people, including the anti-globalists, see the forces of international integration as a source of global inequality between nations and a serious threat to the prospects of developing countries (Maddison, 2001; Melchior, 2001). The question is what can be done to gain from globalisation. As Snowdon (2004) suggests, any objective assessment of the consequences of globalisation must consider the balance of costs and benefits. The East Asian countries that have effectively integrated into the global economy, have witnessed considerable economic progress. In contrast, Sub-Saharan countries which have experienced relative marginalisation in global trade have also experienced what Sala-i-Martin (2002) calls Africa's 'growth tragedy'. A reasonable conclusion from this never-ending debate is that all countries gain from trade and financial liberalisation, but not equally.

Given that global integration has not contributed to economic growth and development, many developing countries have been engaged in negotiating different forms of open regional integration arrangements (RIAs) with neighbouring states and major trading partners. Today countries are liberalising their economies through multilateral and regional trade arrangements. Historically multilateral and regional agreements have always gone hand in hand. By trade liberalisation countries can increase the factors of production and their productivity. The crucial question is whether or not regionalism is likely to help African countries to converge and catch up with rich countries. The next section analyses the empirical evidence on regional integration, growth and convergence.

2.7 Empirical Evidence on Regional Integration, Growth and Convergence

2.7.1 Review of Different Approaches

In measuring the convergence hypothesis the traditional empirical literature uses three common measures of convergence: sigma convergence(or α-convergence), beta convergence(or β-convergence), and convergence to a common stochastic trend.

A) Cross-Section Regression Analysis

β–convergence is estimated by regression analysis and convergence occurs when correlation between real GDP per capita in the last year of the time period and real GDP per capita in the initial year of the period is significantly negative. Theoretically, convergence occurs cross countries if there is a negative relationship between the growth rate of income per capita at the current period and the initial level of income (Barro, 1991; Barro and Sala-i-Martin 1995). In this case β–convergence identifies a negative relationship between the growth of per capita income and the initial level income capita across region over a given time period (Barro and Sala-i-Martin, 1991). This methodology has been rejected because the regressions can produce biased estimates.

B) Standard Deviation/Coefficient of Variation

The alternative measure of convergence known as sigma convergence stems from the simplest definition of convergence. This states that the convergence occurs if the standard deviation of per capita income across-countries decreases over time. Sigma convergence is defined using standard deviation of incomes at a given period. The standard deviation or spread method is usually the best starting point for measuring convergence. It shows how much the data are closed or spread out over large values around the mean (average or expected values). Variations of incomes among countries (measures as standard deviation) should decrease over time. Boyle and McCarthy (1997) advocated the standard deviation as a measure of dispersion. The advantage of this measure is that it allows for tracking the evolution of the convergence process over time. According to Barro and Sala-i- Martin (1992), the standard deviation method considers how dispersion in GDP per capita between countries behaves over time. Convergence occurs when the standard deviation is falling over time, meaning that the differences of GDP per capita between countries in absolute terms gradually decreases. An important limitation of the standard dispersion method is that it is not possible to use it if the underlying economic time series are available in index number form. This is because the cross-sectional variance may be set arbitrarily at zero in any particular period due to the choice of base period (Hall *et al.,* 1997). For this reason it may be convenient to use the

coefficient of variation (C.V), which is the standard deviation expressed as a percentage of the mean. Convergence occurs as long as the coefficient of variation decreases over a specified period. According to Hall *et al*. (1992), if the measure declines exactly to zero then the underlying series converges in the sense of becoming identical and non-stochastic, and the series will have converged pointwise. But this does not seem to be a natural definition of convergence for economic time series. The limitation of the coefficient of variation method has led economists such as Hall *et al*. (1997) to explore time series econometric approaches.

C) Common Stationary Trend

The modern statistical definition of convergence states that there is convergence if the difference between the GDP per capita of two countries evolves towards a stationary process. In this case the convergence test can be performed as a unit root test on the difference between the GDP of two countries. However, Bernard and Durlauf (1995) argued that if the variables are nonstationary they do not converge in the strict sense. They may still respond to the long-run driving forces which tie them together. The nonstationary variables may share a common stochastic trend and form a cointegrating relationship. In this sense another notion of convergence holds that if two or more nonstationary time series cannot be characterised by a boundless drift, they may converge when they share a common trend and move together through time. A departure from an equilibrium relationship should not be too large and there should always be a tendency to return to equilibrium after a shock occurs (Koop, 2005). Since the ultimate goal of this study is to investigate the stability and long-run relationship between variables, the econometric techniques of unit roots, cointegration and error correction models are used in measuring growth convergence. However, the variability of variables has been considered in the first step of computation and obtaining data, and this has been captured using standard deviations and coefficients of variation.

2.7.2 Empirical Evidence on Regional Integration, Growth and Convergence

Since the important objective of regional integration is to contribute to economic growth and convergence in income per capita among member countries, this section surveys empirical studies that have been devoted to investigating the reduction of incomes disparities. Economists and policy-makers have always been concerned about the disparities in income per capita and standards of living across countries and over time. Do poor countries tend to grow more rapidly than rich countries, and thereby catch up with them in standards of living as predicted by neoclassical growth models? Or instead, do income disparities between rich and poor nations tend to widen over time? Do incomes per capita of integrated economies have a tendency to converge as a result of regional integration? This section seeks to answer these questions by exploring empirical research in regional integration, growth and macroeconomic convergence.

A) Empirics of Solow Growth Models

After Solow growth models predicted a convergence hypothesis in 1956, it was during the 1980s that the convergence debate captured the attentions of economists such as Baumal (1986), Lucas (1990), Barro and sala-i-Martin, (1995), De la Fuente (1996), and Quay (1996), who have empirically addressed the essential questions of income inequality and distribution. They were concerned with poor countries catching-up with rich ones, and whether or not there is a tendency towards declining inequalities across countries around the world or rather if rich countries remain rich and poor countries remain poor. The same attention may be focused on testing disparities or convergence in different economic activities across different regions (states, provinces, districts, cities) within the same country; or in wages across industries, professions, and geographical regions. Therefore, convergence is one of the issues that reflects polarisation in income distribution and many other areas of human activity.

However, despite numerous empirical studies, the results are mixed. In empirical research absolute convergence is tested to determine if poor countries grow faster than rich ones; that is, testing a negative correlation between initial per capita income and growth rate in per capita income. Conditional convergence is

tested to determine whether or not the dispersion between income per capita levels declines across countries and over time. According to neoclassical growth models countries or regions with lower starting values of the capital-labor ratio have higher per capita growth rates, and tend thereby to catch up or converge to those with higher capital/labor ratios. Convergence is estimated by running cross-country regression equations with two variables: the growth rate of income per capita and the initial level of per capita in the base year of the period over which growth trends are being analysed[9]. Barro and Sala-i-Martin (1995) have tested the convergence hypothesis by looking at the behaviour of U.S. states since 1880, Japanese Prefectures since 1930, and regions of European countries since 1950. Their results were consistent with the convergence hypothesis. According to Barro and Sala-i-Martin economic agents within a country tend to have access to similar technologies, are similar in tastes and cultures and share common government policies and therefore have similar political, institutional and legal systems. This relative homogeneity means that absolute convergence is more likely to apply across regions within countries than across countries. Another consideration for convergence is that capital, labour and technology tend to move more freely across regions than between countries, because factors such as legal, linguistic and institutional barriers seem to be negligible across regions within the same country. In this sense neoclassical growth models still provide a useful framework for empirical studies of convergence or distributional income among regions within a country.

In the light of neoclassical growth models, there is evidence that convergence across countries may occur between similar types of economies. Many authors, such as Dowrick and Nguyen (1989), have demonstrated that convergence seems to hold among the richest countries alone, specifically those in the Organization for Economic Cooperation and Development (OECD). Baumol (1986) suggested that there may be a 'convergence club', meaning a subset of countries for which convergence applies, while countries outside of this 'club' would not necessarily experience convergence vis-a-vis those in the club or countries involved in regional integration. This has been demonstrated by convergent growth in Western Europe, in particular in Britain and its offshoots (such as the USA, Canada, New Zealand and Australia) and Japan (Sala-i-Martin, 1996; Rassekh, 1998).

[9] Other methods such as standard deviation, coefficient of variation and time series analysis have been proposed for measuring the convergence hypothesis. This issue will be discussed in Chapter V.

B) Empirics of Endogenous Growth Models

According to the neoclassical growth models, convergence occurs because of diminishing returns to scale. The question is whether or not convergence occurs under increased returns to the capital as suggested by endogenous growth models. Many empirical studies address this issue (see, for instance, Abramovitz, 1986; Baumol, 1986; Barro ,1989; Dowrick and Nguyen,1989). In general, the results are inconclusive. As mentioned above, absolute convergence occurs across countries in both growth rates and income per capital occur under diminishing returns to capital and if all structural characteristics (technological progress, rate of population growth and savings) are similar. It goes without saying that convergence will not occur if countries differ in these parameters. The absence of absolute convergence is explained by: (1) increasing returns to capital induced by productive technology and R&D activities in rich countries, and (2) stagnant steady states in poor countries without sound physical and human capital to get them out poverty traps.

The increasing returns to capital due to technological progress allow permanent growth in developed countries such as the members of the OECD which have similar rates of savings, population growth, and technological progress. Since OECD countries seem to be approaching common levels of labour productivity and standards of living, convergence is obvious among them. However, the endogenous growth models have failed to explain income inequalities between rich and poor countries. Empirical studies suggest that current income disparities between poor and rich countries will persist and even widen in the future. Optimistic predictions that convergence between rich and poor would occur have not been fulfilled; in fact, the growth rates of many countries are increasingly diverging from one another (Barro and Sala-i-Martin, 1991; Quah, 1993). The world economy portrayed by the endogenous growth theories is characterized by both divergent and convergent economic growth patterns among national economies and different sectors within individual national economies. Acemoglu and Zilibotti (2001) and Barro and Sala-i-Martin (2003) argue that, even if all countries may have access to the same set of technologies, there will be large cross-country productivity differences. A country could have different institutional and educational systems that affect human capital. The low capacity in developing countries to absorb the knowledge and technology

required has proved to be a particularly significant deficiency. Differences among national economies in the levels of human and capital accumulation, the position in global trade, and the level of social capacity to absorb knowledge and technology, lead to divergent growth.

C Empirics of Regional Integration, Growth and Convergence

Empirical studies suggest that growth convergence may occur in countries with similar characteristics or those conducting regional integration. However, Venables (2003) has found divergence in the customs unions of low income countries. Due to competitive advantage and the geographical agglomeration of economic activities, divergence may be inevitable in low income countries. The existing literature suggests income convergence among member countries of the European Union and the significant divergence among developing countries (Ben-Davide, 1996; Karras, 1997; Quad, 1997; Venables, 2003). While empirical studies on Europe suggest growth and convergence as a result of regional integration, those conducted on African trade groups cannot establish robust growth and convergence effects. The consensus in the existing literature suggests that free trade is driving a force for growth and convergence in per capita income, opening up economies to technological diffusion, international finance and migration. This process is likely to promote growth and convergence when accompanied by institutional reforms in the rule of law, contract enforcement, corporate governance, stable and sound macroeconomic policies and social policies (Obstfeld, 2007).

In the context of regional integration, the idea of convergence presumes that cooperation among member states would enable the poorer countries to reach the level of incomes achieved by rich ones. The key factors affecting growth and convergence in regional trading arrangements range from natural resource endowments and competitive advantage, factor mobility, homogeneity, the nature of the countries and the harmonisation and coordination of government policy, monetary and financial integration, different institutions and trading rules. An important consideration for growth and convergence is that by conducting good government policies, capital and labour can move freely across regional countries. A good example is the European Union. Empirical studies such as those by Ben-Davide (1993), and Henrekson *et al. (*1997) show how rapid growth, convergence in

income per capita, and improving welfare have been achieved in recent member states of the European union (Spain, Portugal and Greece). These countries have achieved economic growth and better standards of living which are comparable to those of rich countries through trade, financial liberalisation, and technological transfer. The key solution to progress was to copy and absorb the technological improvements invented in the European Union and to open their economies to international trade and investment.

In a survey of the empirical literature on growth and convergence in some African regional groupings, some economists such as Ben-David and Brandl (1996); Jones (2002), Anyanwu (2003), Wane (2004), Konseiga (2005), and Saab and Vacher (2007), have suggested that there is evidence of convergence. Others such as McCoskey (2002), Venables (2003), Schiff and Winters (2003), Dufrenor and Sannon (2005) have found divergence. The methods used to establish such convergence or divergence range from graphical trend analysis, cross-regression analysis and econometric time series analysis.

Regarding growth convergence among East African countries, in their report '*Assessing Regional Integration in Africa III'*, the United Nations Economic Commission for Africa (2008) found little evidence that supports growth convergence.

2.8 Regional Integration, Growth and Convergence: The Experience of the East Africa Community

Economic theory suggests that integrated economies have a tendency to converge as a result of trade in goods and services, free movements of labour and capital and technological transfer. However, the past experience of the East Africa Community shows that economic ties among East African countries such as the free movement of goods and services and factors of production have been still weak. In such a situation we cannot expect convergence. Despite the optimistic predictions of convergence as a result of the new East Africa Community, not all countries are growing fast and catching up with each other. The East African economy is characterized by both divergent and convergent economic growth among national economies. The divergent growth and income inequality between Kenya and the rest of the East African countries over the period 1980-2007 leads to the conclusion that,

in general, Kenya will remain the richest country in the region while other countries continue to lag behind despite the creation of the East Africa Community. The crucial questions now are: Why does East African trade integration create income disparities? Why is the Kenyan economy growing faster than other economies in the region? Why does capital not flow from rich countries to poor countries in East Africa? Should immigration policy be encouraged within the member states of East African integration?

2.8.1 Perennial Problems of Trade and Industrial Imbalances

Although differences in the determinants of economic growth may exist in the context of East African integration, the process of uneven economic growth and the existence of a core/periphery structure is found in the forces of polarisation or agglomeration that have promoted the regional concentration of economic activities in Nairobi since the creation of the East Africa Community in 1917. Income disparities raise the perennial problem of trade and industrial imbalances and consequently the problem of losers and winners in East African trade integration.

A) The Old East Africa Community and Imbalances in Trade and Industry

The concentration of common services and industrial dominance in Nairobi, Kenya led to growing trade deficits in Tanzania and Uganda. During the 1950s and 1960s, severe friction between Kenya, Tanzania, and Uganda arose over the benefits gained from economic integration. Uganda and Tanzania contended that all the gains were going to Kenya, which steadily enhanced its position as the industrial centre of the East Africa Community, producing 70% of its manufactured goods and exporting to the less developed partners. By 1958, 404 of the 474 companies registered in East Africa were located in Kenya. By 1960 Kenya‘s manufacturing sector accounted for 10% of its GNP, against 4% in the other two states. The problem of imbalances in trade and industrial development in East African integration has always attracted intense debate. It can be argued that this issue was the determining factor in the collapse of the East Africa Community in 1977 (Heinz and Stahl, 2004; Kweka, 2003). Although the chances of success for the new East Africa Community will depend upon how this problem is handled, the Treaty for its establishment does not

mention any strategy to tackle the problem. The patterns of trade in East Africa have reflected the structure of industrial production in the three countries. Kenya has developed a sizeable manufacturing and services sector in comparison to Uganda and Tanzania. This shift from agriculture to manufacturing and services reflects a higher level of economic development in Kenya. It follow therefore, that Kenya could sell more manufactured goods to the other countries. As Table 2.4 shows, the trade imbalances within the EAC started in 1961-1965. The statistics on inter-territorial trade show increasing surpluses for Kenya and deficits for Uganda and Tanganyika. Between 1961-1965 Kenya's inter-territorial surplus increased from £8.1m to £16.5m; Uganda's deficit from £1.1m to £6.7m, and Tanganyika's deficit from £7m to £9.6m. After 1965 the East Africa Community did not solve the problem of unequal distribution. The EAC still seemed to contribute to the growing economic dominance of Kenya.

Table 2.4 Balance of Inter-State Trade in EAC Africa, 1961-1965 (in Millions of East African Pounds)

YEAR	UGANDA	TANZANIA	KENYA
1961	-1.1	-7.0	+8.1
1962	-2.1	-7.8	+9.9
1963	-3.5	-8.01	+11.5
1964	-4.9	-10.1	+15.0
1965	-6.7	-9.6	+16.5
Total	-18.3	-42.5	+61.0

Source: EACSO Annual Report in Syed , A. Abidi (1994)

The statistics in Table 2.5 show increasing surpluses for Kenya and higher deficits for Uganda and Tanganyika[10]. Between 1967 and 1975, Kenya's inter-territorial surplus increased from £254m to £1,104m; Uganda's deficit from £196m to £234m, and Tanganyika's deficit from £58m to £870m. Since 1965 there had been fears that the application of the provisions for the establishment of a customs union a common market, monetary union and political federation would lead to severe problems including persistent imbalances in trade and industrial development, loss of income revenues, loss of sovereignty over fiscal and monetary policy, and finally loss of national identity. In 1993 the measures taken to address the imbalances arising from

[10] Until 1963, the mainland Tanganyika and the island of Zanzibar were under British rule as separate countries. Since 1964 they form union to become the United Republic of Tanzania

the application of the provisions for the establishment of a customs union and common market were discussed on several occasions, in particular in the EAC Customs Union Protocol which came into force on January 2005, and in the first Development Strategy covering the period ranging from 1997 to 2000.

Table 2.5 Balance of Inter-State Trade in EAC Africa, 1967-1989(in Millions of East African Pounds)

YEAR	UGANDA	TANZANIA	KENYA
1967	-58	-196	+254
1968	-70	-212	+282
1969	-152	-188	+340
1970	-122	-187	+309
1971	-245	-114	+359
1972	-187	-199	+386
1973	-360	-170	+430
1974	-537	-154	+691
1975	-870	-234	+1,104
1976	-531	-219	+750.
1977	-120.2	-48.8	+144.3
1978	-100.0	10.6	+100.1
1979	-121.5	+2.9	+114.7
1980	-210.5	+5.6	+188.9
1981	-137.4	+1.2	+127.9
1982	-122.6	-0.5	+103.7
1983	-114.7	-9.8	+109.5
1984	-95.0	-13.7	+102.4
1985	-90.1	-19.4	+90.1
1986	-113.5	-15.6	+113.5
1987	-90.1	-16.4	+89.2
1988	-100.6	-13.9	+99.4
1989	-108.6	-10.9	+106.5

Source: EAC Annual Report Syed A.H Abidi (1994)

The Second Development Strategy (2001-2005) again requested a redistribution of benefits and costs and underlined the necessity of taking measures to address the imbalances arising from the process of establishing a customs union and a common market. In particular it looked at the establishment of a fund to address imbalances, with a view to adopting the most appropriate approaches for the EAC (EAC Secretariat, 2001). However, Heinz and Stahl (2004) concluded in their empirical

study that the benefits from the East African Customs Union would not be evenly distributed among EAC partner countries. The EAC was advised to implement a compensatory policy to address, in particular, supply constraints and infrastructure bottlenecks in the partner states receiving less benefit from the customs union in order to ensure the stability of the Community.

Today, the two dimensions of economic convergence are important, in that member states share the vision that the EAC will allow them to achieve higher growth with a fairer distribution of the benefits of integration. However, without state intervention, past experience suggests that the outcome is unlikely to be equitable. Certainly there is a set of major economic and political constraints inherent to the East Africa Community. These include the pursuit of national interests, political ideology and institutional development, ambivalence towards political integration, the similarity of resource endowments in the EAC economies, the importance of primary production and a strong dependence on external trade oriented to the EU because of the colonial legacy. There are also narrow domestic markets with limited complimentarity, as EAC countries are commodity-exporters, along with unequal industrial development and an uneven distribution of benefits and the loss of income revenue from regional integration.

B) The New East Africa Community and Persistent Imbalances in Trade

Although East African politicians were aware that the success of the East Africa Community would depend on its ability to solve problems of imbalance, Table 2.6 reveals that Kenya has gained more from regional trade than its partners. In addition, international trade patterns in EAC countries are oriented to industrial countries. Kenya is the least dependent on imports from its EAC partner states, and sources merely 3.2% of its imports from within the EAC compared to 24% from the European Union, 7.4% from the UK, and 5% from the USA. Tanzania holds an intermediate position, sourcing 5.3% of its world imports from within the EAC, of which 95% are from Kenya. Uganda sources a significant 26.8% share of its imports from within the EAC, of which 97% are from Kenya. Table 2.6 also reflects the EAC partner states' trade with other African countries and regions. South Africa's significance in this context needs to be highlighted.

Kenya's 2003 imports originating in South Africa accounted for 9.0% of its total non-EAC imports and exceeded its intra-EAC imports almost threefold.

Table 2.6 Imports into the East Africa Community, by Country of Origin, 2003

EAC-TRADE PARTNERS	KENYA'S IMPORTS		TANZANIA'S IMPORTS		UGANDA'S IMPORTS	
	US Dollars Millions	%	US Dollars Millions	%	US Dollars Millions	%
Total	4,148.9	100	2,321.	100	1,371.7	100
EAC	133.41	3.22	121.85	5.25	368.12	26.84
Kenya			115.43	4.97	357.33	26.05
Tanzania	47.13	1.14			10.79	0.79
Uganda	86.28	2.08	6.42	0.28		
COMESA						
Egypt	28.73	0.69	6.35	0.27	6.43	0.47
Ethiopia	2.05	0.05	0.83	0.04	0.06	
Rwanda	0.25	0.01	0.05	0.00	0.54	0.04
Zambia	6.16	0.15	145.06	6.25	0.21	0.02
Others African Countries						
South Africa	361.16	8.70	228.86	9.86	98.98	7.22
Australia	20.77	0.50	37.96	1.64	31.98	2.33
Japan	204.58	4.93	85.17	3.67	90.36	6.59
United States	216.48	5.22	72.71	3.13	78.13	5.70
Switzerland	22.61	0.54	6.98	0.30	7.06	0.51
EU	996.62	24.02	505.24	21.76	258.33	18.83
Belgium	83.75	2.02	31.45	1.35	23.09	1.68
France	112.24	2.71	63.79	2.75	15.67	1.14
Germany	174.64	4.21	91.45	3.94	39.15	2.85
Italy	90.71	2.19	55.72	2.40	23.33	1.70
Netherlands	105.01	2.53	47.36	2.04	25.02	1.82
United Kingdom	309.59	7.46	101.63	4.38	86.14	6.28
Asia						
China	265.88	6.41	210.60	9.07	70.25	5.12
India	242.11	5.84	176.17	7.59	102.16	7.45
Indonesia	31.07	0.75	77.78	3.35	4.69	0.34
Malaysia	20.07	0.48	29.09	1.25	42.06	3.07
Pakistan	93.95	2.26	23.34	1.01	18.29	1.33
Middle East						
Bahrain	59.97	1.45	85.31	3.67	0.18	0.01
Saudi Arabia	405.42	9.77	59.84	2.58	12.27	0.89
United Arab Emirates	556.76	13.42	122.87	5.29	80.42	5.86

Source: International Monetary Fund: Direction of Trade Statistics, December 2004

Tanzania's imports originating in the RSA accounted for 10% of its non-EAC imports, which were almost double its intra-EAC imports. Uganda is the only EAC partner state whose intra-EAC imports, overwhelmingly from Kenya, exceed its imports from South Africa. Table 4.4 reveals the persistent imbalances in trade between the EAC countries. Kenya still benefits more than the other countries. In 2003, Kenya's inter-territorial surplus accounted for 13.61% of EAC exports, Tanzania's surplus 0.42%, and Uganda's deficit 10.38%.

C) Factors Explaining Trade Patterns between EAC Countries.

Another question is whether or not history has had an impact on current EAC intra-trade patterns. According to gravity theory, the volume of trade between two countries is assumed to increase with their sizes, as measured by their national income per capita and population, and to decrease with distance expressing the cost of transport between them, as measured by their economic centres or contiguity. However, the gravity model omits historical, cultural and political factors that may better explain international trade patterns among countries. East African countries have a long history of preferential trading agreements with colonial powers and other rich countries. Generally they continue to do so in the multilateral trading system, suggesting the predominant direction of international trade flows between continental Europe and its former colonies. History has played an important role in shaping the direction of international trade in East African countries, where industrialised countries are the principal destination for exports and the origin of imports (Busse and Shams, 2005). Tables 2.6 and 2.7 highlight the importance of the EU market which absorbed 33%, followed by the United Kingdom (12.48%) and the USA (9.38%). Tanzania is the second highest of EAC exports beneficiary from trade with industrialised countries, with 31% going to the EU, 5.24% to the United Kingdom and 2.47% to the USA; followed by Uganda with 27.50% to the EU, 6.37% to the UK and 2.9% to the US. These figures show the extent of openness with respect to the member countries of the EAC and the rest of the world. Kenya will profit most from the Customs Union and is likely to see a significant increase in its exports to the rest of the region. Even if other sectors such as agriculture, trade and transport are areas for potential gains, it is expected that the manufacturing sector would be hit most by trade liberalization (Maasdorp, 1999).

Table 2.7 Exports from the East Africa Community, by Country of Destination, 2003

EAC TRADE PARTNERS	KENYA'S EXPORTS		TANZANIA'S EXPORTS		UGANDA'S EXPORTS	
	US Dollars Millions	%	US Dollars Millions	%	US Dollars Millions	%
Total	2,581.5	100	962.0	100	531	100
EAC	434.39	16.83	54.54	5.67	84.26	15.84
Kenya			44.73	4.65	78.43	14.75
Tanzania	109.55	4.24			5.83	1.10
Uganda	324.84	12.58	9.81	1.02		
COMESA						
Burundi	61.25	3.21	310	0.48	19.56	3.41
Congo DRC	54.13	2.10	20.04	2.08	12.89	2.42
Egypt	118.78	4.60	2.11	0.22	2.67	0.50
Ethiopia	44.72	1.73	0.47	0.05	0.16	0.03
Rwanda	80.42	3.12	4.90	0.51	20.80	3.91
Zambia	21.17	0.82	21.39	2.22	0.25	0.05
Other African Countries						
Somalia	54.94	2.13	0.43	0.04	0.13	0.02
South Africa	10.46	0.41	20.92	2.17	29.63	5.57
Industrial Countries						
Japan	22.38	0.87	89.80	9.33	10.01	1.88
United States	242.09	9.38	23.73	2.47	12.69	2.39
Switzerland	13.06	0.51	3.66	0.38	73.00	13.72
EU	840.17	32.55	301.78	31.37	146.25	27.50
Belgium	28.83	1.12	37.45	3.89	12.90	2.43
France	68.34	2.65	6.05	0.63	5.13	0.96
Germany	84.06	3.26	50.06	5.20	12.02	2.26
Netherlands	219.46	8.50	77.98	8.11	48.96	9.20
United Kingdom	322.10	12.48	50.45	5.24	33.88	6.37
Asia						
India	36.18	1.40	95.25	9.90	1.13	0.21

Source: **International Monetary Fund: Direction of Trade Statistics, December 2004**

Tables 2.6 and 2.7 show the importance of the EU, UK, and USA markets. A second observation concerns the impressive level of exports to neighbouring states from COMESA. The EAC's exports to Burundi, the DR Congo, Rwanda and Zambia alone account for $237 million, representing almost 6% of total EAC exports. Generally the official cross-border trade is very weak. The initial level of trade and industrial imbalances have led to regional income disparities, with Kenya performing well in terms of per capita income. However, even if the official trade records for the trade

interdependence criterion lead to the conclusion that the EAC countries are not suitable for a common currency, the importance of unofficial cross-border trade would suggest the desirability of a common currency. Needless to say unofficial cross-border trade and other economic ties are important in countries which share similar linguistic, cultural and social characteristics. According to Ackello-Ogutu (1997), cross-border trade between Uganda and Kenya in the period 1994-1995 amounted to about 49% of official trade, and between Tanzania and Uganda it was 45% of official trade.

2.8.2 The Problem of Weak Factor Mobility

Although the progress made in immigration administration and financial integration is promising, factor mobility is still low. Migration issues and labour market integration have proven more problematic in East African countries. There are two main reasons that push people to migrate within the region: economic and political reasons. Although there are a great number of refugees in the Great Lakes Region, it is assumed that people move to other countries because of differential wages. Domestic markets continue to be characterised as self-contained, governed by individual regulatory systems with relatively little mobility of labour between countries. Nevertheless the recognition of the importance of labour integration has been expressed in the belief that other forms of integration, particularly trade and monetary integration need to be accompanied by harmonised labour market policies. This is because efficiency considerations are reflected in fears that increasing competition in markets for products and services could lead to the erosion of working conditions, and differences between labour costs could lead to unfair competition. The employment effects of labour integration would result from widespread industrial restructuring, triggered by an extensive programme of deregulation. In the beginning the EAC countries adopted the free movement of persons, labour and services, and equal rights for all citizens within the Community.

While labour mobility may be hindered by differences in culture and language and the high psychological stress suffered by immigrant workers in a foreign country, these barriers have played little role in labour mobility in the context of East African integration because of the use of the same languages of Swahili and English.

Moreover the fundamental barriers to labour mobility within East African integration are no longer due to border controls. Immigration entry and formalities have been reduced, and an East African Desk has been introduced at airport counters to facilitate the movement of people within East Africa. Arrival and departure declaration cards have been simplified. The reciprocal opening of border crossing points is being implemented and East African passports are being issued. This progress in immigration administration did not wait until after a convergence in per capita income in EAC countries had been attained before allowing the free movement of people and goods. This could lead to a flow of people to a prosperous country like Kenya. But labour mobility within the EAC is still limited, partly because of government regulations and nationalist sentiment in labour markets.

Regarding financial integration in East African countries, it appears that the financial system is still weak because the regional economies are not strong enough. The key features of the financial system are low degrees of financial diversification, the limited availability of financial assets, and the low importance of commercial banks. Governments continue to regulate the financial activities of commerce through fiscal and monetary policy, suggesting that financial liberalization is virtually nonexistent. Due to their limited capacity to generate regional savings for investment, East African countries rely on international finance (Buigut and Valev, 2004). However there is a need for regional savings to be mobilised for common regional investments. In addition, even if there is only a small volume of intra-trade between EAC countries, the flows in goods, services, capital and investment are conducted in a foreign currency, so changes in exchange rates can inevitably alter the value of investment. Similarly, the financial flows in the economy can cause erratic exchange rates which discourage trade and investment because surges of foreign capital can cause a currency to appreciate. Financial liberalisation can generate effects which can create pressures on policies that restrict the mobility of both labour and capital.

2.9 Conclusion

The question why countries grow at different rates or why incomes converge or diverge across countries has long been of concern to economists. This chapter has examined the determinants of growth and convergence in neoclassical and endogenous growth models. The chapter has shown that, although a lot of progress

has been made in specifying the determinants of economic growth, much work has yet to be done in explaining Africa's slow growth. The neoclassical and endogenous growth models are appropriate frameworks in explaining the long-run determinants of growth, but they do not help policymakers with how to deal with persistent slow growth and macroeconomic instability in African countries. Neither do they help to fully understand the causes of the success stories in East Asian countries, the rapid sustained growth of China and India and the persistent stagnation of African countries. As Sala-i-Martin (2002) suggests, the recent literature on growth has produced a number of theoretical and empirical explanations for understanding macroeconomics. But economists still cannot explain Africa's slow growth. Growth models have provided a framework for examining a wide range of factors that advance and hinder growth, but the lack of a unifying theory leads to contradictory findings and conclusions. Policymakers in Africa countries are not guided by strong economic advice. As mentioned in chapter II, trade-led growth has been adopted as the sole engine of growth and convergence when designing development strategies in African countries. Despite economic and trade reform Africa countries are still facing persistent declining growth and macroeconomic instability. This chapter has explored the channels through which regional integration affects growth: technological transmission, capital mobility and labour mobility. Although the empirical results on the link between growth and openness are not robust, it is hard to deny the role of factor mobility in growth and convergence.

Empirical studies have addressed the issue of whether or not poor countries grow faster than rich ones, hence catching up with them. These studies show that the convergence hypothesis is inconsistent with the cross-country data. There is little correlation between initial levels of income and growth rates in income per capita. In contrast, countries that are similar in their initial conditions and structural characteristics tend to converge with one another. This has led to the idea of 'club convergence'.

Chapter III

Literature Review on Monetary Integration, Macroeconomic Convergence and Sustainability

3.1 Background and Introduction

In order to make further progress with East African integration the member states have decided to cooperate in monetary and financial matters and ultimately reintroduce East African monetary union with a single currency and a Central Bank. Regional policy cooperation concerns some form of cooperative relationship between two or more nations. It implies a significant modification of national policies in recognition of regional economic interdependence. Interdependence is a situation whereby the structures of two or more domestic economies are such that economic events in one country significantly influence those in other countries. In an interdependent world the actions taken by one country will often have significant effects upon its trading partners. When countries are integrated, the policy measures adopted by one of the economies may provoke reactions in its trading partners that can reinforce, weaken or even offset its own policy (Cooper, 1985; Metzger, 2008). Where such interdependence exists, it is frequently argued that the countries should consider cooperating and coordinating their fiscal, monetary, exchange rate, and commercial policies to avert the possibility of conflicts and to improve their positions compared with pursuing the results of unilateral policies. These interconnections allow the transmission of economic disturbances from one economy to another. The exports of one country are the imports of another country and vice versa. Changes in international trade and finance will affect the national incomes of the countries concerned, and consequently employment levels (Rose, 2000). The second reason for entering into monetary union is the need to avoid competitive devaluation, leading countries to monetary co-operation, which may make them better off. This implies the need for a certain degree of convergence in key macroeconomic indicators. The pursuit of macroeconomic convergence is underpinned by the desire to guide the key aspects of the management of economic and financial policies among member countries. Other reasons for seeking macroeconomic convergence are the

advantages it confers on members either individually or collectively. These may include the attainment of macroeconomic stability, for example through sustainable fiscal deficits and public indebtedness. External current account deficits and low and stable levels of inflation are also among the key preconditions for achieving strong and sustainable economic growth (Maruping, 2005). The rationale behind the sustainability of convergence in these key macro-aggregates is that instability in one country could have spillover effects on other member countries, which could have negative effects on exchange rates and the balance of payments position.

The member states have to fulfill macroeconomic convergence criteria, not just during a particular period of time but in a sustainable manner. This requirement raises the crucial question of to what extent fiscal and current account deficits and external debt are unsustainable.

This chapter explores the theoretical and empirical literature underpinning monetary integration, macroeconomic convergence, and sustainability hypotheses. The following sections analyse the use of classical theory in discussing monetary integration, and the subsequent sections explore how OCA theory has shaped macroeconomic convergence considerations, and then empirical studies on macroeconomic and sustainability issues are reviewed.

3.2 Definitions of Macroeconomic Convergence and Sustainability

Historically the concepts of macroeconomic convergence and sustainability were used during the 1990s run-up to European monetary integration, in particular when Maastricht macroeconomic criteria were discussed. Recently these concepts have been included in monetary integration programmes in regional arrangements such as East Africa Community. The study of macroeconomic convergence deals with the feasibility/optimality (ex ante) or sustainability/stability (ex post) of a given monetary integration agreement (Bagnai, 2010). In this sense, the rationale for the macroeconomic convergence and sustainability criteria set in most regional integration arrangements is that the member states should ensure that they follow similar enough policies to avoid divergent macroeconomic policy in order to make a common currency viable. It is also believed that macroeconomic stability provides a

solid platform for the growth process, protecting individuals and businesses from the adverse effects of high inflation, high government budget deficits and debt, and unstable exchange rates (Afxentiou, 2000). The need for macroeconomic convergence and sustainability stems from the desirability to reduce the costs of abandoning monetary policy as instruments of macroeconomic stabilisation and to reduce the policy distortionary effects of price instability and unsustainable fiscal deficits and external debt in integrated economies. Although the concepts of macroeconomic policy convergence and sustainability are related and may be used interchangeably, they do not have the same meaning.

3.2.1 Definitions of Macroeconomic Convergence

In the literature, macroeconomic convergence appears to be related to Optimum Currency Area (OCA) theory as developed over time by Mundell (1961), Tavlas (1993), Broz (2005) among others. The use of the term macroeconomic convergence became relatively widespread in the 1990s during the creation of the European monetary union, when the fulfilment of the Maastricht criteria was the main concern of most European policymakers. Broadly speaking, macroeconomic convergence is defined with reference to low inflation, and sustainable fiscal and current account deficits consistent with the sustainable external debt. Its ultimate objective is to reduce the costs of monetary union (Reinhart *et al.,* 2003). Macroeconomic convergence policy may also be thought of in relation to convergence in that institutions may shape growth and macroeconomic stability indicators. Some economists such as , Acemaglu *et al*.(2003, Bassannin *et al*. (2001), and Terelli (2010) argue that the persistent declining growth and macroeconomic instability in developing countries can been explained by weak political institutions that do not constrain political leaders and elites from corruption, ineffective property right enforcement, and whose regulatory institutions that fails regulate economic agents' behaviour. In developing countries, there is no doubt that the political institutions have determined economic institutions. The empirical evidence on the role of institutions in supporting growth has been mentioned in chapter II, while the current institutional features in East African countries are studied in chapter IV.

3.2.2 Definition of Sustainability

Theoretically the concept of sustainability has been documented by many economists such as Arnone et al. (2005). It is often related to the concept of intertemporal solvency, but the meaning of the two concepts is different (Chalk and Hemming, 2000). Solvency is defined in relation to economic agents or the economy‘s present value and budget constraints, so there is government solvency and national solvency. In the context of the economy as a whole, a budget constraint is a constraint on the economy’s resources in which the export earnings/foreign reserves ratio is a rough measure of a country’s solvency. Moreover the accumulation of external debt would probably reflect increasing interest payments with excessive debt burdens on future generations from rising taxation. Like any economic agent (a firm, a household), a government cannot roll over its debt forever, and a country cannot continually service its foreign debt with new borrowing from abroad without thinking of its intertemporal external constraints. A country’s external debt is sustainable if there are large future current account surpluses in prospect to service it. Debt sustainability (or solvency) requires that the present value of the current account surplus must exceed the present value of future current account deficits. The crucial question is whether or not macroeconomic convergence and sustainability matter for monetary integration. In order to understand the rationale for macroeconomic convergence and sustainability criteria as set out in European monetary integration and the proposed East African monetary integration, it is essential to understand the theoretical foundations underlying their relationship.

3.4 Theoretical Foundations of Macroeconomic Convergence and Sustainability

Initially the classical theoretical framework for discussing a single currency and monetary union was the optimum currency area (OCA) theory first introduced by Mundell (1961) and extended by the notable contributions of McKinnon (1963) and Kenen (1969). OCA theory seeks to identify the criteria under which a monetary union is appropriate and which countries are suitable for joining a single currency. Far from being a unifying theory, OCA theory has identified many criteria, but the main ones concern labour and capital mobility and inflation. Over the years, OCA

theory has been criticised for being static and based on Keynesian macroeconomic stabilisation policy. Other criteria such as endogenous optimum criteria and macroeconomic convergence have since been used in assessing the suitability of the countries to monetary union.

Despite its limitations OCA theories continue to shape theoretical and empirical studies on monetary integration. Based on OCA theory in its microeconomic aspects (its cost- benefit analysis), Emerson *et al*. (1992) conclude that monetary union can ensure higher microeconomic efficiency and macroeconomic stability. Macroeconomic convergence and sustainability criteria have been introduced in most monetary arrangements which explicitly urge member states to fulfil the criteria in key macroeconomic stability indicators such as sustained growth, price stability, budget deficits and debt sustainability. In order to mark a further stage in the process of monetary integration and to achieve growth and the macroeconomic convergence of their economies, most regional integration arrangements, including the European Union and the East Africa Community were primarily concerned with the objectives of internal and external balance of their economies, namely full employment, price stability and external balance. These are the objectives of macroeconomic policy as studied in Keynesian macroeconomic model in open economies, otherwise known as the Mudell-Flemming model. On a first viewing, the macroeconomic criteria seem to have little to do with the traditional OCA criteria, as they are simply the rules for macroeconomic convergence. In order to understand the theoretical and empirical frameworks, it is essential to understand first the common nature of the two concepts and the developments of OCA theory as introduced by Bagnai (1995, 2010).

3.4.1 Origin of OCA Theory

Historically, OCA theory came to light in the 1950s and 1960s literature characterised inter alia by the1960s Keynesian macroeconomic stabilization policy and the fixed versus flexible exchange rate controversy of the post war period. In the context of Keynesian macroeconomic activism, Mundell (1961) was primarily concerned with the objectives of any macroeconomic policy: full employment, price stability and external balance. To achieve these policy objectives, he investigated the merits of fixed versus flexible exchange rates (Maes, 1992). As did other Keynesian

economists, he believed that, at least in the short run, fiscal and monetary policies should be used to stimulate the economy in the case of depression or recession.

The Keynesian macroeconomic perspective focused on debate about the effectiveness of stabilisation policies **(**fiscal, monetary and exchange rate policies**)** in the open economy. The crucial questions in an open economy with international trade and financial liberalisation concerned the effects of these policies on the key macro aggregate variables (GDP, inflation, unemployment, balance of payments, exchange rates, and interest rates). These issues tended to preoccupy macroeconomists of the 1950s-1960s period who had a Keynesian view of macroeconomic stabilisation policies.

With regard to the role of exchange rate policy as an instrument for correcting current account imbalances, the debate was focused on the advantages and disadvantages of fixed and flexible exchange rates regimes. The international monetary system was based on fixed exchange rates, but adjustable parity exchange rates worked well until the 1970s, when the system came under attack. First, fixed exchange rates were seen as an obstacle to the countries' ability to gain lower unemployment rates by accepting higher rates of inflation. OCA theory derives its rationale from the inconclusive debate on fixed versus flexible exchange rate regimes[11]. Each exchange rate regime is right for some countries and at some times, so that most decisions involve trade-offs. The choice of exchange rate regime is a trade-off between the advantages of fixing and the advantages of floating (Frankel, 1999; Gandolfo, 2002). According to Yarbrough (1997), the primary disadvantages claimed for fixed exchange rates are that they are not based on market-determined prices. In this situation the exchange rate does not move in response to any economic disturbance in the foreign exchange market. In fixed exchange rate regimes, no country can determine its monetary policy independently. However, the loss of autonomy in monetary policy as an instrument to reduce the impact of supply shocks on the economy is less useful, as it can affect only price levels in the long run and not real output.

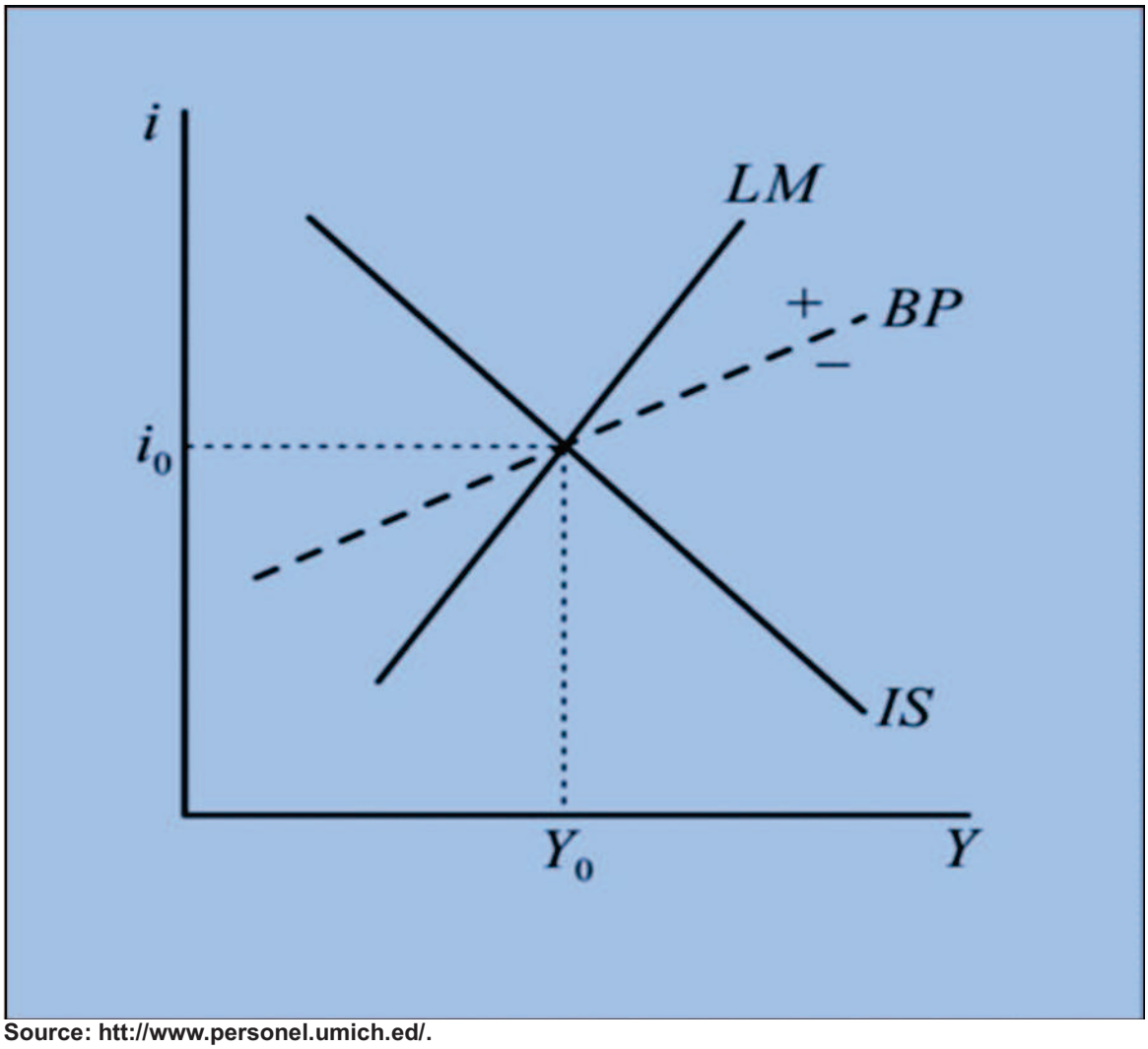
[11] Frankel (1999) identified nine major exchange rate regimes, ranging along from the most flexible to the strongest fixed-rate commitment: free floating, managed float, basket peg, crawling peg, adjustable peg, truly fixed peg currency board, and monetary union.

A) Mundell-Flemming Model

During the 1950s-1960s macroeconomists who had a Keynesian view of macroeconomic stabilisation policies in open economies has started the debate about the effects of fiscal, monetary and exchange rate policies on the key macro aggregate variables such as GDP, inflation, unemployment, balance of payments, exchange rates, and interest rates in the open economy (Bowman and Doyle, 2002). According to Young and Darity (2004) the link between growth, fiscal deficits, current account deficits and external debt stems from the interrelationship between the internal and external balance of the economy; that is, national income accounting and balance of payments accounting known as the IS-LM-BP model or Mundell-Flemming model set independently by Flemming (1962) and Mundell (1963). Theoretically the model is based on the following equations or curves as shown in Figure 3.1.

- IS curve or national account identity : Y = C + I + G + NX
  where Y is national income, C is consumption, I is investment, G is government spending, NX is net exports
- LM Curve M/P = L(i, Y)
  where M is the money supply, P is the price level, L is liquidity and i is the interest rate, and Y is national income
- BP (Balance of Payments) Curve = CA + KA
  where CA is the current account and KA is the capital account. The balance of payments accounting is represented by equation: CA + KA + dR = O.

Figure 3.1 Mundell-Flemming Model: Theoretical Foundation of Macroeconomic Convergence and Sustainability



Source: htt://www.personel.umich.ed/.

B) Mundel-Flemming Model and the Birth of Optimum Currency Areas Theory

It is against the background of Keynesian activism and hot debate on fixed and flexible exchange rates that in his paper, 'A *Theory of Optimum Currency Areas*', Mundell (1961) investigated the relative benefits and costs of fixed versus flexible exchange rates. One question is whether he was talking about fixed exchange rates or single currencies. His definition of an optimum currency was a 'domain within which exchange rates are fixed'.

It is clear that Mundell did not make a clear distinction between a fixed exchange rate and an optimum currency area (Mongeli, 2002). What is important is the fact that the optimum currency area stemmed from the fixed versus flexible exchange rate controversy, when flexible exchange rates were considered an appropriate policy instrument to deal with asymmetric shock. The practicability of a flexible exchange rate was questioned earlier by Mundel (1961)[12], who was interested in explaining the benefits and costs of a fixed exchange rate or using a single currency in particular areas. OCA theory tries to indicate under which conditions a monetary union may be appropriate and which countries are suitable for it. The theoretical foundation sets out the preconditions or criteria for joining monetary unions. The formation of an optimum currency area is more likely to be beneficial under several conditions. In the literature there is no single generally agreed upon set of criteria. Nonetheless the following criteria are commonly cited: price and wage flexibility, mobility of factors of production including labour mobility, financial market integration, degree of economic openness, similar economic structure and diversification in production and consumption, similarity in inflation, fiscal integration, and political integration.

3.4.2 Developments of OCA Theory: Costs and Benefits of Monetary Union

The pioneering contribution of OCA theory is still relevant, and the weaknesses of the analytical framework of early OCA theory have now been amended by Mundell (1973) himself, Frankel and Rose (1998), the European Commission (1990) and Mongeli (2002, 2008). Although far from being a unified theoretical framework, the merit of OCA theory is to have catalysed a large amount of research on European monetary integration (Mongeli, 2002). When European Monetary Union slowly became operational in 1999, some analysts such as Grubel (2006) preferred the term “theory of monetary integration”[13] rather than the traditional “theory of optimum

[12]Mundel (1961) and Friedman (1968) have been two influential economists of the Chicago School in particular for the 1960s international monetary economics dominated by the fixed and flexible exchange rates. While Friedman favours the flexible exchange rate regime, Mundel favours the fixed exchange rate regime. This may explain the reason why his seminal paper has made an important contribution to the theory of monetary integration.

[13] Monetary integration analyses all forms of monetary arrangements including currencies boards, dollarization and monetary union or single currency.

currency areas", which typically considers only the adoption of a common currency. In this study the two terms are used interchangeably. Adopting a single currency or monetary integration implies costs and benefits for member states, where they are better off if the benefits exceed the costs. In developments in OCA theory, both the old and new OCA theories consider some kind of microeconomic and macroeconomic costs and benefits from monetary union: eliminating payment transaction costs, boosting price transparency and competition, eliminating exchange rate uncertainty and volatility, lowering real interest rates and encouraging FDI by increasing macroeconomic policy credibility, and the promotion of trade and growth.

A) Stimulus to Intra-Trade and Growth

The removal of all trade barriers, including payment transactions costs, will lead to higher trade flows and corresponding economic growth. To achieve a full single market, a common medium of exchange is necessary because fluctuations and volatility in national exchange rates would inhibit trade flows by increasing uncertainty. Another stimulus to intra-trade can be expected from the elimination of exchange rate risk, transparency in prices, and greater financial integration. According to Frankel and Rose (2000, p. 3),

> *"the major benefit of a common currency that has been emphasized is that it facilitates trade and investment among the countries of the union (and hence increases income growth within the region) by reducing transaction costs in cross-border business, and removing volatility in exchange rates across the union".*

According to Madhur (2002), a common currency, like a permanently fixed exchange rate, encourages the flow of commodities, capital and labour between states by eliminating exchange rate uncertainty and reducing transaction costs**.** By encouraging factor mobility, a common currency and integrated market enhance the capacity of member countries to accommodate balance of payments disturbances. Moreover, under the flexible exchange rates regime, exchange rates tend to be more volatile. These benefits require explicit macroeconomic coordination. The use of a common currency facilitates trade and investment among the countries of the union by reducing transaction costs in cross-border business and removing volatility in

exchange rates across the union. High transaction costs would be a disincentive to trade, commerce, and investment. This is because disproportionate volatility in exchange rates increases uncertainty, discourages trade, diminishes investment, and reduces overall economic growth (Kenen and Rodrik, 1986; Corbo and Cox, 1995). The key economic cost from the formation of a currency union is the loss of national autonomy in monetary policy as an instrument of adjustment to shocks. In practice, however, given difficulties for developing countries in conducting sovereign monetary policy, the costs of surrendering monetary autonomy are unlikely to be large.

B) Macroeconomic Stability Discipline

In order to achieve sustainable monetary integration, the member states must make a credible commitment towards macroeconomic stability discipline. Benefits from increased macroeconomic stability and growth result from: improved overall price stability; the access to broader and more transparent financial markets increasing the availability of external financing; reputational gains for those members with a history of higher inflation that benefit from an anti-inflationary anchor; the reduction of some types of fluctuations of output and employment across the currency area due, possibly, to different economic policies (Fritz, 2001; Guillaume and Stasavage, 2000). However, the single currency does not safeguard the members of the currency area from the effects of real economic shocks.

C) Efficiency in Allocation of Factors of Production

Monetary integration involves not only the creation of a single currency, but also the removal of capital controls and distortions of financial and labour markets. The elimination of capital controls and exchange rate fluctuations would lead to the more efficient allocation of capital and labour within the community (Rappaport, 2005; Bowen *et al.* 2008). Benefits from improvements in microeconomic efficiency result principally from the increased usefulness of money - i.e., the liquidity services provided by a single currency circulating over a wider area - as a unit of account, medium of exchange, standard for deferred payments, and store of value (O'Connell, 1997). There will also be greater price transparency, which will discourage price discrimination, decrease market segmentation, and foster competition. Intra-area

nominal exchange rate uncertainty and volatility will disappear, leading to savings in transaction costs (Mongeli, 2002). This will strengthen the internal market for goods and services, foster trade, lower investment risks, promote cross-area foreign direct investments (FDI) and enhance resource allocation (Fratianni and Von Hagen, 1990). Furthermore by joining a monetary union, member countries no longer need international reserves for intra regional transactions, thus economising foreign exchange reserves for international trade outside the region *(*Frenkel, 1999).

D) Political Union Advantages

Monetary integration leads to some degree of political integration which, in turn, positively affects the optimality of monetary union. Political union reduces the risk of asymmetric shocks that have a political origin such as in taxation and spending, social security, or wage policies, which remain in the power of national governments. In addition, in order to enhance the sustainability of a monetary union it is important to have a central budget that can be used as a redistributive device between the member states. There also should be some form of coordination of those areas of national economic policies that can generate macroeconomic shocks. The central budget also serves as a stabilizing instrument (Musgrave, 1959). Furthermore, a monetary union allows more power than the single countries in negotiating as a whole with outside parties (Gandolfo, 2002).

E) Loss of National Macroeconomic Stabilisation Policy

Many economists such as Devarajan and Rodrik (1992), Eichengreen and Bayoumi (1997), De Grauwe (2000), Rezuidenout(2002), Takayo (2005) argue that a major argument against monetary union derives from the loss of the instruments of macroeconomic stabilisation policy such as the ability to conduct a national monetary and exchange rates policy. By agreeing to fixed exchange rates or a single currency within monetary union, member states deprive themselves of monetary and exchange rates policies in the case of economic fluctuations (demand and supply shock). The member states will not be able to determine their exchange rates (devaluations and revaluations) or the quantity of the money supply or to change

interest rates. The loss of national macroeconomic policy autonomy would not matter if the authorities had only one objective, because they could use fiscal policy to achieve internal balance. But they cannot achieve external balance without using monetary and exchange rates instruments. The use of monetary and exchange rate policy instruments is useful for the stabilisation of the economy. This is because the governments need to change exchange and interest rates in order to achieve external balance. The significance of this loss depends on the nature of the shocks. The loss will be more costly when macroeconomic shocks are more “asymmetric”, when monetary policy is a more powerful instrument for offsetting them, and when other adjustment mechanisms like relative wages and labour mobility are less effective (Copaciu, 2004). Some countries would gain and other countries would lose from monetary union. For example, if country A is a major oil importer and country B is a major exporter of oil, changes in the price of oil in world markets would hit the two economies differently. In this case, adopting monetary integration between the two countries would be untenable because the importer country receives more harmful shocks than the exporter country.

F) Regional Disparities

As we will see later, while the endogeneity hypothesis predicts the intensification of intra-trade and income convergence, the specialization hypothesis suggests that increased trade implies industrial agglomeration in specific regions, suggesting regional disparities. As factors of production associated with monetary integration, move from low marginal productivity areas towards those of high productivity, some regions or countries would lose while others would gain (Krugman, 1993). While it is difficult to quantify the relevant costs and benefits, economists have identified the conditions under which the benefits of a common currency may be significant relative to its costs. These conditions form the core of optimum currency criteria.

3.4.3 The Endogenous Optimum Currency Area Criteria

OCA theory places more emphasis on certain criteria for adopting a single currency, but it does not tell us much about what happens if the member countries score well

under one of the criteria and poorly on all the others. An index of the various criteria might offer a better solution, but there is disagreement over the appropriate weights to assign to each of the criteria and then the total index value that would justify the membership of a monetary union. Overall, a composite OCA index should take into account the degree of openness, wage-price flexibility, labour mobility, and shock symmetry. This is because labour immobility and price rigidities in participating countries and asymmetric shocks are crucial in assessing the costs of monetary union. Capital and labour mobility can counteract the negative effects of asymmetric shock (Copaciu, 2004). Some economists, such as Frankel and Rose (2000, p. 34), argue that,

> *"the OCA criteria index should be used with caution because the criteria are static. In the long-run, a common currency will generate an impetus for a long-term economic relationship among members and will promote even more reciprocal trade and business cycles synchronization among the countries sharing a single currency".*

In this sense traditional OCA theory is also flawed because it is static and fails to understand the dynamics of economic relationships among member states.

The new OCA theory suggests that monetary union will endogenously generate the conditions for the sustainability of monetary integration in terms of inflation convergence and macroeconomic cycle synchronization. In the long run the costs of losing national monetary sovereignty are lower. This could result from the increasing propensity of partners to import from each other, from productivity shocks spilling over via trade, or the disciplining effects of monetary arrangements (Fidrmuc, 2001; Takaya, 2005; Warin *et al*., 2008).

All these characteristics imply that, although countries may not satisfy the OCA requirements for joining a monetary union *ex-ante*, they can satisfy them *ex-post*. According to Frankel and Rose (1998), the examination of historical data gives a misleading picture of a country's suitability for entry into a currency union, since the OCA criteria are endogenous.

A) Endogeneity Hypothesis

The endogeneity hypothesis is rooted in trade integration and increasing returns to scale as the single currency removes obstacles to trade and encourages economies

of scale. Economists such as Frankel and Rose (1998) and Ritschl and Wolf (2003) have shown the stimulus that single currency provides in eliminating costs from currency conversion and hedging. Goods and services are priced in the same currency, which would enhance trade integration. The introduction of the single currency will contribute to reduce trading costs both directly and indirectly by removing exchange rate risks and cutting information costs (Mongelli, 2002). In addition, increased trade creates a greater need for more co-ordinated fiscal and monetary policies, and if such policies are pursued then policy shocks will be synchronized among the trade partners. The trade links among member countries will lead to growing cyclical correlation, that is, cyclical convergence (Frankel and Rose, 1998). The intra-industry linkages are the main factors that deepen market integration and allow for the synchronization of demand and trade-based shocks. For these reasons, the OCA endogeneity hypothesis has become another criterion for joining common currency areas.

B) Specialization Hypothesis

In contrast to the endogenity hypothesis, the specialization hypothesis popularized by Krugman (1993) postulates that, as countries become more integrated, they will also specialise in the production of those goods and services for which they have a comparative advantage. Members of a currency area would become less diversified and more vulnerable to supply shocks. Correspondingly their incomes will become less correlated and divergent (Eichengreen and Bayoumi, 1996). While the endogeneity paradigm predicts that increased regional trade is one of the key factors in income convergence, the specialization hypothesis concludes that increased trade implies income divergence. Increased regional trade leads to greater specialization, which in turn would induce the industrial structure of the trading countries to diverge, resulting in less synchronized movements among their business cycles (Krugman, 1993).

C) Limitations of OCA Criteria and the Merits of Macroeconomic Convergence Criteria.

Over the years several limitations have been identified in OCA theory. During the mid-1970s and 1980s the theory was neglected but it received great momentum from the experience of 1990s European monetary integration, and conceptual modifications are still being made. The main criticism of OCA theory is related to the 1970s fixed versus flexible exchange rates controversy. During this period exchange rate controls were not the rule, providing governments with adjustment mechanisms against external shocks. The following periods were characterised by free capital movement and the European monetary system lay somewhere between the two exchange rates regimes. As Vinals (1996, p. 8) suggested:

> "*recent experiences suggest that the usefulness of the nominal exchange rate as a tool for macroeconomic adjustment within the European Union is very questionable in a world of free capital movements, where foreign exchange markets are often subject to self-fulfilling speculative crises which take the exchange rate a way for prolonged periods from where fundamentals suggest it should be."*

Despite its shortcomings, OCA theory continues to shape theoretical and empirical studies on monetary integration, even though there is still no unified theory. When political forces drove European integration into the big step towards monetary integration in the early 1990s, economists such as Emerson *et al.* (1992) looked again at the OCA theory but could not find clear answers to the question of whether or not European integration should continue toward complete monetary integration. This is because until the 1990s it was uncertain if European monetary integration had satisfied all optimum currency area criteria. OCA criteria were not used in assessing the costs and benefits of European monetary union. In its report *'One Money, One Market'* the European Commission (1990) took the view that optimum currency area theory has given useful insights for discussing the potential costs and benefits of monetary integration, but was not decisive and has to be complemented by other approaches. In their view, optimum currency area theory has provided important early insights but provides only a narrow and outdated analytical framework (Tavlas, 1993). European monetary union was deemed likely to be more beneficial than what could be presumed on the basis of the application of OCA

properties alone. For example, although labour mobility was low in Europe, the mobility of capital was quite high and rising. Based on OCA theory and cost-benefit analysis, Emerson *et al*. (1992) concluded that European monetary union had to ensure more microeconomic efficiency and macroeconomic stability. More recent empirical studies, such as those by De Growe (2004; 2006) and Mongeli (2004) suggest that even if member states do not yet satisfy the traditional OCA criteria ext-ante, they will in the future since monetary union sets off a process of more intensive intra-trade. By reducing exchange rate volatility, macroeconomic convergence is essential for economic growth via a substantial stimulus to intra-trade among member states in the long run (Frankel and Rose, 2000).

In order to mark a further stage in the process of European integration and to achieve the strengthening and the convergence of their economies, the member states decided to establish the Treaty on European Monetary Union in 1992 (known as the Maastricht Treaty) by setting the convergence criteria for the key macroeconomic stability for member states to satisfy before and after adopting a single currency[14]. The experience of European integration has increased interest in the creation of monetary integration in other countries. The proposed East African monetary integration is certainly patterned on European monetary integration.

3.4.4 Macroeconomic Convergence Criteria in European Monetary Integration

In assessing the suitability of countries for joining a common currency, it was necessary to see the changing patterns in the key macro-aggregates variables among the member countries. According to Article 121 (1), the European Community Treaty required ,

1. *" that the price performance must be sustainable and an average rate of inflation, observed over a period of one year before the examination, that does not exceed by more than 1.5 per cent that of, at most, the three best-performing Member States in terms of price stability".*

2. *"the sustainability of the government financial position; this will be apparent from having achieved a government budgetary position without a deficit that is*

[14] The convergence criteria are explained in more detail on the European Central Bank Website: www.ecb.int.html

excessive. The ratio of annual fiscal deficit to GDP must not exceed 3 per cent at the end of the preceding fiscal year. The ratio of government debt to GDP must not exceed 60 per cent at the end of the preceding fiscal year".

3. *"the observance of the normal fluctuation margins provided for by the exchange-rate mechanism of the European Monetary System, for at least two years, without devaluing against the currency of any other Member State".*

4. *"that the nominal long-term interest rate does not exceed by more than 2 percentage points that of, at most, the three best performing Member States in terms of price stability. Interest rates shall be measured on the basis of long-term government bonds or comparable securities, taking into account differences in national definition".*

The Maastricht criteria seem at first to have little to do with the traditional OCA criteria, as they are simply the rules for macroeconomic convergence. However, due to developments in traditional optimum currency area theory concerning convergence in inflation and in business cycles or business synchronisation, one can conclude that the Maatricht macroeconomic convergence criteria are additional conditions for adopting monetary union. As mentioned above, the Maastricht Treaty required each candidate for European Monetary Union to comply with the rules for macroeconomic sustainability: price stability, sustained interest rate and exchange rate stability, fiscal deficit, current account deficit/GDP, fiscal deficit/GDP, and debt servicing/GDP (Nachtigal *et al*., 2002). As Mackinnon (2004) has argued, it is not in the interest of a country to participate in a common currency regime or monetary union if its own public finances are not sound. If the fiscal deficit and public debt are not sustainable, then a single currency is not advisable. In creating European monetary union the sustainability of sound fiscal and monetary policies and price stability was seen as an essential objective. This is because it is difficult to remove adverse shocks from the financial market when fiscal behaviour and inflation are unsustainable (Afonso and Moussa, 2009). According to the terms of the Maastricht Treaty, new applicants to the European Union must wait until certain conditions of sustainability in key macroeconomic indicators are met.

3.4.5 Macroeconomic Convergence Criteria in East African Integration

The success of European Union has increased interest in the revival of the East African monetary integration, currently scheduled for 2012 (Streatfeild, 2003). Regarding the proposed East African monetary integration, the EAC Development Strategy for 2006-2010 (EAC, 2005, p. 15) indicates that,

> "*the main areas under macroeconomic policy convergence include currency convertibility as a basis for a single currency; harmonisation of exchange rates, interest rates, and fiscal policies; and banking and capital markets development".*

The ultimate objective of creating monetary integration is to promote macroeconomic stability and discipline, leading to rapid growth convergence in income per capita macroeconomic stability indicators. As with European integration, the East Africa Community Treaty explicitly urges the member countries to take into consideration convergence in key macroeconomic stability indicators in the context of the proposed monetary integration. According to the Development Strategy for 1999-2005 (EAC, 2005), the macroeconomic convergence criteria were fixed as follows:

- Reaching sustainable economic growth at a minimum rate of 7 per cent annually.
- Maintaining a low inflation rate to single digits of less than 5 per cent.
- Reducing the current account deficits to GDP ratio to a sustainable level.
- Achieving a significant reduction in budget deficits and debt to sustainable levels.
- Raising the domestic savings to GDP ratio to at least 20 per cent.
- Accumulating foreign exchange reserves to a level of 6 months of imports of goods and services in the medium term.
- Maintaining stable market-based interest rates and exchange rates.

Table 3.1 shows the macroeconomic convergence prior to the execution of the Development Strategy 1999-2005. From the above developments, it appears that both European integration and East African integration have included the macroeconomic convergence and sustainability criteria. The inclusion of

sustainability criteria is a reflection of the great concern for a strong macroeconomic relationship between unsustainable fiscal and current account deficits and external debt, on the one hand, and high external burdens on domestic economies on the other hand (Ezenwe, 1991; Corbridege, 1993). The rationale for sustainability criteria in East Africa Community stems from historical records of macroeconomic instability.

Table 3.1 Macroeconomic Convergence Criteria for EAC Integration 1999-2005

Key Macro Aggregate	EAC Countries	Target	1999	2000	2001	2002	2003	2004	2005
GDP Growth Rate	Kenya	7	1.4	0.3	1.2	1.1	1.8	4.9	5.5
	Tanzania	7	4.7	4.9	5.7	6.2	5.7	6.7	6.8
	Uganda	7	7.3	5.9	5.7	6.2	4.5	5.8	5.3
Inflation-Annual Average	Kenya	5	3.5	10	5.8	2.0	9.8	11.6	13.1
	Tanzania	5	7.8	6.0	5.2	4.5	4.4	4.2	4.3
	Uganda	5	6.1	2.5	2.0	1.8	5.7	5.0	5.4
Current Account Deficit /GDP	Kenya		-2.0	-3.4	-4.3	-0.1	-1.1	-3.3	-2.6
	Tanzania		-13.2	-7.4	-7.0	-3.8	-4.5	-5.5	-4.9
	Uganda		-9.1	-10.7	-14.3	-13.0	-12.9	12.6	2.8
Fiscal Deficit /GDP	Kenya	5	-0.1	0.4	-5.1	-4.7	-3.9	-0.4	3.3
	Tanzania	5	-2.1	-5.9	-4.9	-6.4	-9.3	-8.2	-11.8
	Uganda	5	-6.9	-9.1	-11.2	-13.2	-12.0	-12.5	-8.6
National Savings/GDP	Kenya	20	10.6	7.5	4.6	7.6	9.8	10.2	12.2
	Tanzania	20	6.9	10.6	11.0	16.5	16.8	17.1	11.0
	Uganda	20	14.4	19.3	13.3	14.5	14.7	15.1	14.5
External Debt /GDP	Kenya		83.8	48.9	46	47.9	47.6	43.2	33.1
	Tanzania		144.6	77.4	66.8	70.5	68.1	69.4	64.4
	Uganda		62.9	60.5	67.1	70	74.8	71.8	52.2
Foreign Exchange Reserves in months	Kenya	6	2.9	2.9	3.2	3.4	4.2	3.5	3.3
	Tanzania	6	4.5	5.7	6.6	8.5	9.3	8.1	6.4
	Uganda	6	4.9	4.4	6.1	6.3	6.1	6.6	6.6

Source: The EAC Development Strategy 1999-2005

Since the 1970s and the early 1980s, unsustainable fiscal deficits, current accounts deficits and external debt have been the most serious growth constraints in East African countries. National savings have been diverted into financing fiscal deficits and servicing external debt instead of financing investment projects. Fiscal deficits have also been financed by printing money, causing high inflation. The burden of debt accumulation and the high cost of debt services are likely to hamper economic growth. Fiscal and current account deficits are associated with deteriorations in the balance of payments position and the accumulation of external debt. The accumulation of debt and the lack of foreign reserves to pay back the debt have led

economists to study the sustainability of fiscal deficits, current account deficits and external debt (EAC, 2005). The next section explores the theoretical foundation of sustainability hypothesis.

3.5 Theoretical Foundation of Sustainability Hypothesis

As mentioned above the sustainability hypothesis refers to the financial position as measured by fiscal and current account deficits, external debt and exchange rate stability exposing a country to financial difficulties and the risk of default. Theoretically, there is a disagreement about the appropriate theoretical foundation for discussing the sustainability hypothesis. Many economists such as Hamilton and Flavin (1989), Cohen (1993), Milesi-Ferretti and Razin (1996a), Baharumshah *et al*. (2001), Barnhill and Kopits (2003), Chalk and Hemming (2000), Clements et al.(2003), IMF(2004), Wray (2006) focus on the financial capacity to service debts using the theory of finance (the present value). Other economists such as Roubini (2001), Chinn and Prasad (2003), and Arnone *et al*. (2005) have examined many more important macroeconomic and structural indicators for assessing current account sustainability. These structural indicators include economic growth, savings and investment, openness and trade (the size of the export sector and the level of international competitiveness), the composition of external liabilities (loans and equity), the strength of financial systems, and economic policy stances. This considers the relationship between internal and external balances of the open economy as explained by Mundel-Flemming Model.

3.5.1 Mundel-Flemming Model and Sustainability Hypothesis

Theoretically, such relationship is explained by the macroeconomic equation relating national income to domestic spending and net spending by the rest of the world:

$$Y = C + I + G + X – M \quad (3.1)$$

Equation (3.1) means that total national income must equal total spending. In other words, the national income (Y) is spent on private consumption(C), private investment (I), government consumption and investment (G), and net spending by the rest of the world or net exports, which is the difference between exports and imports NX = X - M).

From the equation (3.1) we can extract the current account as follows:

$$CA = Y- (C + I + G) \quad (3.2)$$

In equation (3.2) the current account is the difference between national income and domestic spending by residents (domestic absorption). If absorption is greater than the national income, the country must borrow from abroad to cover the excess spending; and the country runs a current account deficit. Given that Y - C = S (the definition of savings) and government spending consists of government consumption and government investment ($G = C_G + I_G$), equation (3.2) can be written as:

$$CA = S + I_P + I_G + C_G \text{ or } CA = S + I + C_G, \quad (3.3)$$

As domestic investment (I) consists of private investment ($I_{P)}$ and government investment (I_G), equation (3.3) can then be written as:

$$S = I + CA \quad \text{or } I = S + CA \quad (3.4)$$

In a closed economy, CA = 0 and S = I. Unlike in an open economy, equation 3.4 indicates that a country can finance its investment by both domestic savings and foreign savings.

From equation (3.4) it is clear that, if domestic savings exceed investment, the current account is in surplus and the economy lends to the rest of the world. In contrast, if domestic savings are less than investment, the current account is in deficit and the economy borrows externally to finance investment. Given that domestic savings (S) can be decomposed into private (S_P) and public (S_G), then from the private and public sector points of view we have:

$$S_P = Y- C -T \quad (3.5)$$

$$S_G = T - G \quad (3.6)$$

Substituting equations (3.5) and (3.6) into equation (3. 4) we have:

$$I = (Y - C - T) + (T - G) + CA) \text{ or } I = S_P + S_G + CA \quad (3.7)$$

Equation (3.7) indicates also that the counterpart to the current account (foreign savings) is an excess of domestic investment over domestic savings.

$$CA = S_P - I + S_G \quad (3.8)$$

Equation (3.8) indicates that, if S_P and I are equal, the fiscal and current account balance would be equal (CA= SG), that is they are equivalent. Equation (3.7) indicates the relationship between the fiscal and current account deficits. It also shows the channels through which a country finances its domestic investments (I). These include domestic private savings (S_P), government savings in the form of a budget surplus (S_G) and foreign savings. From Equation (3.7), the twin deficits are not difficult to explain. Countries with low domestic savings to finance economic growth and development have historically borrowed from other countries. Access to foreign savings permits countries to invest more than they can save and import more than their export earnings would otherwise allow (Kennedy and Thirlwall, 1971). In this case foreign savings can finance the domestic-savings gap or foreign gap. The difference between imports and exports, or net resource transfer, is the contribution of foreign savings to investment (that is, imports in goods and services that cannot be financed by export earnings). In this case, the requirement for sound debt management is to invest in productive projects and adopt policies that encourage public and private savings (Kaminsky and Reinhart, 1999). New investments in productive projects must generate or save sufficient foreign exchange. To fill the two gaps, the economy as a whole must generate sufficient income and export growth to service external debt. If an economy is well managed (in terms of risks and sudden falls in export earnings, higher interest rates, and adverse external shocks), additional borrowings are likely to be serviced.

3.5.2 The Never-ending Debate on the Sustainability of Fiscal Deficits and External Debt

The debate on sustainability hypothesises raises many questions such as why do unsustainable fiscal and current accounts deficits and external debt matter. How large or damaging can fiscal deficits and public debt be? To what extent are the fiscal deficits large and a debtor government solvent? These questions are problematic because governments need to evaluate whether or not the social returns related to a given public expenditure are higher than the costs incurred. In addition, governments can decide whether or not it is better to finance public expenditure by issuing external debt or increasing taxes. As long as the government keeps the public debt-to-GDP ratio constant or stationary, there is nothing to worry about (Barnhill and Kopits, 2003; Kraay and Nehru, 2003; Buiter, 2006). There is no fiscal burden as long as the government spends on productive public investment such as infrastructure or consumption on education and health, since such investments contribute to growth and increase the well-being of future generations. The true burden occurs when government spending does not yield benefits for future generations and if the accumulation of debt increases the risk of default and sudden capital flight (Reinhart et al.2003). According to Hamilton and Flavin (1989, p. 808),

> *"when the government runs a deficit, it is making an implicit promise to the creditors that it will run offsetting surplus in the future. In other words, the government cannot continually roll over the debt without having surplus to pay back because no rational lender would be willing to continue lending to the insolvent government".*

To the question of the extent to which the fiscal deficit is large and a debtor government is solvent, the general consensus is that as long as a budget surplus is generated, governments can accumulate external public debt. Government insolvency refers to a situation in which the future paths of public finance do not generate sufficient surpluses to service existing public debt (IMF, 2004). Like a household or business, the options open to the government for financing its spending are detailed in its budget constraint. The budget constraint, which relates

government spending to the sources of financing of that spending: tax revenues, the creation of additional bonds, or the creation of additional liability, that is, currency held by the government, and bank reserves. A country is solvent as long as it has the ability to generate sufficient current account surpluses in the future to repay the existing debt stock. This is the reason why the current account deficit is more worrying than other imbalances, because a country can run fiscal and external debt as long as the current account surplus is sustainable. The foreign exchange earnings from exports are necessary to pay for imported goods and services and raw materials and technology – a most important determinant for growth. However, the ability to promote, enhance and sustain exports in developing countries can be affected by internal and external factors. Calderon *et al.* (2002) have explored the determinants of current account deficits, including domestic output, national savings, heavy external debt, real effective exchange rates, terms of trade, international real interest rates, the evolution of the global economy, and international competition. The question is how large external debt should be allowed to get. It is clear that if a country has a predictable insolvency, no creditor will be willing to lend. It is naturally in the interests of creditor countries to make sure that debtor countries are solvent. According to Mann (2003, p. 3),

> *"a country's solvency requires that present discounted values of future trade surplus exceed the present values of future trade deficit by a sufficient amount to cover the difference between the initial debt stock and the present values of the terminal stock"* [15] .

If an economy has a large external debt and is initially running a current account deficit, it may run a current account surplus over a long time period in order to maintain solvency. According to Milesi-Ferretti and Razin (1996a), assessing a country's intertemporal solvency implies investigating debt sustainability and its ability to repay its external debt in the long-run. A sustainable external balance concerns how much the economy can afford to borrow from the rest of the world by

[15] In the theory of finance, the concept of present value allows the comparison of investments made at different times in the past, present, and future. While the future value of a lump of money is given by the equation $P_n = P_0 (1+r)^n$, the present value is given by the equation $P_0 = \frac{Pn}{1+r)n}$. The term $(1+r)^n$, is called the scale factor and $\frac{1}{1+r)n}$ is called the discount factor.

running a current account deficit and building up a negative net investment position which ultimately it must pay back with interest. The sustainability of the current account reflects the interaction between factors such as savings and the decisions of the government and private sector, as well as the lending decisions of foreign investors. Finally, a country can be said to have achieved external debt sustainability if it can meet its current and future external debt service obligations in full, without recourse to debt rescheduling or accumulating arrears and without compromising economic growth (IMF, 2000).

3.6 Empirical Framework for Investigating Macroeconomic Convergence and Sustainability

As mentioned above, one of the objectives of this study is to investigate to what extent the East African countries are converging in income per capita and in macroeconomic stability indicators as a result of the East Africa Community. However, there is no consensus on an empirical framework in which macroeconomic convergence and sustainability should be analysed. Initially, the optimum currency area criteria (OCA) have been used for investigating the suitability of countries to form a monetary union. Over the years other criteria such as endogenous optimum criteria and macroeconomic convergence have been used. This section reviews these different approaches and some empirical studies identified in the existing literature.

3.6.1 A Review of Different Approaches for Discussing Macroeconomic Convergence and Sustainability

A) Optimum Currency Area Index

The OCA theory seeks to identify the costs and benefits of monetary union and it sets out the criteria under which countries are suitable for joining a single currency. In OCA theory there is no single set of criteria which is generally agreed upon for empirical studies. Nevertheless some criteria such as factor mobility, degree of openness and diversification in the production structure have been suggested for determining which countries are suitable for a monetary union. These criteria consist

of the mechanisms enabling the member countries of a monetary union to adapt to asymmetric shocks, and they have been suggested for use in determining which countries should join a monetary union (Boone, 1997).

Initially, the OCA index approach has been used to evaluate the suitability of the country to form a monetary union. While it is difficult to identify the costs and benefits, Bayoumi and Eichengreen (1998b) proposed the construction of an OCA index as a guideline in comparing the criteria. They argued that an index of the various criteria might offer a better solution. But there is disagreement over the appropriate weights to assign to each of the criteria and then the total index value that would justify the membership of a monetary union. Because asymmetric shocks are crucial in assessing the cost of monetary union, a composite OCA index should take into account the degree of openness, wage-price flexibility, labour mobility, and shock symmetry. Capital and labour mobility can counteract the negative effects of asymmetric shock (Copaciu, 2004).

OCA theory has proven to be lacking because it places more emphasis on costs related to the loss of monetary policy, but it does not tell us much about supply shocks and what happens if the member countries score well under one of the criteria and poorly on all the others. To identify underlying structural shocks, Bayoumi and Ostry (1995) used structural vector autotoregression (VAR) to measure the incidence of asymmetric demand and supply shocks across the countries of the European Community and compared them with those prevailing in the United States. However, according to Boone (1997), this methodology cannot distinguish between symmetric shocks and asymmetric shocks. If all participating countries face the same disturbances there may be a general decline in demand or supply, and the effects may be much the same throughout the member countries of monetary union. But in reality shocks may be quite specific to particular countries, some countries being affected differently from others. For example a supply shock such as a rise in oil price affects countries differently. When asymmetric shocks, such as the conditions in international capital markets or world recession, occur across the member countries, monetary policy cannot be used by an individual country (Fanelli and Rozada, 2003). The question is how asymmetric shocks really are transmitted from one economy to another and how different economies respond to them within the monetary union. There are few empirical studies that concern the empirical modelling of macroeconomic linkages among members of a monetary union within a general

equilibrium framework. Fielding *et al.* (2004) have developed an econometric framework which concentrates on short-run relationships between key macro aggregate variables between the various countries. In assessing the suitability of joining a common currency, it is necessary to be aware of changing patterns of the co-movement of business cycles in the main macroeconomic variables among the member countries. In this sense, knowing how intra-trade among countries will shape business cycle patterns is more important in assessing the costs and benefits attached to a currency union.

B) Endogenous Optimum Currency Area Criteria

Most importantly, OCA theory has been criticised for generating static criteria. Some economists, such as Frankel and Rose (2000, p. 34), argue that,

> "*the OCA criteria index should be used with caution because the criteria are static. In the long-run, a common currency will generate an impetus for a long-term economic relationship among members and will promote even more reciprocal trade and business cycles synchronization among the countries sharing a single currency".*

In the long run, using a single currency will lead to the formation of optimum currency areas within the integrated economies. The introduction of a single currency will eliminate transaction costs and exchange rate risks, raise price transparency, and facilitate direct investment and the building of the long-run relationship and thus promote trade, growth and economic and financial integration (Fidrmuc, 2001; Mongeli, 2002; Talvas, 2008). All these characteristics imply that, although countries may not satisfy the requirements for joining a monetary union *ex-ante*, they can satisfy them *ex-post*. For these reasons the OCA endogeneity hypothesis has become another criterion for joining common currency areas (Carmignani, 2010; Takaya, 2005).

C) Maastricht-Type Convergence Criteria

Some use the criteria proposed by the old and new optimum currency area theories (Mundell, 1961; Tavlas, 1993; Broz, 2005), while others such as Enders and Hurn

(1994) used the G-PPP approach to analyse the suitability of a group of countries. This method uses cointegration techniques to find out if the prospective countries' macroeconomic variables exhibit a long-run relationship. G-PPP postulated that the real exchange rates of countries comprising an optimum currency area should move together. The limitation of this approach is that movements in macroeconomic variables reflect the combined effects of shocks and responses.

This study extends the empirical literature by applying Maastricth-Type convergence criteria. This is because the East Africa Community Treaty explicitly urges the member countries to consider convergence in key macroeconomic stability indicators before and after the formation of East African monetary integration. For instance, convergence in inflation rates has been considered as a prerequisite for joining a single currency area, as suggested by old OCA theory, but this convergence must be sustainable once a country belongs to the monetary union and should intensify intra-trade, as predicted by new OCA theory. Convergence in fiscal policies is also required among the member states of a single currency area, even though the old OCA theory does not request it (Masson and Pattillo, 2004; Buiter, 2006).

D) Sustainability Criteria

In assessing the macroeconomic sustainability hypothesis, common empirical practice has consisted of examining three key features: (1) fiscal sustainability, (2) current account sustainability, (3) and external debt sustainability (Edward, 2003). The task is to develop dynamic models consistent with sustainable fiscal and current account deficits and with sustainable debt and solvency. So far, the literature has focused on two approaches: the present value constraint (sustainability test) and the accounting approach (sustainability indicators). The intertemporal budget constraint approach initiated by Hamilton and Flavin (1989) investigates whether or not solvency conditions are met. Checking for solvency implies adopting a forward-looking approach that involves projecting future tax and spending measures, as well as forecasts of GDP growth and real interest, to determine whether or not the intertemporal budget constraint is satisfied (Zee, 1988).

The main limitation of the intertemporal solvency approach is that solvency within a sample period does not mean there will be solvency in the future. The IMF (2004, quoted in Arnone *et al.*, 2005, p. 6) defined debt sustainability as,

> *"the position of a country when the net present values of debt to export ratio and debt-services to export ratio are below certain country-specific targets within a range of 200-250% and 20-25% respectively for debt-to-export ratio and debt service payments-to-export earnings".*

This definition indicates that the IMF financial accounting approach focuses on the financial capacity to service debts. The sustainability criteria such as external debt to GDP, external debt to export, debt-to-export ratio and debt-services to export ratio are indicators that reflect the extent of desirability of fiscal deficit levels as well as external debt levels. When the ratios are so high as to make a country unable to make its contractual debt-service payments without debt rescheduling, and the ratios are expected to remain at a high level (debt/GDP), the external position is deemed unsustainable. In that sense debt sustainability depends on the willingness of the borrower country and its financial capacity to meet its foreign debt obligations.

A sustainable external debt-GDP ratio is one that is stable over time and is below a certain threshold. In order to bring the external debt burden to manageable levels, the formal criteria serve as indicators for additional lending, rescheduling and the forgiveness of debt to any debtor country. The thresholds that are usually used are to measure the trend of sustainability in relation to key macro aggregates. The external debt as a percentage of exports shows the exports earnings as a means by which a debtor country earns foreign currency to pay back its debts. Its reserves as a percentage of total debt show what resources the central bank of the debtor country can use to pay the debt. The debt service as a percentage of the exports of goods and services indicates the annual burden facing a debtor country in relation to its exports earnings.

The IMF approach has been criticised for being interested only in the narrow outcomes of the balance of payments and relatively unconcerned about other effects of unsustainable debt and fiscal deficits that may have impact on the economy as a whole. According to Arnone *et al.*, 2005), reasonable criteria for external debt sustainability must focus on the ratio of external debt to GDP, which cannot grow over time without bounds, but as long as the debt ratio to GDP is stabilized over the

medium term, it is considered as sustainable. This study investigate the evolution of the current account-to-GDP and debt- to-GDP ratios

3.6.2 Empirical Studies of Macroeconomic Convergence and Sustainability Criteria

There are abundant empirical studies on macroeconomic convergence and sustainability criteria in the existing monetary unions such as the European Union and African monetary arrangements. The results from the vast numbers of empirical studies, such as the Delors Report (1989), De Grauwe (1995), Emerson *et al*. (1992), Tavlas (1993), Matti (1999a; 1999b), Demertzis et al. (2000), Frankel and Rose (2000), Copaciu (2004), Fidrmuc (2001), Nachtigal *et al*. (2002), Mongeli (2002; 2004), Mundell (2005), and Eichengreen (2007a; 2007b) are mixed. Generally they show that European integration was not an optimal currency area when a single currency was adopted in 1999. Ten years later, despite significant progress in terms of inflation convergence, financial integration and intra-trade intensification, the criteria of labour mobility, wage flexibility, and fiscal and political integration were far from being satisfied. Concerning African monetary integration, many of the empirical studies such as Bayoumi and Ostry (1997), Guillaume and Stasavage (2000), Fielding and Shield (2001), Mason and Patillo (2002; 2008), Benassy and Coupet (2005), Maruping (2005), Yehoue (2005), Rossouw (2006), Anoruo and Nwafor (2007), Karras (2007), UNECA (2007), Houssa (2008), Tsangarides *et al*. (2006; 2008; 2009), Tavlas (2009), Carmignani (2010), and Debrun *et al.* (2010) have focused on the existing monetary unions in the CFA Franc Zone and Southern Africa, illustrating the potential costs of one-size-fits-all OCA criteria. According to Mason and Patillo (2004) the conclusion is that African monetary integration is different from that in Europe, so that it cannot yet sustain monetary unions, for reasons ranging from weak economic structures, disparities in macroeconomic performance, including public finance and inflation, to democracy, control and corruption. This picture of Europe and Africa in general indicates how it is easy to understand that the East African integration may not satisfy the main optimal currency area criteria. Individual economies suffer from different shocks because of lacks of product diversification and openness, their dependence on imported oil, the foreign markets to which they sell and the volatility of financial markets Labour

mobility among East African countries will inevitably be limited for a very long time to come by structural differences in national financial and labour markets.

To date only a few empirical studies such as Mkenda (2001), Alusa (2004), Buigut and Valev (2005; 2006), Booth *et al*. (2007), Mutoti and Kahingire (2007), Dunn and Gaertner (2010), Opolot (2009), Opolot and Luvanda (2009), and Falagiarda (2010) have examined the suitability of East African countries for monetary union using macroeconomic and sustainability criteria. Mkenda (2001) used generalised purchasing power methodology which tests the level of similarity in the movements of real exchange rates against a strong currency as anchor. Since the interrelated determinants of real exchanges rates (output level, long-run productivity, terms of trade, technological transfer, capital movements, governments spending, etc) are generated by stochastic processes, the exchange rates in the countries wishing to adopt monetary union should have also a common trend and be cointegrated (Enders and Hurn 1994; 1997). According to Buigut and Valev (2005), the limitation of a G-PPP-cointegration approach is that the movements in variables reflect the problem of differentiating between correlation and causation, meaning that this methodology combined the effects of shocks and responses. In assessing the suitability of the East African countries for a regional monetary union, he used vector autoregression (VAR) technique by testing for the symmetry or asymmetry of the underlying shocks in East African economies. The results suggest that supply and demand shocks are generally asymmetric, meaning that the East Africa countries are not suitable for forming a monetary union. However, Stock and Watson (2001) argued that the problem of identification cannot be solved by a purely statistical tool. This is because it is still difficult to differentiate between correlations and causations. More recently, in investigating the readiness of East African countries for a common currency, Falagiarda (2010) used the traditional OCA criteria and G-PPP cointegration analysis. The findings of his study suggest convergence. However, given the nature of macroeconomic time series, country specific, statistical anomalies, he questioned the reliability of the results. In investigating macroeconomic convergence in EAC countries, Opolot (2008) used standard deviation, panel unit roots test and cointegration analysis.

However, considering the macroeconomic convergence criteria as set out in Table 3.1, one can realise that the assessment criteria to be fulfilled before and after adopting a common currency are quite different from those proposed in the

theoretical literature on monetary integration and single currencies. The macroeconomic convergence criteria are a selection of key macro-aggregates considered as essential for making East African monetary union more sustainable in the long-run. These macroeconomic convergence and sustainability criteria are basically focused on sustained growth, inflation current account deficits/GDP, fiscal deficits/GDP, and external debt/GDP. However, macroeconomic convergence in key macro-aggregates is possible among countries trading extensively with one another.

By applying the cointegration approach this study proposes to test whether the key macroeconomic variables are converging towards a common stochastic trend as suggested by Calimignani (2005). However such macroeconomic convergence cannot be achieved without intense intra-trade among member states. Given a weak intra-trade in East Africa countries, there are some doubts that such a convergence mechanism will be at work in the proposed East African Monetary integration in the near future.

3.7 Conclusion

This chapter has discussed the rationale and background of monetary integration and its theoretical and empirical frameworks, namely OCA, macroeconomic convergence and sustainability hypothesis criteria. According to this theory there are economic costs and benefits associated with monetary unions. The major benefit of a common currency that has been emphasized is that it stimulates intra-trade and investment among the countries of the union by reducing transaction costs in cross-border business, and removing volatility in exchange rates across the union (Rose, 2000). Other benefits include: macroeconomic policy discipline; efficiency in allocation of factors of production; savings of foreign exchange reserves; and political union advantages. The key major economic cost from the formation of monetary integration is the loss of national autonomy in monetary policy.

The traditional OCA theory has been criticised for being flawed because it is static and fails to understand the dynamics of economic relationship among member states. The endogeneity paradigm suggests that the traditional OCA studies were based on backward looking and misleading and that OCA conditions could be satisfied *ex post* even if they are not fully satisfied *ex ante*. In the long-run the costs of losing national monetary sovereignty is lower because member countries may not

satisfy the OCA requirements for joining a monetary union *ex-ante*, but satisfy them *ex-post* (Frankel and Rose, 2000). Based on OCA theory in its cost-benefit analysis, European integration has set macroeconomic convergence and sustainability criteria to ensure microeconomic efficiency and macroeconomic stability within the member states. In order to encourage European integration to become an OCA before the using the Euro as a currency, the Maastricht Treaty set key macroeconomic convergence criteria for member states to satisfy concerning: inflation rates, public finance, exchange rates, and long-term interest rates. The success of the European Union has brought a renewed interest in monetary integration in the rest of the world.

Similarly, the East African integration has followed the paths of European monetary union, setting out macroeconomic convergence and sustainability criteria: sustained growth, inflation, current account deficits/GDP, fiscal deficits/GDP, and external debt/GDP ratios. However, as persistent disparities in income per capita in EAC countries could lead to political tensions among member states and to the collapse of the East Africa Community, as happened in 1977. It appears that some countries may not be suitable for forming a monetary union, as long as they do not have a similar level of economic development (Bayoumi and Mauro, 1999). The individual economies suffer from different shocks because of lack product diversification, and openness, their dependence on imported oil, in the foreign markets to which they sell and the volatility of financial markets. Labor mobility among East African countries will inevitably be limited for a very long time to come by structural differences in national financial and labour markets.

Growth strategies and macroeconomic policies are likely to differ according to country-specific circumstances and constraints. Growth is a result of the combination of natural resources, capital, labour and technological progress, initial conditions (socio-economic and political institutions such as property rights, the rule of law, market-oriented incentives, sound macroeconomic policies, sustainable fiscal and current account deficits and debt. Institutional economics gives insights into how the persistent poor economic performance in African countries is explained in terms of political institutions that do not prevent political leaders and civil servant from corruption, ineffective enforcement of property rights, and lead to political instability (Rodrik, 2002; Acemaglu, 2003; Glaeser et al. 2004).

Therefore to better understand growth and macroeconomic convergence in East African countries, it is essential to avoid a one-fits-all growth strategy. The next chapter seeks to understand country-specific economic and institutional features in which the new East African integration is taking place.

Chapter IV
An Overview of Economic and Institutional Features in East African Countries

4.1 Introduction

The East African countries are turning to regional integration policy as an extension of the structural adjustment programmes (Elbadawi, 1997). A key issue is the extent to which East African integration policy would work effectively in countries with different initial geographical and socio-economic conditions, macroeconomic policies and institutions. These important disparities may have a strong negative impact on regional integration. For examples, excessive differences in natural resources, human and capital resources could create income disparities. These disparities in various dimensions will certainly affect East African integration and the resulting responses will produce unequal benefits from regional integration. One of the main challenges for East African regional economic policy lies in the design of the development strategy bearing in mind the disparities in these fundamental areas (Mbongoro, 1985). This chapter provides an overview of the key macroeconomic variables that should be considered in carrying out the econometric investigation in the following chapters. Others variables on socio-economic conditions, and macroeconomic and institutional performance will help to understand the context in which regional integration policy will take place.

The following sections give an overview of geographical factors, and a brief history of the East Africa Community. Then an overview of the political institutions, economic structure and socio-economic conditions, and macroeconomic performance is presented. The final section then explores the alternative development strategies that have shaped current economic performance.

4.2 Geography and Population of the Great Lakes Region

Economically the East Africa Community is a regional trading bloc and a large market situated in the Great Lakes Region and populated by 489 million of people from Kenya, Tanzania, Uganda, Burundi and Rwanda. Historically the interlacustrine region has included the Western parts of Kenya, North Western Tanzania, Burundi, Rwanda, Uganda, and Eastern parts of the DRC (Mbwiliza, 2002). The perception of a Great Lakes Region is a product of historical developments, including migrations of populations, the slave trade, colonialism and independence, and current geo-politics. It is a massive region in which are located many large lakes. East Africa itself is a region in which every kind of livelihood can be found, from hunting and gathering to modern industrialisation

Geographically the Great Lakes Region corresponds to the historical meaning of the interlacustrine region which constitutes the area between and around Lakes Victoria, Tanganyika, Kioga, Kivu, Edward and Albert. The enormity of the region and its harsh ecological conditions, such as extreme heat, marginal soil and immense forests, has left many groups relatively isolated from other parts of the region. Being bisected by the equator and lying within the tropics, East Africa is subjected to a range of torrid climates. The coastline is not accessible because of the compact shape of the region. There are only two good harbours (at Mombasa and Dar-es-Salaam) and the penetration of the interior involves tremendous distances in countries such as Rwanda, Burundi, Uganda, and the Eastern part of the Democratic Republic of Congo, which are all landlocked (2000 km from the nearest coast on the Indian Ocean). Much of East Africa consists of old, hard rock forming plateau country, and rivers fall in rapids over plateau edges to narrow coastal plains, which may often have delta mouths. For this reason the economic value of the larger rivers such the Nile for transport is much impaired, although there is good potential for hydroelectric power. The great heat and humidity of Africa's tropical lowlands is conducive to serious diseases such as sleeping sickness, malaria and yellow fever, which cost many thousands of human lives each year (Temple, 1980; Sachs and Warner, 1997; Bloom and Sachs 1998). The excessive political fragmentation increases the problem of national identity and ethnicity as sources of conflict. Economic progress is related also to the sparseness of the population in Africa, and its tribal divisions (Collier and

Gunning, 1994; Gallup et al. 1999).Table 4.1 shows the geography, population and the density of the population in the Great Lakes Region. The East Africa countries constitute a huge market of 426 millions of people. Rwanda and Burundi are small countries with higher population densities and geographically large countries such, Kenya and Tanzania have low population densities (World Bank Report 2007).

Table 4.1 Geography and Population of the Great Lakes Region, 2007

	Population	Area (Km square)	Population Density
Kenya	37,538,000	580,000	59
Tanzania	40,454,000	945,000	41
Uganda	30,224,000	241,000	120
Burundi	8,508,000	28,000	26
Rwanda	9,725,000	26,000	342
Total	426,349,000	2,820,000	

Sources: Human Development Indicators, World Bank Report, 2007

4.3 Brief History of the East Africa Community

The history of the fall, the rise, and the revival of the East African Community has been documented by many scholars such as Hazlwood (1975), Abidi (1994), Kratz (1966), Hazlwood (1975), Alusala (2004), Polholm and Fredland (1980), Mtei (2005), Goldstein and Ndung'u (2001), and Wanjiru (2006). Created by British colonial Administration in 1917, the East Africa Community is one of the oldest and most relatively advanced examples of regional integration in the World, with a customs union, the free movement of labour and capital, a single currency, and unique administration.

4.3.1 The Rise of East Africa Community

The East Africa Community was created by the British Empire for the political and economic reasons. Formal economic integration commenced with the construction of the Kenya-Uganda Railway and the creation of common services such as the Customs Collection Centre, the East African Currency Board, the Postal Union, the

Court of Appeal for Eastern Africa, the Customs Union, the East African Governors' Conference, the East African Income Tax Board and the Joint Economic Council (Hazlwood, 1975). It appears that from 1917 the East Africa Community was regarded as a response to British administrative needs. The British interest in East Africa was initially centred on building physical infrastructure designed mainly to produce and export primary commodities and to support the colonial administration (Hazlwood, 1975). The East Africa Community started with the construction of the Uganda Railway,[16] not only to make export development possible, but also to provide incentives to encourage European settlement in Kenya. With the settler community, Kenya began to acquire a dominant position in the region, and became a natural location for a railway warehouse and the headquarters of most inter-territorial services. This created tension within the East Africa Community. The seeds of its collapse in 1977 were sown ever since its creation, in particular from differences in initial economic conditions and divergent interests between the member countries and the British administration. During its development the East Africa Community was sacrificed on the altar of politics by the three regional leaders (Hazlwood, 1975).

East African economic co-operation started with the formation of a customs union. The customs union was relatively advanced, with common external tariffs, free trade, the free movement of labour and capital, and a single authority for the collection of import duty. There was also a joint administration of transport, communications and other common services such as meteorology, the postal services, income tax, statistics, Mombasa Harbour, the East Africa veterinary research centre, the East Africa Industrial Research Organization, the East African Airways Corporation, the East Africa Literature Bureau, and the East Africa University (Ndenya, 1964; Abidi, 1994; EAC, 2004; EAC, 2007

In 1919 the East African Currency Board was established to issue lawful money in Kenya, Uganda and Tanganyika. The sole function was to exchange its notes and coins for the anchor currency at a fixed exchange rate. The East African Shilling had a fixed value of Sh.20 = 1.00 Pound Sterling, but the currency issue could expand to match the requirements of the total money supply as determined by advances from commercial banks (Kratz, 1966; Kim, 1975; Mtei, 2005). With a

[16] Despite its name the Uganda Railway did not exclusively belong to Uganda. It ran from the Kenyan coastal town of Mombasa to Lake Victoria. Therefore it was the first common inter-colonial service in the region.

single currency the three British colonies constituted a full common currency area or monetary union. As independence approached in the 1960s, it was believed that the Board would evolve into a Federal Central Bank of East Africa which would then have considerable freedom of action as banker to the commercial banks, in the sense that it could act as a lender of last resort to them (Hazlewood, 1954).

In order to manage the numerous common services, the Colonial Office in London decided to set up an East African High Commission (EAHC) and Common Services Administration (Abidi, 1994). In practice, the High Commission never became an independent East African authority able to prevent the unequal distribution of benefits from the customs union. From the beginning it was believed in Tanganyika[17] and Uganda that the arrangements worked constantly to the advantage of Kenya and served to increase Kenya's influence over matters of common interest. A distributable pool (or equitable distribution of revenues was created to correct the disparities of income distribution. The tax redistributed through the pool was not large enough to offset the disparity in industrial development and the staffing of the Organization, which was perceived to be disproportionately higher in Kenya because the headquarters of most common services bodies, including the Organization itself were in Kenya (Busse and Shams, 2003).

In 1964 an attempt to address these problems was made to keep the common market in existence and to redress the increasing imbalance in trade through the planned re-distribution of existing industries concentrated in Kenya. Despite optimism, the three countries failed to reach agreement, even though the trend towards disintegration was not accepted by the three governments (Polholm and Fredland, 1980). In 1965 Kenya gave formal notice calling for a review of the agreement and for discussions on all aspects of economic cooperation. An important commission, chaired by Professor Phillip with assistance from the United Nations Economic Commission for Africa, submitted a report covering the whole range of inter-territorial questions. The report was known as the Phillip Commission Report and formed the basis of the Treaty of the East Africa Community. In order to save the East African common market and common services, the Phillip Commission examined the existing arrangements in East African co-operation on matters of

[17] Until 1963, the mainland Tanganyika and the island of Zanzibar were under British rule as separate countries. Since 1964 they form union to become the United Republic of Tanzania

mutual interest. The Commission agreed on the following matters: a regulated and controlled common market, the establishment of a separate currency, maintaining and controlling the existing common services and creating new ones, and the creation of the legal, administrative and constitutional arrangements likely to promote effective co-operation. The report formed the basis of the Treaty of the East Africa Community, which was signed and came into effect in June 1967, thus formally establishing the East African Community (EAC, 1999).

According to the 1967 Treaty, Article 5, the objective of the EAC was to strengthen and regulate the industrial, commercial and other relations of the partner states. It is evident that the Treaty emphasized a development programme whose benefits would be equitably distributed among the member states. The Treaty also recognized the importance of free trade, and called for the removal of all trade barriers. The Community had a common external tariff and common excise duties, and taxation and fiscal policies were to be used to promote industrial development. Commercial law transport and economic development policies were to be harmonized. There was to be free exchange of currency and the unrestricted movement of current-account payments in the common market (Ndegwa, 1968; Abidi, 1994; Busse and Shams, 2003; Matambalya, 2007).

4.3.2 The Fall of East Africa Community

The problem in determining the structure of an East African central bank was that of deciding how a centralized structure should be established in the absence of a common government in East Africa. It was believed that, given the complexities of the East Africa situation and in the absence of some form of central political direction, the operation of a central bank would be difficult; therefore political federation provided the best assurance for a successful transition to a full central banking system. The idea of an East African political federation led to a strong reaction in Uganda and Kenya. To the Tanzanian government, the reaction against political federation was very disappointing. In Tanzania's view political federation was not a symbol of settler domination, but a symbol of African unity, and the first step should be regional organizations which, once they had grown strong, could later lead to continental unity (Mugomba (1978). In 1964, the conclusion of the Blumenthal Report was that the evolution of the East Africa Currency Board into a central bank would require a

federal government prescribing fiscal, monetary, financial, and trade policies for the whole of the East Africa Community. This is because an East African central bank would take important decisions with serious repercussions for many sectors of a national economy. The three governments recognized the importance of the creation of a central bank and its repercussions, but as the adverse reactions persisted they agreed to set up separate central banks and currencies. In 1965 the member states established separate central banks and issued separate, but identical, currencies (Mtei, 2005). However, because of the difficulties of managing and maintaining the value of their currencies and to prevent financial crisis, the countries decided to tie their domestic currencies closely to the pound sterling. So the currencies of each state could be used without difficulty for transactions in other states and notes could be freely exchanged. Under the 1965 Treaty establishing the East Africa Community, the member states agreed to co-ordinate and harmonize their economic policies. To deal with monetary policy they set up a Monetary Committee to co-ordinate fiscal, monetary, and exchange rate policies which would facilitate intra-trade and payments between the member states. The East Africa Community worked relatively well until it collapsed in 1977. According to Hazelwood (1979, p.81),

> *"the collapse of the East Africa Community could be traced back to 1917 with the unequal treatment between the colonies and it grew up with the issue of imbalances in trade and industrial development. One of the major contributing factors is the difference in the distribution of benefits from the East African customs union and common services".*

Indeed, Uganda and Tanzania had continued to feel since 1917 that Kenya benefited more from the arrangements in terms of trade and industrial development. Another contributing factor was ideological differences. Tanzania pursued socialist-oriented strategies while Kenya was more capitalistic.

4.3.3 The Revival of the East Africa Community: A New Development Strategy

In an attempt to save their countries, individually and collectively, from declining economic growth and crippling external debts in the 1990s, East African politicians gave up their previous narrow nationalism and strongly supported the revival of the defunct East Africa Community. They were determined to strengthen their economic, social, cultural, political cooperation in the interests of sustained growth. On 30th

November 1999, the EAC Partner States of Kenya, Tanzania and Uganda signed the East Africa Community (EAC) Treaty. It was agreed that the fresh start of East African cooperation would focus on five areas: (1) economic cooperation in trade and industry, monetary and financial cooperation, transport and communications, energy, agriculture and animal husbandry, promotion and investment, environment and natural resources, tourism and wildlife conservation, social and cultural activities and the harmonization of fiscal and monetary policies; (2) immigration; (3) political cooperation; (4) legal and judicial cooperation; and (5) security matters (EAC,1999).

Although the scope of the new East African cooperation covers several fields of interest for economic growth and development, this study focuses on cooperation in trade liberalisation and development, and factor mobility and monetary cooperation. The desire to link East African countries together through trade integration and co-operation has been, and remains, an enduring goal, in spite of the limited success of the old EAC. In the 1990s it was widely recognised that regional integration had been seen as an appropriate strategy for growth and development and peace building. It has been observed that regional integration creates the conditions likely to reduce conflict (Hettne, 1998). This is because it can lead to changes in economic conditions and reductions in poverty which are a source of political unrest. Through East African regional integration, tensions between East African countries are more likely to disappear in the Great Lakes Region. It has been believed that a wider market could be advantageous to a range of industries. It might be expected that there would still be economies of scale to be achieved in some of the common services. The improvement in regional public services such as transport and communications in the East Africa Community could affect its members and foster the development of the region. In this respect Burundi, Rwanda and the East of the DRC are highly dependent on the East African harbours, railways, and roads. Benefits may also accrue from East African common markets in agricultural products because of the differences in natural advantages in different parts of the region. The immediate economic gains from a widening of the East Africa Community might be initially small for all parties, but they would be likely to grow in the near future. As trade integration is taking place, the ultimate phase is monetary integration. The East African countries undertake to cooperate in fiscal, monetary and currencies convertibility matters as basis of East African monetary union. They engage to

remove all barriers to the movement of goods, services, labour and capital with the East Africa Community (EAC, 1999).

4.4 Political Institutions

Past experience and common sense suggest that the future and success of the new East Africa Community will depend significantly on the nature of the interaction of economics and politics and on the extent to which more productive policies and more efficient political institutions can facilitate the free movement of goods and services, capital and labour for the mutual interest of the member states (Williamson, 2005). This section analyses the features of political institutions in East African countries

4.4.1 Regional Integration Organizations, Political Conditionality and Economic Growth

All major regional integration organizations have to use political conditionality to promote human rights, property protection, the rule of law and the quality of public institutions, and the regional peace and security required for viable economic activities. The traditional approach to the growth takes market-supporting institutions as given and focuses on the role of markets. However, recent developments in growth literature suggest that macroeconomic stability, privatisation and price liberalisation in goods and services, labour markets, and financial and exchange rate markets have a long time been the cornerstone of economic growth (Tirelli, 2010). For this argument, there are several actions concerning market-supporting institutions which can be given priority in East African integration. These involve property rights, regulatory institutions for macroeconomic management, institutions for conflict resolution mechanism, the modernization of administrative procedures and harmonization of standards, the adoption of a common tax system, exchange of information, and the harmonization of policy measures between countries. The relationship between regional integration and political institutions is straightforward. It is simply explained by the role of political will and leadership to implement the actions and activities taken within the regional integration organization. In addition positive relationships between political and social institutions and growth have generally been associated with other concepts such as political stability and

democracy, less corruption, economic freedom and less state intervention. It is difficult to believe that these factors do not affect growth (Acemaglu and Robesion, 2002). The 1970s and 1980s 'lost decade' in Africa can be explained not only in terms of the wrong macroeconomic and trade policies, but also by political instability (Easterly and Levine, 1997; Kekic, 2007). It is clear that the frequency and scale of revolutions, coups, corruption, and assassinations have had significant negative effects on past economic performance in African countries. Empirical studies and past experience show that foreign investors are attracted by the protection of property rights, the enforceability of contracts, excellent economic infrastructure, the proper functioning of markets, efficient bureaucracy, and political and institutional stability. Tanzi and Davoodi (1997) found that the frequency of revolutions, coups, corruption, and assassinations have significant negative effects on growth, whereas economic freedom and democracy are observed to have a strong positive correlation with growth. Autocratic regimes, being predatory, cannot credibly commit to ensuring the rule of law characterised by the protection of property rights, the enforceability of contracts, excellent economic infrastructure, proper functioning of markets, efficient bureaucracy, or political and institutional stability. The evidence also indicates that political regimes with lower degrees of corruption will attract multinationals by decreasing the costs of internationalising production (Alfaro *et al*., 2003). A common finding of recent theoretical and empirical literature is that corruption has a negative effect on economic growth (Kaufmann 1997; Mauro 1997; Jain 2001). Empirical studies on the economics of institutions show that countries with better political institutions invest more in physical and human capital, use these factors more effectively, and achieve higher levels of income. Furthermore institutional quality is an important factor that explains the reason why capital does not flow from rich to poor African countries (Acemoglu *et al.* 2003a).

In contrast, Leff (1964) and Huntington (1968) underline two mechanisms through which corruption can foster economic growth. Bribes can help firms to avoid burdensome bureaucratic regulations, and they can serve as an incentive to civil servants to accomplish their duties. A lack of popular pressure on the government and the repression of labour unions in order to drive down wages may also lead to higher levels of foreign direct investment in authoritarian countries. The examples of the Democratic Republic of Congo and Kenya may also lead one to conclude that multinational companies prefer to invest in countries with rampant corruption and

authoritarian regimes because these provide multinational firms with better entry deals. Another interesting paradox is China's growth experience. As Snowdon (2003) suggests, China still has a very authoritarian government, endemic corruption, and is still very far from having the institutional requirements that are needed in the long run to sustain progress. However corruption still remains a barrier to development in developing countries. Some governments and donors have argued that corruption must be vigorously addressed if international aid is to make a real difference in freeing people from poverty. They have begun to wonder whether it is useful to provide foreign aid to countries perceived to be corrupt, and have sought to use the corruption perception index (CPI) to determine which countries should receive aid, and which should not. The reasonable solution is to help the countries with the lowest CPI scores because they need help to escape from corruption and poverty (Kekic, 2007).

In the fight against corruption, rich countries must recognise that companies are involved in corrupt practices in developing countries, as is the case in the Democratic Republic of Congo and Kenya. The World Trade Organisation (WTO) and the United Nations are also committed to promoting transparency and anti-corruption in international commerce[18]. Among the countries included in the CPI, corruption is perceived as most rampant among the poorest countries in the world, in particular in Africa and Latin America.

4.4.2 Political Performance in East African Integration

Political conditions have been viewed as some of the most important aspects of economic development. Empirical studies such as by Brunetti (1997) show measures of democracy (free elections, the rule of law, ensuring the security of property and the enforcement of contracts) have positive growth effects, while measures of political violence (strikes, demonstrations, armed attacks, political assassinations and execution) have negative growth effects. The relationship between economic development and political conditions in developing countries has

[18]The World Trade Organisation and the United Nations aim to accelerate the retrieval of stolen funds, push banking centres to take action against money laundering, allow nations to pursue foreign companies and individuals that have committed corruption acts on their soil, and prohibit the bribery of foreign public officials.

been analysed in terms of democracy, corruption, the degree of economic freedom or lack of government interference, and the degree of political and economic stability.

In EAC countries the democratization process was expected to eradicate the negative effects associated with the internal causes of conflicts, including dictatorial regimes, ethnic conflicts and practices of social injustice and exclusion. The type of democracy that facilitates people-centred development should lead to the establishment and consolidation of democratic developmental societies (Mkandawire and Soludo, 1995). Unfortunately, during the period of democratization, various conflicts have emerged in the Great Lakes Region. Recent studies have shown how disappointing the political performance in EAC countries has been in terms of democracy, freedom, corruption and ease of doing business.

Table 4.2 shows how East African countries score in terms of political indicators such as democratic elections, governance, political participation, civil liberties, and freedom, and conflict and peace measures. The conflict indicators concern armed conflict and political instability, the militarisation of political regimes, diversity of populations, the monopolisation of political power and exclusion. The peace indicators include security, inclusive and good governance, and strong civil society. The Democracy Index (DI) focuses on elements of democracy such as a free and fair elections process, and levels of civil liberties, the proper functioning of the government, political participation and political culture (Kekic, 2007). Depending on their scores EAC countries are placed within one of the following types of regimes:

- 10-8 is a full democracy
- 7.9-6 is a flawed democracy
- 5.9-4 is a hybrid regime
- Below 4 is an authoritarian regime

Table 4.2 Democracy Index in EAC Countries, 2007

Country	Electoral Process	Functioning Government	Political Participation	Political Culture	Civil liberties	Overall Score	World Rank
Burundi	4.51	4.42	3.29	3.89	6.25	4.51	107
Rwanda	3.00	3.57	2.22	5.00	5.29	3.82	118
Kenya	5.08	4.33	4.29	5.16	6.25	5.00	101
Tanzania	6.00	3.93	5.06	5.63	5.35	5.29	99
Uganda	4.33	3.93	4.44	6.25	6.76	5.14	100

Source: Kekic (2007)

As can be seen in Table 4.2, Rwanda and Burundi rate as authoritarian regimes, whereas Kenya, Tanzania and Uganda are placed in the hybrid category. In general the political situations in Rwanda and Burundi are disappointing, characterised by dictatorship, violations of human rights, political instability, and civil wars. Political instability and international war in the Great Lakes Region has been documented by many scholars and international institutions. Although the causes include internal and external factors, many scholars such as Garten (1993), Vernet (1995), Hilarias (1998), Marchal (1998), Mpangala (2000), Schraeder (2000), Vlassenroot and Romkema (2002), Montague (2002), UN Security Council Report (2002), Ellen (2003), and Padigru (2004), have identified external factors as the major causes of political instability in the region. They argue that the main causes are: divisive ideologies taking the forms of ethnocentricity, racialism, and religious antagonism during the colonial era; and Anglo-Saxon rivalry in Francophone Africa for economic supremacy and extended markets. Because of their immense natural resources, the East African countries are victims of political influence and intense geostrategic interest by industrial countries (Ellen, 2003).

Regarding economic freedom, the founder member states of the East Africa Community, namely Kenya, Tanzania and Uganda, generally rank quite high for Area 3 (sound money), Area 4 (freedom to trade internationally), and Area 5 (regulation of credit, labour, and business). These economies seem to be more open to foreign trade. On the other hand, the non-member countries (Burundi, DRC, and Rwanda) show the opposite pattern. The DRC is an unfortunate example, in that it was not performing well in any area of economic freedom ratings in Table 4.3. The economic freedom indexes world show ranking in brackets for each of the five areas.

It is worth noting that the economic freedom index is related to other political indicators such as Corruption Perception Index (CPI) and Ease of Doing Business Index. Although this relationship is often negative, a country such as Kenya with higher economic freedom has a higher GDP per capita within the region. The corruption perception index (CPI) focuses on corruption in the public sector and defines corruption as the abuse of public office for private gain. The CPI score relates to perceptions of the degree of corruption made by business people and national analysts (W.E.F, 2007).

Table 4.3 Area of Economic Freedom Ratings (Ranking) in EAC, 2005

Areas	Burundi	DRC	Kenya	Rwanda	Tanzania	Uganda
1.Size of Government Expenditure, Taxes and Enterprises	5.6 (83)	5.3 (94)	7.1 (36)	5.0 (109)	4.9 (114)	5.9 (73)
2. Legal Structure & Security of Property Rights	2.9 (135)	1.8 (141)	4.9 (95)	3.6 (129)	5.8 (64)	5.4 (82)
3. Access to Sound Money	6.6 (119)	4.0 (138)	8.6 (66)	7.7 (89)	9.0 (46)	8.5 (68)
4.Freedom to Trade Internationally	3.3 (138)	5.4 (122)	6.3 (90)	4.2 (137)	5.7 (111)	5.8 (110)
5. Regulation of Credit, Labour, & Business	6.6 (70)	3.3 (104)	6.3 (83)	5.6 (113)	6.0 (199)	7.1 (137)
5A. Credit Market Regulation	7.4 (115)	4.3 (123)	6.0 (78)	5.4 (88)	5.3 (92)	8.1 (73)
5B. Labour Market Regulation	7.4 (151)	4.3 (126)	5.8 (73)	5.4 (88)	5.3 (92)	8.1 (72)
5C. Business Regulation	4.5 (116)	3.0 (135)	5.6 (68)	6.1 (45)	4.7 (106)	5.5 (75)

Source: World Economic Freedom Report, 2007

The CPI ranges between 10 (highly clean) and 0 (highly corrupt) (TICPI, 2007). As shown in Table 4.4 there is a severe corruption problem in EAC countries, with CPI scores less than 4 even in 2007. Among these countries, corruption is perceived as most rampant in Kenya, the rich country in the region. It is believed that economic freedom is correlated with corruption. Less regulation, lower taxes and tariffs, and more economic freedom should reduce the opportunities for corruption on the part of public officials. This is not the case in the East African countries. A country such as Kenya, which has a good record of economic freedom, has a bad record of corruption (TICP, 2007).

Table 4.4 Corruption Perception Index (CPI) in East African Countries, 2002-2007

Country	2002	2003	2004	2005	2006	2007	World Rank 2007
Burundi	-	-	-	2.3	2.4	2.5	131
Rwanda	-	-	-	3.1	2.5	2.8	111
Kenya	1.9	1.9	2.1	2.1	2.2	2.1	150
Tanzania	2.7	2.5	2.8	2.9	2.9	3.2	94
Uganda	2.1	2.2	2.6	2.5	2.7	2.8	111

Source: Transparency International Corruption Perception Index, 2007

The perception of corruption has been criticized for only including business people and ignoring the perceptions of the wider population. The World Bank has proposed

another index, and the Ease of Doing Business Index (EDBI) data. Table 4.5 shows that Kenya is the easiest place to do business within the region. The EDBI was created by the World Bank (2007) as an indicator of how easy it is to start a business, deal with licences, hire and fire workers, register property, get credit, protect investors, pay taxes, trade across borders, enforce contracts and close a business.[19] This implies a need to simplify regulations for business and strongly protect property rights. As with the economic freedom index, the EDBI has a positive association with economic growth (EDB, 2007).

Table 4.5 Ease Doing Business Index in EAC Countries, 2007

Country	World Rank
Burundi	175
DRC	178
Rwanda	150
Kenya	72
Tanzania	130
Uganda	118

Source: World Bank Doing Business Report 2007

Despite political instability, EAC countries have continued to develop political and economic cooperation in their efforts to solve the problems of poverty. For instance, they have formed regional trading arrangements such as the East African Community (EAC) for Kenya, Tanzania and Uganda, and the Economic Community of the Great Lakes Countries (CEPGL) for Burundi, the former Zaire (now the Democratic Republic of Congo) and Rwanda. After the collapse of the CEPGL in 1994, Burundi and Rwanda applied to join the EAC. In terms of communications and transport, the East of the DRC depends on the rest of the East African countries and has shown great interest in joining the Community.

4.5 Overview of Economic Structure, Socio-Economic Conditions and Macroeconomic Performance

Economic and social conditions in East African countries depend largely on the structures of their economies. The East African economy is dominated by agriculture, with 85% of the population dependent on the agricultural sector which provides the

[19]See The World Bank Group Doing Business Report 2007

main export revenues necessary for investment (Deaton, 1999). Table 4.6 shows that the main primary commodities that account for more than 10 per cent of total exports in each country are coffee and tea, suggesting that the East Africa countries are overwhelmingly agricultural exporters. The exports of primary commodities such as coffee and tea account for 90 per cent of foreign exchange earnings in Rwanda, Burundi, Tanzania and Uganda. Although Kenya also relies on primary commodity exports such as coffee, tea and horticulture, its economy has emerged as a major exporter of manufacturing products in the East Africa region.

Table 4.6 Share of Agricultural Exports as Percentages of Total Exports in the East African Countries, 1990

Countries	Export Commodities	Commodities with 10 Percent or More of Total Exports	Share of All Exports in GDP
Burundi	Coffee, tea, sugar, cotton, nickel	Coffee (75%), tea (10%)	8%
Rwanda	Coffee, tea, tin, gold,	Coffee (61%), tea (10%), God (10%)	43%
Kenya	Tea, horticultural products, petroleum products, fish, cement	Coffee (14%), oil (13%), Tea (19%)	26%
Tanzania	Coffee, fish, maize, beans, sesame seeds	Coffee (19%), cotton (18%), Sugar (13%)	13%
Uganda	Coffee, cashew nuts, cotton, gold	Coffee (79%)	72%

Source: Adapted from Deaton (1999)

According to statistics published by the World Bank (2007), most African countries are classified as low GDP per capita countries, indicating that they are countries where people are not getting enough goods and services to satisfy their needs. National income is measured by Gross Domestic Product (GDP) per capita. Table 4.7 shows that the EAC countries have low GDP per capita and GDP in terms of purchasing power parity (GDP-PPP) per capita. The international comparison of income is made on the basis of GDP per capita. This indicator has been criticized because it does not take into account the differences in the costs of living in different countries. Therefore international comparison is also made on the basis of purchasing power parity (PPP), which removes the exchange rate problem.[20] Table

[20]According to economic theory, the basic concept underlying PPP theory is that the changes in a country's money stock affect both price levels and nominal exchange rate. The interaction between these two suggests a direct linkage between a country's price levels and its nominal exchange rate. Arbitrage forces will lead to the equalisation of the prices of goods and services internationally once prices are measured in the same currency. This is the 'law of one price' which states that identical goods will sell for an equivalent price regardless of the currency in which the price is denominated (Yarbrough, 1997).

4.7 shows also the GDP (PPP) per capita, which measures decent standards of living in EAC countries. The Human Development Index (HDI) measures the achievement in three basic dimensions of human development (World Bank, 2007). These are: (1) life expectancy at birth, which measures a long and healthy life; (2) the adult literacy rate, which measures knowledge and the level of education; and (3) GDP per capita at purchasing power parity, which measures the standard of living[21]. These dimensions of human development are considered as the most appropriate indicators of economic and social well being.

Table 4.7 Gross Domestic Product, GDP per capita in EAC Countries, 2007

Country	GDP per capita	World Rank	GDP (PPP) per capita	World Rank
Burundi	103	179	729	178
Rwanda	270	169	1,278	159
Kenya	608	139	1,316	162
Tanzania	324	165	751	175
Uganda	312	167	1519	173

Source: World Bank, World Development Indicators 2007

Table 4.8 shows that Kenya and Uganda are in the category of medium human development and the other countries in the region fall in the category of low human development (World Bank, 2007).

Table 4.8 Human Development Index in EAC Countries, 2007

Country	HDI	World Rank
Burundi	0.413	167
Rwanda	0.452	161
Kenya	0.521	148
Tanzania	0.467	159
Uganda	0.505	154

Source: World Bank, Human Development Report, 2007

As mentioned above, the GDP per capita indicator of national income has been criticized for ignoring broader aspects of welfare. The human development index was an attempt to assess well-being across countries[22] (World Bank, 2007). The human

[21]HDI represents the average of three indices representing human development dimensions, namely: life expectancy index,, education index, and GDP index.

[22] HDI represents the average of three indices representing human development dimensions, namely: life expectancy index, education index, and GDP index. According to the Human Development Report (2007)

development index is a comparative measure of life expectancy, literacy, education and standard of living for countries worldwide. It is a standards means of measuring well-being and is used to distinguish whether the country is a developed, a developing or under developed countries. However, the HDI does not measure psychological states. It is believed that true human development could only take place when economic, social and spiritual developments occur side by side. To measure human development performance, various measures of well-being and happiness have been developed. These include income, education, job satisfaction, and family satisfaction.

Economists are accustomed to comparing countries' well-being in terms of economic and social development indicators (GDP) and HDI). Recently the New Economics Foundation (2007) has introduced the Happy Planet Index (HPI), which challenges these conventional indicators and takes into account environmental sustainability. According to Living Planet Report (2010), the HPI is international comparison of success or failure of countries in supporting a good life for their citizens, whilst respecting the environmental resources limits upon which all our lives depend. It is an innovative new measure that shows the ecological efficiency with which human well-being delivered. A country's HIP is an index of human well-being and environmental impact, meaning that citizens are achieving long, 'happy lives' without over-stretching the planet's resources. In that sense the HPI is function of three components: life satisfaction, life expectancy at birth, and ecological print.

According to Living Planet Report (2010), ecological footprint is an indicator of 'how much land and sea is needed to provide the energy, food and materials people use in everyday lives, and how much land is required to absorb their waste', measured in global hectares per capita. The global hectare (gha) is a measurement of biocapacity of the entire earth - one global hectare is a measurement of the average biocapacity of all hectare measurements of any biologically productive areas on the planet. The practical range for life expectancy at birth in nations varies between 30 and 80, whereas the average happiness varies on a 0-1 scale. The

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countries fall into four broad human development categories: very high (0.938-0.784), high (0.783-0.677), medium (0.677-0.489), and low (0.488-0.140). The first category is referred to as developed countries, and the last three categories are grouped in developing countries.

ecological footprint range from 0.5 gha to 10.2 gha. Considering the ranges of three components, the value of HPI is given by the equation (4.1).

$$HPI = \frac{\text{Life Expectatancy} * \text{Life Satisfactionor Hapiness}}{\text{Ecological Footprint}} \quad (4.1)$$

According to New Economics Foundation (2007) the value of world HPI ranges from 16.6 to 68.5. In equation (4.1) life-expectancy in years is multiplied by average happiness on a 0-1 scale. The product known as happy life-expectancy can be considered as the number of years the average citizen in a country lives happily at a certain time.

While happy life expectancy appears to be highest in industrial countries (about 80) and lowest in Africa (below 40), the ecological footprint is higher in industrial countries and lower in developing countries. A country with a large per capita ecological footprint uses more than its fair share of resources, both by drawing resources from other countries, and also by causing permanent damage to the planet which will impact future generations. Table 4.9 shows that Kenya, Tanzania and Rwanda are the best scoring countries in the region in terms of happy planet index. However much criticism of the HPI comes from the fact that measures of happiness or life satisfaction are subjective, personal and cultural.

Table 4.9 Happiness Index in EAC Countries, 2007

Country	HPI	World Rank
Burundi	19.02	176
Rwanda	28.35	152
Kenya	36.70	127
Tanzania	35.08	134
Uganda	27.68	158

Source: New Economic Foundation Report 2007

4.6 Macroeconomic Performance.

The poor macroeconomic performance experiences in Sub-Sahara African countries have been a subject of great concerns over the past three decades. The African countries as a group share some similarities in terms of growth and macroeconomic

management. Since the 1980s African countries have experienced declining growth, fiscal and trade deficits, and large external debt. While the causes of poor macroeconomic performance are several, the generally agreed explanation places the blame on the inadequate interventionist policies of the 1960s and 1970s. These include: (1) excessive government ownership and control of enterprises, (2) excessive budget deficits and the printing of money to finance fiscal deficits, causing high inflation; (3) poor financial markets; (4) exchange rate pegging and exchange controls; (5) low degrees of diversification; (6) inflationary environments; (7) deficits in the balance of payments and the debt crisis; and finally (8) the 1980s economic crisis (Collier and Gunning, 1999a; Fosu, 1999; Agenor and Prasad, 2000; Agenor, 2004). Table 4.10 surveys some of theoretical and empirical literature on key macroeconomic variables that will be used to investigate growth and macroeconomic convergence and sustainability hypothesises in the context of East African countries.

Table 4.10 Theoretical and Empirical Studies on Poor Performance in African Countries

Poor Performance	*Theoretical and Empirical Studies*
Slow Growth	Collier and Gunning (1994), Ghura,(1995), Savides (1995), Easterly and Levine (1997), Bloom and Sach (1998), Galup et al. (1998), Collier and Gunning (1999a ; 1999b), IMF (1999), Fafchamps (2000); Easterly (2001a), McPherson and Rakovski(2001), Azam et al., (2002), Atadi and Sal-i-martin(2003), Berg and Kruger (2003), Block and Stern (2003), Easterly and Levine(2003), Hansen and Kvedars, (2004), Sachs and Warner(2007), World Bank(2008).
Price Instability	Savides (1995), Michael (1996), Mkandawire and Saludo(1995), Ndulu(1995), Sen(1999)
Exchange Rates Instability	Temple (1980), Easterly and Levine (1995), Ghura (1996), Agenor(2004), Mkandawire and Saludo(1995)
Unsustainable Fiscal Deficits	Temple (1980), Edward (1993), Hidjimachel(1994), Fischer(1993), Savides (1995), Hoffmaister(1997), Galup et al.(1998), Croce and Ram(2003), Asiama (2004)
Unsustainable Current Account Deficits,	Ley(1975); Ram(1987), Saches and Warner (1997) Nureldin(1999), Hussain(1999), Kose and Reizam(2001), McCombie and Thirlwall(2003)
Unsustainable Public Debt.	World Bank(1981), Ezenue(1991), World Bank(1994), Fosu(1999), Roubini(2001), Clements *et al.(*2003), Arnone et al.(2005).

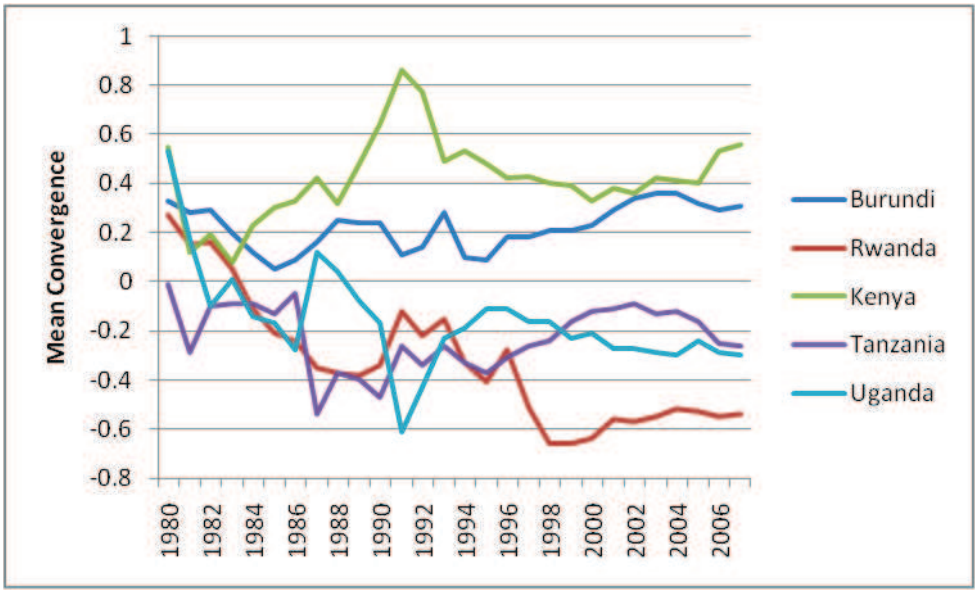
Sources: Compiled by Author.

The following section now analyses the evolution of key macroeconomic indicators collected by the governments and compiled by IMF (1999, 2002, and 2007) and World Bank (1993, 2000, 2005, 2007). They show how the East African countries have performed far from well over time.

4.6.1 Gross Domestic Production

The GDP annual growth rate and GDP per capita are important indicators that show economic performance of the economy and the well-being of the population. For many years the African countries including those of East African countries were characterised by low income and poverty trap. In this situation, the forces acting on the dynamic economic system - savings rates, population growth rates - are unchanging and the growth process has become static or stagnant. As it can be seen in Figure 1, chapter II, when a country attempts to break out the poverty trap, then the economy has the tendency to return to the low level steady state (Barro and Sala-i-Martin, 1995). The poverty trap prevents poor African countries from catching up with rich countries or from converging to a new steady state. Figure 4.1 shows persistent declining GDP per capita in the EAC member countries over the period 1980-1992. However, during the period 1994-2006 the East African economy experienced an increasing GDP per capita. Since 1997 Kenya has remained a rich country within the region, mainly due to the strength of its services and manufacturing sectors. Kenya is followed by Tanzania and Uganda (IMF, 1999, 2007). Renewed fighting in Burundi and Rwanda has threatened peace and resulted in a contraction in economic outcomes. Poor security conditions have continued to restrict economic activity, although in Rwanda economic prospects have steadily improved since the end of the period of genocide in 1994. Large inflows of external assistance have continued to finance activities in construction, agriculture, manufacturing and services. Burundi has registered the poorest economic performance in the region, with declining growth during the 1986-2002 periods (IMF, 1999, 2007). A number of factors explain the country's poor performance, especially civil war and social instability, weak public institutions, poor governance, and macroeconomic uncertainty.

Figure 4.1 GDP Per Capita in EAC Countries, 1980-2007

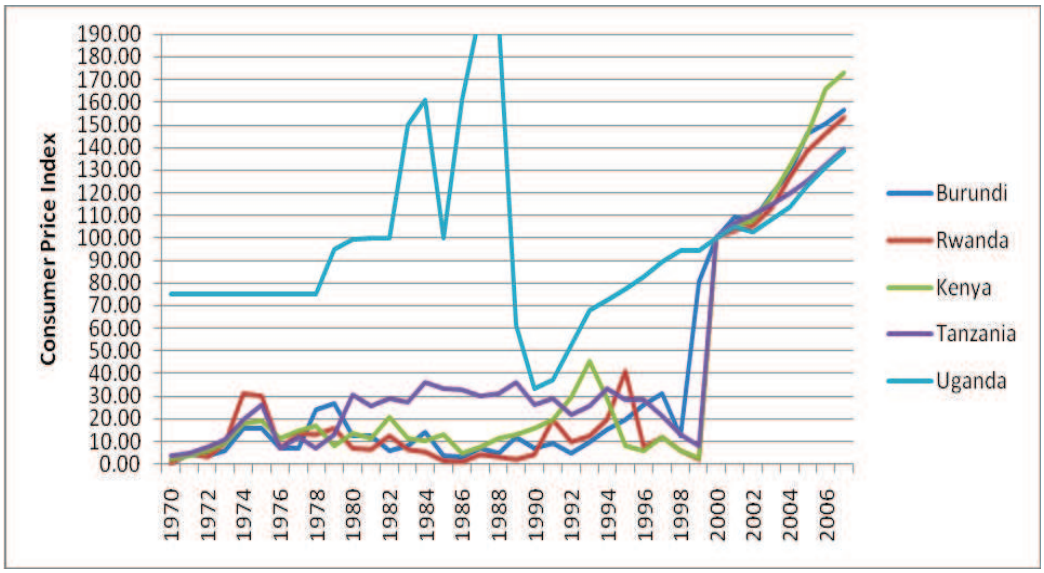


Source: Calculated from Data in Table A1, Appendix A

4.6.2 Inflation

Inflation is a monetary phenomenon defined as a sustained increase in overall price levels. Some economists believe that sustained inflation occurs only if the central bank increases the money supply. According to economic theory, inflation is caused by an increase in aggregate demand (demand shocks) or increases in the costs of factors of production (supply shocks) such as oil prices, and wage rigidities. In developing countries inflation is caused mainly by fiscal imbalances (triggering the growth of the money supply) or by a balance of payments crisis which forces the exchange rate to depreciate. Figure 4.2 shows the pattern of inflation in East African countries. Over the period 1970-1999 inflation was in double digits in countries like Burundi, Rwanda, Kenya, and Tanzania. Inflation reached three-digits levels during the period 2000-2007 (IMF, 1999, 2007)

Figure 4.2 Consumer Price Index in EAC Countries



Source: Calculated from Data in Table A3, Appendix A

4.6.3 Government Spending

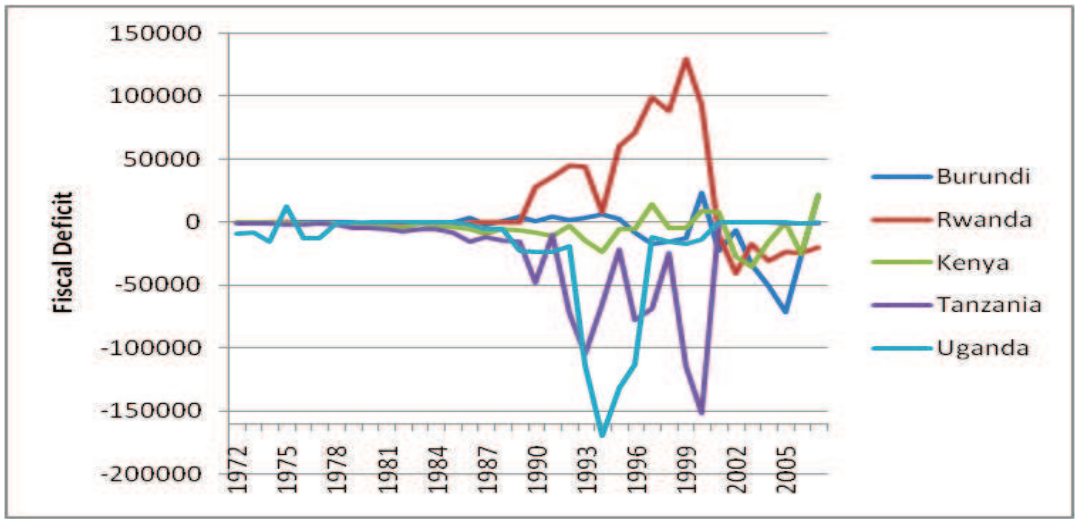
General government spending comprises all current expenditure for purchases of goods and services by government bodies (including central, regional and local government, separately operated social security, and international authorities that exercise tax or government expenditure functions within the national territory). It includes the outlays of public non-financial enterprises and public financial institutions. With regards to the important role of the state, some governments in developing countries are obliged to run excessive fiscal deficits. Government budget deficits have proven to be a lasting problem in EAC countries. The question is to what extent governments will continue to run fiscal deficits (IMF, 2002, 2007)

Some economists such as Sawada (1994), Chalk and Hemming (2000), and Croce and Ramon (2003) believe that governments can run fiscal deficits as long as additional future tax revenues are supported by future generations and there is no creation of money, which can lead to inflation. Inflation may aggravate the problem of financing a deficit, since it raises the nominal interest rate. In addition a government can run fiscal deficits if the economy's real growth rate of output and income equals or exceeds the real interest rate. Many other economists believe that excessive fiscal deficits and growing public debt may hinder economic growth. This is because

domestic savings diverted into financing the government budget deficit are unavailable to finance private investment spending, which is a source of economic growth (i.e. there is a 'crowding out').

Although the EAC countries have embarked on macroeconomic stabilization reform, tight fiscal policy has been less homogeneous, varying according to the pressing economic and social priorities of each country. Figure 4.3 shows that Rwanda kept control over expenditure during the period 1986-2000, whereas Burundi recorded a surplus over the period 1987-1995. Other countries, particularly the founding members of the East Africa Community, were running persistent deficits during the 1972-2007 period (IMF, 2002, 2007). While Kenya is a growing economy in the region, it has failed to achieve the target of a balanced budget. In Uganda, government spending to support the rebel forces against the DRC government strained the public finances during 1995-2001.

Figure 4.3 Fiscal Deficits in EAC Countries, 1972-2005



Source: Calculated from Data in Table A2, Appendix A

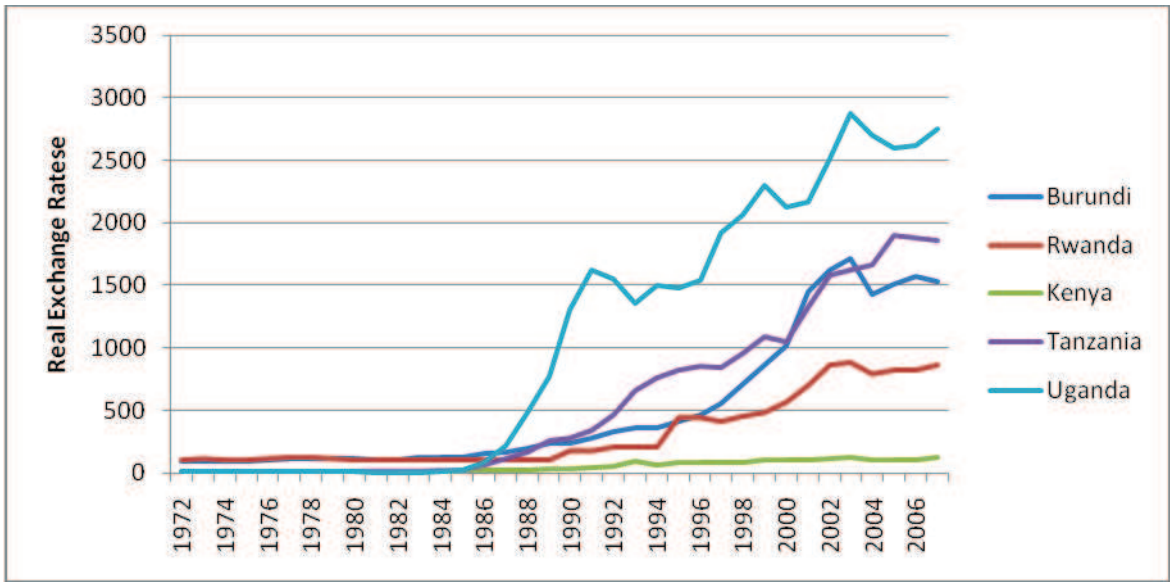
4.6.4 Exchange Rate Policy

Since the 1980s, one of the instruments used for stabilization and structural reform has been monetary policy aimed at macroeconomic stability, particularly via the devaluation of local currencies. The local currencies have been devalued to reflect inflation differentials with their trading partners. In Burundi, for instance, the local currency has lost almost 60 per cent of its value against the dollar since 1993,

depreciating some 20 per cent in 1999 alone. A similar situation applies to the Rwandan franc, which has fallen 55 per cent since 1994, though the currency stabilised in 1999, depreciating by only 3.5 per cent. Kenya's inflation fell from 46 per cent in 1993 to 5.8 per cent in 1998. Similar scenarios applied to Uganda and Tanzania (ADB, 2000).

To maintain their international competitiveness, the EAC countries adopted flexible exchange rate policies during the 1990s, devaluing their currencies in proportion to the difference between their inflation rates and those of their trading partners. Against the dollar, the Kenyan shilling devalued by nearly 70 per cent during the 1990s. As a relatively high inflation economy, Tanzania devalued its currency by some 75 per cent during the 1990s, although as inflation subsided towards the end of the decade it was possible to maintain greater exchange rate stability. The Ugandan shilling lost two-thirds of its value between 1990 and 1993, but thereafter, as inflation was brought under control, the shilling firmed until 1999, when depreciation resumes Figure 4.4 shows that, during the 1990s, the Ugandan currency devalued sharply in comparison with other currencies (MF, 2002, 2007).

Figure 4.4 Real Exchange Rates Indices, Official Rates in National Currency/units SDR



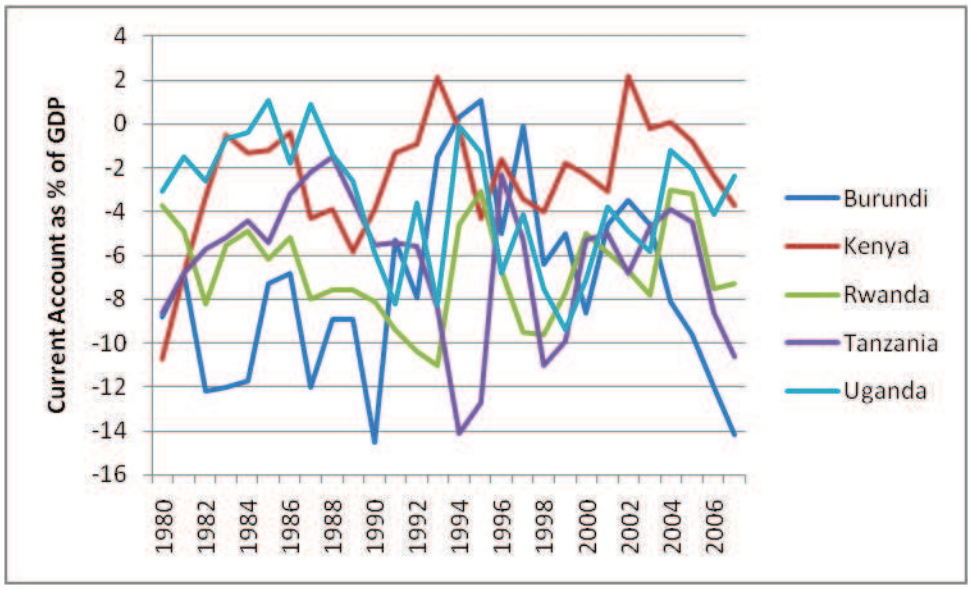
Source: Computation of Data from Table A4 in Appendix A

4.6.5 Persistent Current Account Deficits in EAC Countries

The current account balance comprises the sum of net exports, net factor service

income from abroad and net unrequited transfers (Calderon *et al*., 2002). Figure 4.5 shows that the overall levels of exports in EAC countries have declined over time, leading to persistent current account deficits and the accumulation of external debt during the period 1980-2006 (IMF, 1999, 2007). This may be explained by internal and external factors including the fluctuation of primary commodity prices, economic mismanagement, political instability and civil war. In most of the countries these factors have deterred foreign investors, while also limiting financial aid from donor countries. As a result these countries have had to rely either on the use of their own foreign exchange reserves or increases in external debt to finance persistent current account deficits.

Figure 4.5 Current Accounts as Percentages of GDP in EAC Countries, 1980-2006



Source: Calculated from Data in Table A5, Appendix A

The East African countries, as a whole, registered persistent current account deficit, and several countries including Rwanda, Burundi, Tanzania, and Uganda are heavily indebted and eligible for debt relief under the enhanced Heavily Indebted Poor Countries (HIPC) programme (IMF, 1999, 2007). The failure of East African countries to realize their potential for manufacturing exports can be attributed to a variety of factors, mostly related to the structure of these economies (dependence on primary commodity exports, world prices, and policy failures). One of the main factors accounting for the decline in the value of East African countries' exports is a decline

in the world prices of many of the primary commodities they export. The East African export problem is not simply a general dependence on primary commodities, but also the heavy dependence of most countries on very narrow ranges of primary commodities. Until the 1990s, EAC countries still depended on just two primary commodities (Deaton, 2007). In addition, some of the countries had mono-crop economies, where they depended primarily on one commodity for their export earnings. The lack of diversification of the economies has left these countries at the mercy of not only their former colonial masters but also the whims of international markets. When the prices of their main export products dropped, the revenues for their development plans suffered. East African countries have found that they have had to export more and more of their primary commodities simply to earn enough foreign exchanges to purchase the same quantity of manufactured goods as in the past (ADB-ADF, 2008).

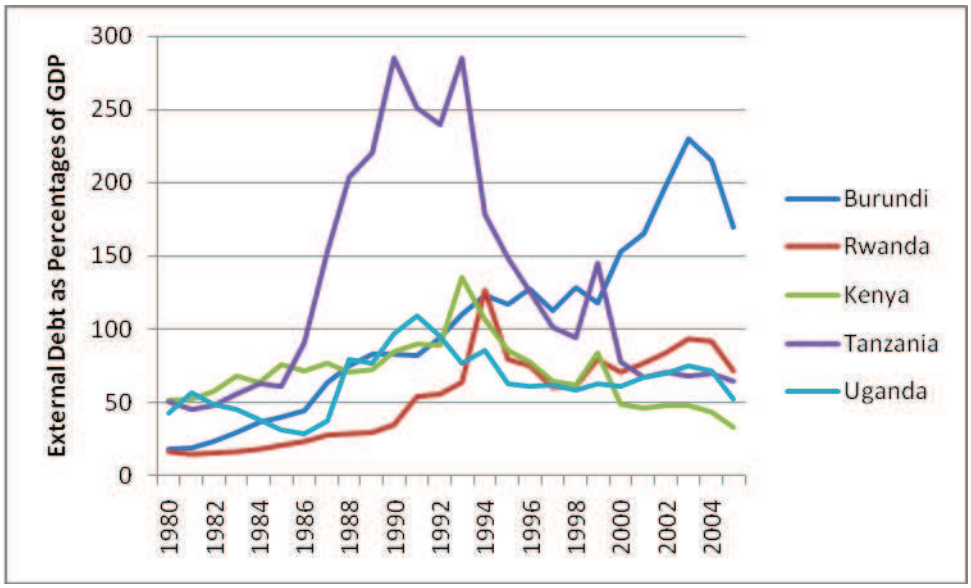
4.6.6 External Debt and Debt Servicing in EAC Countries

According to the IMF's criteria of external debt sustainability the EAC countries are classified as Heavily Indebted Poor Countries, suggesting that they cannot service their external debt stock (Edward, 2002). External debt is the portion of national debt owed to foreigners (governments, banks, businesses and individual investors). The loan is repaid with interest payments. This constitutes 'debt service payments'. The debt burden is measured by the debt-to-GDP ratio. This criterion has been used to judge whether a country's level of external debt is sustainable. Pattillo *et al.* (2002) found that the overall contribution of external debt to growth becomes negative at 35-40 per cent of GDP. The IMF (2004) has found that external debt is sustainable if the debt-to-GDP ratio does not exceed 20-25 per cent.

Figure 4.6 shows how the debts of EAC countries are unsustainable. The debt service payments-to-export earnings ratio measures the relationship between the principal and interest payments to exports earnings. It is the most important indicator because it shows whether or not additional foreign exchange can be earned and saved to service the debt. This depends on the ability to export, which depends on domestic and international economic conditions. This ratio also indicates the extent to which a country might decide to default on its repayment obligations. In some developing countries a major part of the debt servicing problems since the 1980s has

to do with external factors rather than with policy mistakes (World Bank, 1993, 2000, 2005).

Figure 4.6 Total External Debts as Percentages of GDP in EAC Countries, 1980-2006



Source: Calculated from Data in Table A 6, Appendix A

To the question of why East African countries worry about unsustainable external debt, the simple answer is that external debt is a burden. Financing it means that the interest rates and the principal payments are made to other nations. Therefore purchasing power is transferred to foreigners. Another kind of burden occurs when a government borrows too much to finance its deficits, causing a rise in interest rates which leads to a fall in consumption and investment for households and businesses (Arnone, 2005). However, government capital spending for roads, airports, hospitals, universities and schools is not a burden.

4.6.7 Privatization as an Instrument of Economic Reform

Privatization has been adopted as an instrument of macroeconomic reform where governments see it as a means of raising revenue, eliminating state subsidies to wasteful and inefficient state owned enterprises, and improving economic efficiency (ADB-ADF, 2008). Despite this trend towards privatization, there is resistance in EAC countries largely reflecting concern over job losses and a lack of participation by wage earners whose incomes and savings are low. Through the privatisation of publicly owned enterprises the East African countries have also liberalised FDI

regulatory regimes, relaxing mandatory joint-venture requirements, reducing the number of industries closed to foreign investors, and expediting investment approval procedures.

This section described the East African countries as characterized by slow growth, persistent fiscal and current account deficits, and huge external public debt since 1980s. The poor economic performances have raised question about what types of policies that have been proposed to promote growth and macroeconomic stability.

4.7 Alternative Development Strategies to Promote Growth in African Countries

The recent theoretical and empirical literature suggests that economic growth is a result of accumulation of physical and human capital and technological progress. These are directly or indirectly influenced by fiscal and monetary policies, public investment, low inflation, openness to trade and capital flows, financial development, social institutions, and political, legal and social institutions (Ficher, 1993; Hidjimachel, 1994; Tanzi and Davoodi, 1997; Acemoglu *et al*., 2003; Lora *et al*., 2003; Commission on Growth and Development, 2008). Countries with these appropriate macroeconomic characteristics tend to grow faster than those without them. Numerous examples illustrate this assumption. The achievements in economic growth in most rich countries during the golden period (1950-75) were facilitated by interventionist policies that promoted investment in human and physical capital. Growth was helped by macroeconomic discipline with the absence of fiscal and trade deficits, low inflation, and stable factor-income shares. The high economic growth performance in the newly industrialised economies also seems to be associated with macroeconomic policies favouring low inflation and sound fiscal and trade policies.
A question naturally arising from this is whether or not development economists and African policy-makers have drawn from the practical growth strategies mentioned above.

There is a disagreement among economists on the root causes of Africa's poor macroeconomic performances and consequently on policy prescriptions. Each theory may provide useful insights but comes with a different set of policy prescriptions. It is impossible to confirm which of the different arguments is correct and which is not. Each may contain an element of truth (Fafchamps, 2000).

Disagreements among economists have raised two crucial questions: Are growth theories still useful for growth policy for African countries? Can growth theories and policies that explain growth performance in OECD countries and newly industrialized countries also explain Africa's slow growth? To answer these questions, one can agree with Winford and Papageourgio (2003) that the determinants of growth in African countries are different from those in the rest of the world and there is no easy policy application that can work perfectly in African countries. However, because economic analysis deals with the problem of making rational choices under budget constraints and conditions of the scarcity of resources, economic theories are relevant to all nations regardless of their initial conditions and levels of economic development. Economists should apply them carefully to growth policy in African economies. In addition, if economists could correctly assess and understand the role of internal and external factors and understand the barriers to economic growth that prevent African countries escaping the poverty trap, they could prescribe an appropriate economic growth policy.

Historically, there has been continuing debate over appropriate growth strategies in African countries. It is generally accepted that over the successive phases of development, from the 1940s to the 1990s, the focus was on trade–led growth: the 1940s-1960s preferential trading arrangements, the 1960s-1970s import-substitution industrialisation, the 1980s-1990s trade liberalization or structural adjustment programmes, and the 1990s regional trade policies. Each of these development strategies provides useful insights and comes with different arguments. It is not easy to confirm which of these different types of development strategies is better (Fafchamps, 2000). The policy prescriptions recommended by each side of such debate may be derived from different ideological positions or philosophical views of the world. However, it is obvious that a good growth policy must be associated with strong economic performance. This section reviews alternative development strategies and their historical records.

4.7.1 The 1945-60s Colonial Preferential Trading Agreements

During the 1910s-1950s a new growth strategy for the colonial administrations was to increase colonial investment and to establish Preferential Trading Agreements (PTAs) in the colonies in order to secure primary commodity markets. The pattern of

preferential trade arrangements was accompanied by capital flow in the form of public investment. In preparation for independence in the 1960s, the colonial powers took for granted that African countries would continue to be an important market for their economies. The colonial state's interests were to maintain privileged colonial ties by diplomacy and trade. France and Britain's ongoing involvement with the majority of their former colonies took place within the context of preferential trade agreements in which public investment in the colonies was driven by needs expressed by the colonial states in different areas such as plantations, extractive industries, shipping and insurance(Promfret, 1997; Fieldhouse, 1984). Economic performance under these preferential trading arrangements was predicted to grow, leading to prosperity in African countries, while Asia was doomed to remain stagnant. Colonial capital flow was accompanied by substantial achievements in economic performance and changes in the growth of per capita income. Table 4.11 shows that Asia stagnated at an annual growth rate of around - 0.2 per cent whilst Africa grew at 1.02 per cent during the period 1913-1950 (Maddison, 2002). The explanation for this is that colonial states were deeply committed to developing the colonial economies because Africa would continue to be an important market for the raw materials needed for manufacturing and industrial production in colonial states.

Table 4.11 Growth of Per Capita Income, 1000-1998 (Annual Average Compound Growth Rates)

	1000-1500	1500-1820	1820-1870	1870-1913	1913-1950	1950-1973	1973-1998
Western Europe	0.13	0.15	0.95	1.32	0.76	4.08	1.78
Western Offshoots	0	0.34	1.04	1.81	1.55	2.44	1.95
Japan	0.03	0.09	0.19	1.48	0.89	8.05	2.34
Asia	0.05	0	-0.11	0.38	**-0.02**	2.92	3.54
Latin America	0.01	0.15	0.1	1.81	1.42	2.52	0.99
Eastern Europe	0.04	0.1	0.64	1.15	1.5	3.49	-1.1
Africa	0.01	0.01	0.12	0.64	**1.02**	2.07	0.01
World	0.05	0.05	0.55	1.3	0.91	2.93	1.33

Source: Maddison (2004)

4.7.2 The 1960s-1970s Import-Substitution Industrialization

Under the colonial preferential trading arrangements, the colonies were forced to specialise in one or a few land-based activities such as agriculture and mining which

were subject to diminishing returns (Emmanuali, 1969). In this case, international trade could not serve as an engine of growth in developing countries as it had during the nineteenth century in industrialised countries, which specialized in manufactured products with high value added. Primary commodities have both a low price and income elasticity of demand, and thus developing countries are highly vulnerable to fluctuations in commodity prices and are subject to deteriorations in the terms of trade (Prebisch, 1957; Furtado, 1970). It is against such unfair specialization that the radical 'dependency school' suggested the idea of the disconnection of developing countries from the international trading system dominated by powerful colonial capitalist countries. Some developing countries adopted import-substitution industrialization (ISI) policies aimed at disconnecting developing countries from the world economy, and thus creating a larger market. By widening markets, together with the protection of vital economic sectors, economies of scale would ultimately increase trade among member countries and promote economic growth and development (Kiggundu, 1990). The Lagos Plan for Action (LPA) was the most ambitious scheme for the development of intra-African trade as well as other elements of economic integration. The LPA looked forward to the eventual establishment of an African Common Market leading to an African Economic Community. Industrialization was a central feature of the LPA, with a fundamental role for intra-African industrial co-operation and trade expansion. The LPA emphasised collective self-reliance through the eventual creation of regional integration in key economic sectors such as industry, transport and communications, human and natural resources, and science and technology. The central question is whether or not the 1960s import-substitution industrialisation policies could achieve satisfactory results (OAU, 2002).

Based on historical records, the findings in Table 4.12 reveal that between the 1960s and 1970s the macroeconomic indicators were promising. In the early years many African countries successfully expanded their economic performance. The 1960s inward-oriented industrialization strategies worked very well for about 10 golden years prior to the 1980s international debt crisis. According to Easterly (2001a), between1965-73, the average real GDP growth in African countries was 4.0 per cent, as compared to 2.7 per cent in 1980-1985.

Despite the achievements of good economic performance, import-substitution industrialisation has however been blamed for leading to economic mismanagement

and the 1980s economic crisis. While the latter can be explained by both internal and external factors, the general explanation considered so far by the Washington Consensus[23] places the blame on inappropriate inward-looking trade policies and obstacles to trade and finance (Rodrik, 1996). In its assessment of the root causes of the 1980s economic crisis in developing countries, the 1981 Berg Report attributed much weight to misguided and overly expansionary fiscal policies and highly distorted inward-oriented trade policies of the 1960s import-substitution policies that created a heavy bias against exports. The 1960s-70s import-substitution and regional integration policies were accused of leading to economic mismanagement (World Bank, 1981).

According to the Washington Consensus, the 1980s economic crisis originated in microeconomic rigidities and particularly government-induced policy that hindered the functioning of specific markets (Williamson, 1993). The lack of private entrepreneurs in newly independent states in the 1960s led to extensive government ownership and control of the banking and monetary sector. Governments indirectly and directly owned and controlled large productive sectors of the economy and engaged in inefficient business enterprises. As a result governments adopted misguided microeconomic policy rigidities. The state-owned enterprises were protected from international competition and received substantial subsidies to keep them in business. Expansionary fiscal policies produced fiscal deficits and inflation. This discouraged domestic savings and encouraged capital flight as domestic savers placed their money in foreign assets with secure real returns. In attempts to prevent capital flight, governments used capital and foreign exchange controls. These microeconomic policy rigidities had a significant impact on the behaviour of aggregate macroeconomic variables such as GDP, the balance of payments and external debt (Agenor, 2004).

4.7.3 The 1980s Macroeconomic Stabilisation and Structural Reform Policies

Following the 1980s economic crisis, most African countries embarked on

[23] The term 'Washington Consensus' refers to Williamson's (1993) perception of broad agreement, among public officials in both the industrial economies and international institutions on the importance of the neo-liberal programme for economic development and its emphasis on free markets, trade liberalisation, and a greatly reduced role for the state in the economy.

macroeconomic stabilization and the structural reforms crafted by the IMF and World Bank. The content of the stabilisation and adjustment policies included fiscal discipline, the redirection of public expenditure priorities towards health, education and infrastructure, tax reform, interest rates liberalisation, competitive exchange rates, trade liberalisation, liberalisation of the inflow of foreign direct investment, privatisation, deregulation, and secure property rights (McPherson, 2001).

In the structural adjustment programme, trade liberalization was adopted as the sole answer to the 1980s economic crisis (Hoffmaister *et al*., 1998). In the view of the World Bank (1994), inadequate trade policies accounted for Africa's economic stagnation and economic reform would be necessary to restore both internal and external balance. There are two reasons which explain this prominent role for trade and financial liberalisation. The first is that economists, foreign donors and international bankers believed that the economic crisis occurred in the 1980s just as developing countries embraced the import substitution industrialisation policies (Kose and Reizman, 2001). It is obvious that the recommendations from foreign creditors, and particularly the IMF and World Bank, tried to force debtors toward trade liberalization in order to be able to pay the debts accumulated during the 1970s. The creditors perceived the debt crisis not as a solvency problem but as a temporary liquidity problem which could be solved by improving the balance of payments via export earnings. For this reason free trade might be adopted as the sole answer to the economic crisis. The second reason is that the advocates of free trade liberalization, or the export-led growth hypothesis, suggest that developing countries could imitate the example of East Asian countries. They were seen as successful in achieving high and sustained growth since the end of the 1960s because of their free-market, outward-oriented or export-led economies (World Bank, 1993). In order to service their debt, many developing countries were obliged to adopt the export-led orientation policy because most of them relied on the IMF and World Bank assistance to implement their own policies. In addition, promoting exports would enable developing countries to address the issue of current account deficits and at the same time ensure that their economies would make a full recovery. Consequently, the opening up of their economies was seen as the engine of growth that would bring in foreign capital inflows, technology, expertise, and access to international markets.

By the end of the 1990s, there was recognition that structural adjustment programmes had failed to bring about macroeconomic stability and sustained growth (Dhonte, 1994). In its 1994 report, the World Bank admitted that the structural adjustment programme alone was unable to achieve sustainable growth and poverty reduction in developing countries. The evidence is that the economic performance of countries that had adopted structural adjustment policies in the 1980s was disappointing. Indeed, as Table 4.12 shows, from 1965-73 the average real GDP growth in African countries was 4.0 per cent, as compared to 2.7 in 1980-1985. Things became worse due to two oil price shocks in the 1970s. Exports declined significantly, on average, by about 2.9 per cent during the 1980-85 period (ADB, 2000). In the face of the reductions in export volumes and declining commodity prices, many African countries resorted to heavy external borrowing to sustain levels of expenditure achieved during the earlier economic boom. Table 4.12 shows that, by the end of the 1980s, the external debt/GDP ratio increased from 23 per cent between 1974-79 to 61.8 per cent between 1986-1994, while the debt service-export ratio rose from 7 per cent to 26.2 per cent. Average investment rates rose to 20 per cent of GDP in the 1970s. Foreign capital inflows declined dramatically from $12.2 billion in 1973-1979 to $8.5 billion in 1975-1994 because of worsening domestic economic performance (ADB, 2000). The well-known 'drying up' of foreign capital flows began with the 1982 international debt crisis.

Since the 1990s, only six countries in Asia and Latin America (Chile, Indonesia, Korea, Malaysia, Mexico, and Thailand) account for a significant proportion of the total capital inflow to developing countries. At the same time, Africa as a whole attracted very little capital inflow, and this situation has persisted in the following decades, so that while the FDI flows to East Asia reached $55billion, sub-Saharan countries received only $8billion. These differences in FDI inflows may explain the economic miracle in Asia and the economic tragedy in Africa (Bhattacharya *et al*., 1997). There are several factors which explain why foreign capital could flow to African countries: (1) sizeable domestic markets; (2) resource endowments, including natural and human resources; (3) infrastructure facilities, including transportation and communication networks; (4) macroeconomic stability, signified by stable exchange rates and low rates of inflation; (5) fiscal and monetary incentives in the form of tax concessions; (6) political stability; (7) a stable and transparent policy framework; and (8) a strong commitment to East African regional

integration. It is obvious that, except for natural resources, many such determinants make returns on investment highly uncertain and they explain why African countries have received such an insignificant part of overall FDI inflows. This has complicated the development process, halting economic growth and causing poor economic performance in many African countries (Dupasquier and Osakwe, 2006).

Table 4.12 Africa's Economic Performance (%) (1965-2002)

	1965-1973	1974-1979	1980-1985	1986-1994	1995-1999	2000	2001	2002
GDP Growth	4.0	2.9	2.7	2.2	3.4	3.2	3.6	2.9
GDP Per Capita Growth	1.5	0.0	-0.2	-0.5	1.1	0.8	1.3	1.5
Rate of inflation	5.6	12.7	15.7	22.2	13.3	16.6	11.9	9.4
Fiscal Balance (% of GDP)	-5.1	-5.4	-7.8	-6.6	-2.7	-1.9	-2.8	-3.4
Investment/GDP Ratio (%)	20.0	26.0	23.7	21.4	19.6	18.5	19.2	19.7
Export Growth	8.2	2.6	-2.9	3.3	4.3	3.4	0.2	2.0
Import growth	7.4	6.2	-1.0	1.0	6.2	2.2	2.9	2.8
External Debit/GDP ratio	20*	23.0	42.8	61.8	60.1	58.6	52	60.3
Debt Service/Export Ratio	6.2	7.0	21.1	26.2	20.2	16.2	17.4	21.2
FDI ($billion)	12.2	8.5	18.8	11.0	12.1	14	12.2	8

Source: African Development Bank Reports 2000: World Development Indicators 2000, 2001, 2002.

4.7.4 Marginalisation of African Countries in the Global Economy

Regarding trade performance, Table 4.13 shows that exports declined significantly, from 8.2 per cent in 1965-1973 to -2.9 per cent during the 1980-85 period. As a result imports also declined significantly from 7.4 per cent in 1965-1973 to –6.2 per cent in 1980-85 (ADB, 2004). According to the WTO (2003), the expansion of global trade gained considerable momentum during the 1999-2000 period. World merchandise trade grew by 4.5 per cent in real terms. The most dynamic trading regions in 2003 were the Asia transition economies and some Latin America countries. Africa's share of world exports (2.3 per cent) was still lower than ten years previously. In global terms, despite trade reforms, sub-Saharan Africa has exhibited poor trade performance over the last two decades. As can be seen in Table 4.13, Africa's share of world merchandise trade, in terms of both exports and imports, declined between 1990 and 2000. The African region accounted for just over 3.1 per

cent of world merchandise exports in 1999, but this had declined to a 2.3 per cent share by 2000(ADB, 2004).

Table 4.13 Regional shares of World Merchandise Trade, 1990 and 2000

REGION	EXPORTS		IMPORTS	
	1999	2000	1999	2000
North America	15.4	17.1	18.4	23.2
Western Europe	48.3	39.5	48.7	39.6
Asia	21.8	26.7	20.3	22.8
Latin America	4.3	5.8	3.7	6
Africa	3.1	2.3	2.7	2.1

Source: African Development Report, 2004

The progressive marginalisation of African countries in international trade can be explained by both internal and external factors. Since the colonial period Africa's trade has been dominated by the concentration on a few agricultural products and minerals, and the orientation of much of its trade is toward the former colonial powers(Deaton, 2003). Table 4.14 shows that, although the share of manufacturing in total merchandise trade has steadily increased in the case of most African countries, agriculture continues to be the main export earner (ADB, 2004).

Rapid trade liberalisation in African countries led to a sharp increase in imports, but exports failed to keep pace, yielding negative consequences on the balance of payments. Table 4.14 shows that primary commodities are the main source of export earnings which depend on world prices and access to world markets. This is a problem beyond the control of developing countries. Trade liberalisation thus meant increased imports without correspondingly increasing exports. Widening trade deficits, deteriorating balance of payments, and worsening external debt have all constrained economic growth prospects, often resulting in persistent stagnation or recession. Consequently, some economists, such as Ademola *et al*. (1997) and Greenaway and Wright (1998), agree that to pressurise developing countries to liberalise their economies would be to help them into an economic crisis, because trade liberalisation is imposed upon countries that are not ready for it. This can contribute to a vicious circle of financial instability, debt crisis and recession.

Developing countries must have the ability, freedom and flexibility to make strategic choices in trade liberalization and investment policies, where they can decide on the rate and scope of liberalisation and combine this appropriately with the defence of local businesses and farms.

Table 4.14 Composition of Regional Exports as Percentage of Regional Total Exports, 2000 and 2002

	Agriculture		Minerals		Manufacturing	
	2000	2002	2000	2002	2000	2002
North America	10	10.7	7.2	7.2	78	76.9
Western Europe	9.4	9.4	7.1	6.9	80.3	80.7
Asia	6.5	6.6	7	7.1	84.2	83.6
Latin America	18.4	19.3	20.5	203	60.5	59.5
Africa	12.9	15.8	59.7	55	24.6	25.2

Source: African Development Report 2000

Most policymakers in developing countries complain that they have not benefited from trade and financial liberalisation. It was believed that the latter would attract the foreign investment necessary for economic growth. But, looking at Table 4.15, African countries have received little foreign capital in comparison with other developing countries (World Bank, 2004).

Table 4.15 Share of FDI Flows and Comparison with GDP, 2002

	Agriculture		Minerals		Manufacturing	
	2000	2002	2000	2002	2000	2002
North America	10	10.7	7.2	7.2	78	76.9
Western Europe	9.4	9.4	7.1	6.9	80.3	80.7
Asia	6.5	6.6	7	7.1	84.2	83.6
Latin America	18.4	19.3	20.5	203	60.5	59.5
Africa	12.9	15.8	59.7	55	24.6	25.2

Source: World Development Indicators (World Bank Database, 2004)

From the economic performance observed so far, a final assessment suggests that SAP policies have not achieved their objectives of macroeconomic stabilisation, structural reform, and trade liberalisation. The failure of SAP policies can be explained by several factors. These include an unrealistic conceptual framework, a misunderstanding of the nature of the African crisis, the world recession, and the breakdown of the international economic system. The failure of the GATT/WTO (from

the Uruguay 1993, Cancun 2001, and Doha 2004 rounds to Hong Kong 2005) to regulate international trade on a non-discriminatory basis, and the IMF's inability to set up new monetary and financial systems, have given rise to the rise of the consideration of regional trading arrangements or regional integration as an extension of structural adjustment programme.

4.7.5 The 1990s Regional Integration as an Extension of the Structural Adjustment Programme

Today regional integration policy is seen as an extension of the structural adjustment programme and as the best available development strategy. According to Steven Radelet (1997, p. 2),

> *"open trade policies coupled with more disciplined fiscal and monetary policies, perhaps by regional cooperation efforts on transport and communication infrastructure, appear to be a more promising development strategy".*

The emergence of regional integration arrangements (RIAs) in the context of structural adjustment programmes during the 1990s in developing countries raised the question of to what extent their strategies and objectives are consistent with SAPs, particularly with regard to market liberalization. In the 1990s regional integration became a major issue in African international economic relations. This occurred at the time of ongoing structural adjustment and trade reform. Any analysis of trade liberalization and development in the African context would be incomplete without some consideration of the relationship between trade liberalization under structural adjustment programmes and regional integration (Mkandawire and Salundo, 1995).

Some scholars, such as Ssemogerere (1994), have tried to rationalise the need for such an alternative benchmark as a step towards setting the foundation for a more serious strategic and conceptual dialogue between the World Bank and African countries. Regional integration policies have been designed to reinforce or complement SAPs. In the beginning some economists and the World Bank saw regional integration and the structural adjustment programmes as incompatible within a multilateral trading system. However, over time they recognised that this

view was incorrect. Donors, and particularly the IMF/World Bank, the European Union and the African Development Bank, now view regional co-operation as an extension of structural adjustment policies, because liberalisation concerns trade not only with the outside world (North-South unilateral liberalisation), but also with immediately neighbouring countries. Enhancing trade links among developing countries naturally strengthens their ability to participate in trade on a global scale, and could lead towards further progress in the direction of non-discriminatory multilateral trade liberalisation (World Bank, 1994).

Regional integration and co-operation are the key ingredients for the next stage of development in Africa. Apart from the logic of extending the market to all trading partners, including immediate neigbours, regional integration and co-operation are also viewed as an answer to the problem of insufficient aggregate demand created by the compression of public spending and the depreciation of exchange rates, by opening up more markets which would stimulate investment in the export sector (Ssemogerere, 1994). The measures taken through regional integration should stress the importance of the regional movement of goods and services, factors mobility, and dismantling payments, transport and other non-tariff barriers to trade and investment. As mentioned above, structural reform emphasised getting prices and monetary/financial accounts right. The new development strategy based on open regional integration should synthesise the various fundamentals (price stability, low inflation, sustainable balance of payments and fiscal deficits). In the context of structural adjustment the value of regional integration lies in its ability to stimulate trade and finance, providing a framework for locking in sound and stable macroeconomic policies that will, in turn, attract investment and form the basis for economic growth.

Regarding economic performance under the 1990s regional integration policies, it is worth noting that African countries have experienced a modest economic recovery since the 1990s. This may be attributed to the continuing structural and trade reforms, and particularly to regional integration policies. Indeed, as Table 4.12 shows, average real GDP growth in African countries was 2.7 per cent in 1980-1985, as compared to 3.4 per cent in 1995-1999. Exports declined significantly, on average, by about - 2.9 per cent during the 1980-85 period and increased by about 4.3 per cent in 1995-1999. Consequently imports increased from -1.0 per cent in 1980-1985 to 6.2 per cent in 1995-1999. Despite increased export

volumes, however, African countries did not improve their external debt which increased from 23 per cent in 1980-1985 to 60.3 per cent in 1995-1999. Meanwhile foreign capital inflows increased dramatically from $8.5 billion in 1975-1994 to $12.20 billion in 2001, and decreased sharply from $12.20 billions to $8 billions in 2002(ADB, 2000).

4.8 Conclusion

Following the failure of structural adjustment programmes, the East African countries declared their intention to revive the defunct East Africa Community. The aim of East African integration is to promote sustained growth and macroeconomic stability in the region via trade liberalisation and monetary and financial integration. To understand the likely feasibility and effectiveness of a wider East Africa Community, there are good reasons to examine the country-specificity and initial conditions under which new East African integration is to take place. There are still substantial differences between EAC countries in terms of geographical and demographical aspects, socio-economic and political conditions, as well as in government policies and economic performance. Every country has its own natural resources, population, and agricultural patterns, as well as industrial and business traditions reflecting their comparative advantages. These differences will not necessarily disappear. It is clear that in the future growth convergence and macroeconomic policy coordination are prerequisites for the success of East African integration. Furthermore one of the major obstacles to its success has been the lack of the political will and leadership to implement treaties establishing a customs union, common markets and monetary integration. There has been distrust and suspicion between heads of states, leading to the collapse of the East Africa Community in 1977.

Although important economic differences may arise from country-specific histories, economic and political systems, legal institutions, resource endowments and many other factors, the East African countries as a group do share some commonalities in their paths towards development. Since the 1960s, in attempts to develop their economies, they have followed the same development strategies and policies, namely the 1960s-70s import-substitution industrialization strategy, the 1980s export-led growth strategy or structural adjustment programmes, and the 1990 regional integration policies.This chapter has examined these alternative

development strategies and their respective performances. Poor economic performance and the failure of the SAPs have signalled the urgent need to find new approaches to development. The desire to link EAC countries together economically and politically through regional integration and co-operation has been regarded as a new development strategy. In seeking to increase economic growth and development in African countries, alternative strategies have been based on preferential trading arrangements, import substitution, trade liberalisation, and regional integration policies. This chapter has explored these different development strategies. The findings show that the colonial preferential trading arrangements and import substitution industrialization policies performed better than structural adjustment programme. The economic recovery in the 1990s may be attributed to the continuing structural and trade reforms, and particularly to regional integration policies. Chapter IV has identified the key macroeconomic variables that will be used to investigate growth and macroeconomic convergence and sustainability hypothesises in Chapter V and VI

Chapter V

Research Methodology and Data Collection

5.1 Introduction

Having explored the relevant literature in chapters II and III, it appears that regional integration contributes to growth and macroeconomic convergence in supply and demand side framework. The most cited example is European integration. After ten years of the implementation of regional integration through the East African Regional Development Strategy, the crucial question that arises is how one can know whether or not the East Africa Community has contributed to the sustainable growth and macroeconomic convergence in order to improve social cohesion, avoid disturbances in regional economies, and improve the external position in the member states. The integrated theoretical framework has suggested appropriate analytical approaches and interpretation of data related to the research question. Subsequent questions as judging the appropriateness of the methodology, the reliability of findings and the efficacy of policy recommendations are not easy questions to answer, partly since researchers conduct scientific inquiry and choose research methodology on the basis of their beliefs and feelings (Lincoln and Guba, 2000). The answers to these questions require an understanding of the philosophical issues, that is, research paradigms and the ontological, epistemological and methodological questions underpinning scientific research.

This chapter explains how the research methodology chosen fits the research topic, research questions and hypotheses and the strategies of data collection and analysis. The following section analyses the philosophical issues that have shaped the research methodology to be used in this study. It clarifies the relationship between philosophy, epistemology, theoretical perspectives, and econometric modelling. Subsequent sections examine the econometric model specification and data collection.

5.2 The Role of Philosophy in Shaping Research Methodology

A piece of research is a systematic, careful inquiry or examination to discover new information or relationships and to expand/verify existing knowledge for some specified purpose (Smith and Dainty, 1991). Researchers are products of their environment, made by a combination of historical circumstances and economic, cultural, social, and political pressures, and the question they ask, the framework they use and the way they interpret empirical evidence all embody value judgements which reflect their backgrounds (James and Vinnicombe, 2002). Basic beliefs and philosophical assumptions determine the research paradigms. Therefore understanding the interconnection between paradigms, ontology, epistemology and methodology allows researchers to avoid confusion about their theoretical framework and approaches to analyse the phenomena and to be able to recognize the positions' others and defend their own positions. The philosophy of research plays an intellectual role as it allows the understanding of logical links between paradigms, theoretical perspectives, methodology and empirical methods of analysis.

5.2.1 Understanding Philosophical Issues Social Sciences

In conducting research in the social sciences including economics, it is essential to understand and clarify the philosophical assumptions or paradigms that underpin the research. According to Khun (1970; p.175),

> *a paradigm stands for the entire constellation of beliefs, values and techniques, and so on shared by the members of a community".*

Barker (1992, p.31) define a paradigm as,

> *the way people see the world in terms of perceiving, understanding and interpretation, a theory, explanation, a model or map".*

Philosophical questions start by asking: what is the nature of reality and what can be known about that reality? How do know what we know? How do researchers go

through the research process? There are several answers to these questions under different paradigms. Based on fundamental philosophical differences, Guba and Lincolin (1994) have identified the main paradigms used in the social sciences including economics. Tables 5.1, 5.2, and 5.3 describe the fundamental ontological, epistemological and methodological questions raised in each paradigm. These questions are interconnected in such a way that the answer to one question implies responses to the others. For instances the answers to ontological questions stem from researcher's paradigm, the answers to epistemological questions depend on the answer to the ontological question, and the answers to methodological questions are also constrained by the answers to both ontological and epistemological questions. This can help to apprehend the nature of economic reality under study, the different ways of gaining economic knowledge, and how economists can go about gaining knowledge, the procedures they can use to acquire economic knowledge , and the data they can collect to answer research questions (Guba and Lincolin, 1994).

Table 5.1 Philosophical Questions in Positivist Paradigm

Ontological Questions	*What is the nature of reality?*	The physical and social reality is governed by natural laws, independent of those who observe it. A mechanistic relationship among variables or social objects.
Epistemological Questions	*What is the nature of Knowledge?*	Knowledge is a systematic way consisting of verified assumptions or hypotheses regarded as facts or laws.
	What is the role of theory?	Theories explain the causal relationships between variables
	How is the theory built and tested?	Theories are built so that they can be tested against observable phenomena or human behaviour
	What is the role of research?	The role of research is uncover reality i.e. natural laws, explain / describe, predict phenomena
Methodological questions	*What is the role of values?*	Science and research are value-free in order to avoid bias
	What methods are to be used	Observation of reality is unbiased, Empirical, structured and replicable observation Quantification and measurement use mathematics and statistics to analyze features of social reality Deductive analysis from data collection and hypothesis testing
	What type of studies should be conducted	Survey studies Verification of hypothesises Quantitative descriptive studies
	When are findings true?	If they are measured, replicated and generalisable There is no role for common sense--only deductive reasoning

Source: Adapted from Guba and Lincolin (1994; 2000), Newman (1997), and Schwandt (1994)

Table 5.2 Philosophical Questions in Post Positivism/ Interpretivism Paradigm

Ontological Questions	*What is the nature of reality?*	Social reality is complex and is constructed differently by different individuals. People‘s minds are not blank slates upon which knowledge is written.
Epistemological Questions:	*What is the nature of Knowledge?*	Knowledge is constructed. It is based on observable phenomena and on people’s subjective beliefs, values, reasons, and understandings.
	What is the role of theory?	Theories are revisable and approximate. Theories are constructed from multiple realities. Theory is shaped by social and cultural contexts.
	How the theory is built and tested?	Theories are built from multiple realities. Theory is shaped by social and cultural context.
	What is the role of research	The role of research is to study mental, social, and cultural phenomena in order to understand why people behave in a certain way. The role of research is to grasp the ‘meaning’ of phenomena and describe multiple realities
Methodological Questions:	*What is the role of values?*	Values are different and are an integral part of social life
	What are methods to be used	Unstructured observation Open interviewing Discourse analysis Case study
	What type of studies to be conducted	Field research in natural settings in order to collect situational information
	When findings are true?	If research has been informed by participants, and scrutinised and endorsed by others. Common sense play a key role

Source: Adapted from Guba and Lincolin (1994; 2000), Newman (1997), and Schwandt (1994)

Table 5.3 Philosophical Questions in Critical Theory Paradigm

Ontological Questions	*What is the nature of reality?*	Reality is shaped by social, political, cultural, economic, ethnic and gender values Reality is a product of the way the mind engages with the cosmos. People reconstruct their own world through action and critical reflection
Epistemological Questions:	*What is the nature of Knowledge?*	Knowledge is dispersed and constituted by the lived experiences and the social relations that structure these experiences. Phenomena or events are understood within social, cultural and economic contexts
	What is the role of theory?	Theories are constructed in a dialectical process of deconstructing and reconstructing the world
	How is the theory built and tested?	Theories are built from deconstructing the world, from analysing power relationships.
	What is the role of research?	The role of research is to: (1) promote critical consciousness;(2) to break down institutional structures that produce oppressive ideologies and social inequalities; (3) and shift the balance of power so that it may be more equitably distributed; (4) address social issues, political emancipation and increasing critical consciousness
Methodological Questions:	*What is the role of values?*	Values of the researcher influence the researcher, so that facts can never be isolated from values
	What methods to be used	Participatory research Dialogue between researcher and researched
	What type of studies are be conducted	Field research, conducted in natural settings in order to collect substantial situational information
	When are findings true?	If findings can solve problems within a specific context or unveil illusions. Common sense can reveal false beliefs that hide objective conditions

Source: Adapted from Guba and Lincolin (1994; 2000), Newman (1997), and Schwandt (1994)

5.2.2 Understanding Philosophical Issues in Economics

As any research in social science, researcher in economics should answer the ontological, epistemological, and methodological questions as identified in Tables 5.1, 5.2 and 5.3 above. Over decades many economists such as Machlup (1955); Lakatos (1974); Rosenberg 1975, 1983, 1992); Hausman (1984, 1992, 2008); Hausman and McPherson (1996); Kincaid (1996); Little(1995); Anderson (2000); and Lipsey (2009) have searched for thinking about the nature of economic reality, scope of economics, the methodology of knowledge. This task requires an understanding of the philosophical issues in economics. The philosophy of economics is concerned with how economists explain economic phenomena and how the ethical values such as human welfare, social justice fairness are involved in economics reasoning. The philosophy of economics is also concerned with institutions through which economic activity is carried out with efficiency, productivity equity and human well being (Hausman, 2008). The nature and scope of economics is captured by Taylors (2001), who defines economics as the study of how people deal with scarce resources that are allocated between alternative ends for the satisfaction of their needs and wants. In that sense the goal of the economy is concerned with human activities of production, consumption and trade in goods and services necessary for human welfare. Regarding the way of how individuals or groups behave and interact in the economy, there are two competing philosophical views: positive and normative views. They ask the ontological, epistemological and methodological questions connected with the nature of economic reality, the accumulation of economic knowledge, and the scientific methods used for acquiring new knowledge.

A) Ontological and Epistemological Questions

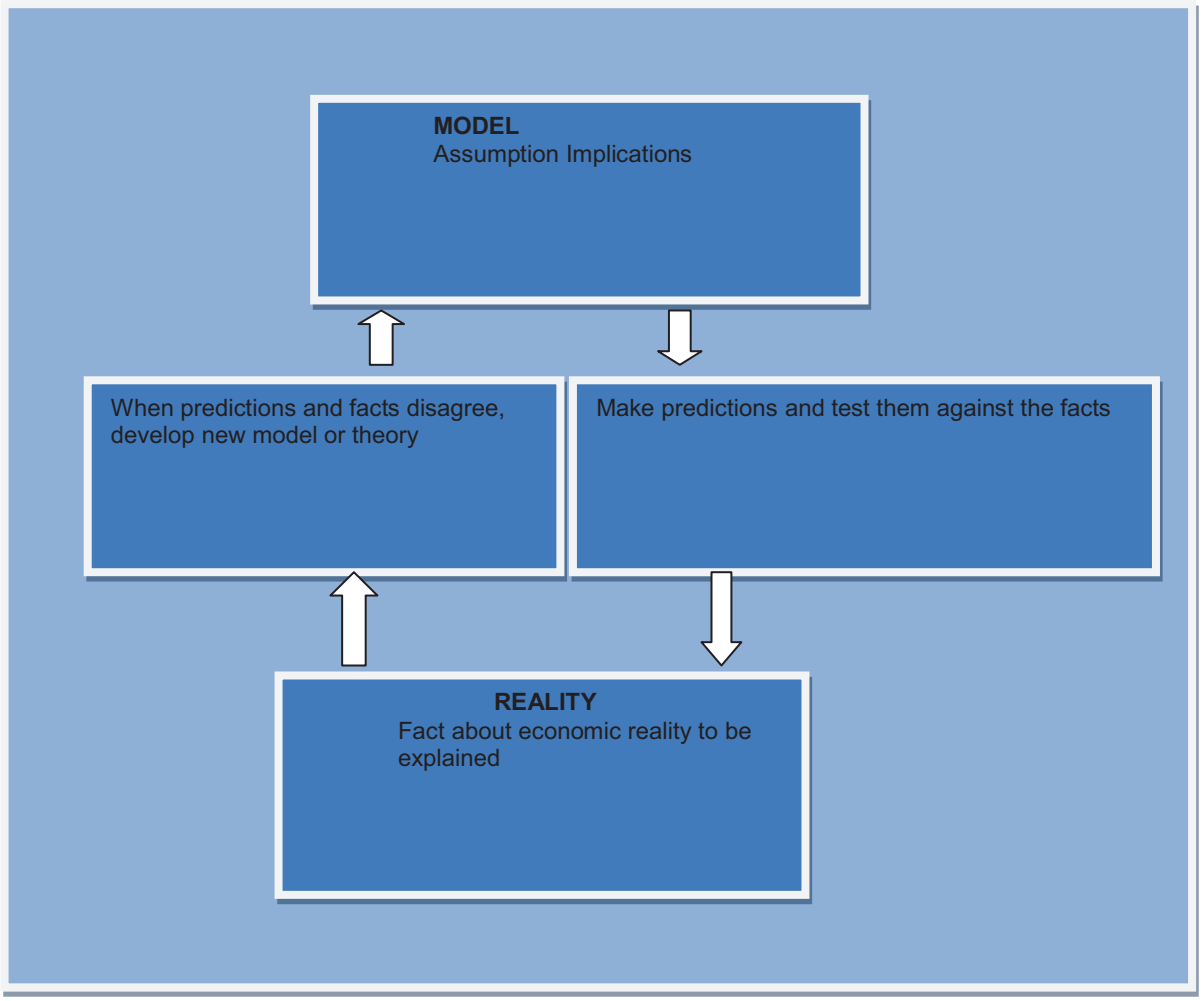
Several ontological and epistemological questions emerge from different paradigms without definitive answers. Ontological questions start by asking what the nature of economic reality is and what can be known about that economic reality. Is economics a universal or a moral science? How exact are economic theories and can they lay claim to the status of an exact science? Are economic phenomena objective or

subjective (created by the human mind)? Epistemological questions continue by asking how economists know what they know. How is economic knowledge acquired? Are there economic laws? If so where do they come from? Finally methodological questions ask how researchers go through the research process. How are economic theories built and how are they empirically verifiable? In other words, are economic predictions as reliable as predictions in the natural sciences?

Since the evaluation of the relative validity of different economic theories is often influenced by philosophical considerations, many important controversies arising from broad general theories which persist without definite resolution. Economic methodologies and theoretical perspectives have varied over time and differ between different ideologies or schools of thought. The range and significance of these controversies have increased in the last two decades given the variety of conflicting paradigms and economic theories. As McCloskey (1985) has noted, economists really choose among theories for a number of ideological, philosophical, and rhetorical reasons. They do not even agree on the fundamental economic models to be used for analysing or describing the economy. Most economic controversies involve differences in views of the nature of economic reality and what can be known about to that reality (Tiemstra, 1998). Over the decades economists have tried to explain how they know what they know about a complex economic reality (Greenspan, 2004). To explain how the economic world works, economists build economic models or theories. A model is a simple representation of reality. A good economic model derives from good observations of the real world, identifies a number of concepts and elucidates them, and influences the way economists and policymakers think and behave (Rubinstein, 2006). Economists explain the economic world by building and testing economic models. By comparing the model's predictions with the facts, economists are able to test their models and develop an economic theory. Economic theory represents what economists think about the economic world. The process of building and testing models creates theories. The task of economic science is to discover positive statements that are consistent with what we observe in the real economic world. Economic experiments are difficult to perform since economic behaviour has many causes with complex relationships among variables, so that economists use data and econometric tools to estimate quantitatively economic relationships (Blaug, 1997).

Figure 5.1 shows the logical structure of construction of economic theories. In the first instance, economists build a model to generate predictions about the way the economic world works and to establish the relationships between economic variables. To disentangle causes and effects, economists use economic models and data to perform experiments. When the predictions conflict with the facts, the theory is refuted and the models modified. Economists often disagree on what the economic world is like because of ideological or philosophical differences. Since these are a part of society, it follows that the final unification of economic theories will never be achieved. All philosophical approaches to economic theories (classical economics, neoclassical economics, Keynesian economics, monetarist economics, neoclassical economics, marxist economics) have prioritised certain aspects of economic reality at the expense of others, according to ideological characteristics. According to Piager (1970) each economist chooses a theory that supports the values that he/she holds. It therefore follows that differences of opinion among economists may only be reflections of the underlying philosophical dispute.

Figure 5.1 Construction of Economic Theories



Source: adapted from Parkin, Powel and Matthews (2000)

Neoclassical economists usually label humans as *homo economicus* driven by economic motives such as self-interest and optimising behaviour. They consider humans as actors who have the ability to make rational judgments towards the satisfaction of their needs. The self-interested individuals with optimising behaviour interact with each other in smoothly functioning perfectly competitive markets, assuming that in the long-run the economy is characterised by general equilibrium clearance of all markets (goods and services, labour, capital and monetary markets) through the price mechanism. In this competitive economy the government should not intervene. Marxist economists follow neoclassical economics and base their view on the behaviour of social classes (conflicting relationship between workers and capitalists). Keynesian economists do not deny these previous methods of analysis, but base their view on the role of state in regulating and influencing human

behaviour in relation to social norms. Keynesian economists argue that since self-correcting mechanisms of the competitive economy cannot function because markets are distorted by imperfect competition, externalities and imperfect information, the role of government is absolute essential to correct the distortion of the markets.

These two conflicting philosophical views each come with their own methodologies. A Researcher's adherence to each set of beliefs or paradigms will be reflected in research methodology from design, data collection and analysis, to the interpretation of results and policy implications. Since each paradigm comes with its own theories and methods of analysis, there is never-ending debate about which methods are better.

5.2.3 Methodological Questions in Economics

The term methodology has been used as a substitute for methods. But this misuse obscures an important conceptual distinction between the tools of investigation (methods) and the philosophical foundations that determine such methods. In this sense, economic methodology is the study of scientific methods in relation to principles underlying economic reasoning (Arrow, 1994; Neuman,1997; Blackhouse, 2008). It also concerns the system of methods and techniques used in scientific research and their ability to yield valid knowledge[24]. Mark Blaug (1997, p. xii) defines the methodology of economics as,

> "*a study of the relationship between theoretical concepts and warranted conclusions about the real world; in particular, methodology is that branch of economics where we examine the ways in which economists justify their theories and the reasons they offer for preferring one theory over another; methodology is both a descriptive discipline - this is what most economists do" – and a prescriptive one-this is what economists should do to advance economics"*.

Just as in every social science, economic methodology answers the questions such as: How economic theory is built and tested? What types of studies are conducted?

[24] According to Boland (1987), scientific methodology consists of principles, methods and techniques for the systematic pursuit of knowledge involving the recognition and reformulation of a problem, collecting data through observation and experimentation and the formulation and testing of hypotheses.

What is the role of values? What methods to be used in economics? A central area of debate in economic methodology is whether economic inquiry should follow a qualitative or quantitative methodology. This debate has reflected two conflicting paradigms and methodologies from different school of economic thoughts such as the classical and neoclassical, Keynesian, radical and Marxist, post Keynesian, behavioral, and feminist paradigms (Amitave, 2003). However, despite numerous paradigms, economic theories contrast in two conflicting paradigms about the nature of economics, its goals, and methods of analysis and policy prescriptions. These are the positive/quantitative versus normative/qualitative paradigms which shape positive and normative methodology.

A) Positive Methodology

The positivist methodology is based on the idea of French philosopher August Comte (1896), who strongly defended the notion that true knowledge, is based on the experience of the senses and can be obtained by observation, experience and reason as means of understanding human behaviour. Modern economists such as Anderson (2000), Mongin (2002) among others started the quantification of economic phenomena in the areas of national accounting, quantitative demand functions, marginal utility, and general equilibrium. In nineteen century they called for a positivist methodology to understand social reality. In carrying out scientific investigation, positive economic methodology focuses on the systematisation of the knowledge process which enables the discernment of the relationship between variables and the description of parameters. Positive economics borrows the underlying philosophical assumptions of research in most of the natural sciences - physics, chemistry and biology - based on the objective reality of the physical world, scientific method, and empiricism. The philosophers who base knowledge on matter suggest that we are, after all, physical beings who rely on five senses, and what we receive this way is knowledge of the world and the universe. The scientists say that the rational process of identifying a problem, collecting data through observation and experimentation, and developing and testing hypotheses yields humanity's base of useful knowledge. And, they claim, this is our only way of acquiring such knowledge (Caplin and Schootter, 2008). Positivist economists argue that economics is a scientific discipline like the natural sciences because it uses methods of enquiry

called the scientific method. The scientific method is a way of constructing a body of theories according to a coherent, systematic set of activities known as methodology, and using a set of methods and techniques to gather evidence for producing new knowledge. The task of science, including economics, is to discover the laws that govern the world being investigated. Like scientists in the pure sciences such as physics, chemistry and biology, economists discover the laws that govern the economic world by using scientific methods based on observation and experimentation and, ultimately, the language of mathematics (Rosenberg, 1992). Like others scientists, economists postulate a theory or hypothesis, and gather evidence to support or refute the theory. Economic theories which gain universal acceptance are called laws, such as the law of diminishing returns, Say's law or economic relationship with regularities such as those concerning prices and quantities supplied and demanded, and that trade increases with reduced tariffs (Rosenberg, 1976). But such laws are not universal, as are natural laws such as Newton's law of universal gravitation, or the law of electromagnetic propagation. In natural science it is easy to apply scientific methods because experiments can conducted in laboratories, and observations can be made with some degree of certainty. Consequently it is easier to refute or accept a hypothesis.

Similarly, positive economics describes and explains economic phenomena focusing on facts and cause-and-effects behavioural relations between economic variables, and it has given rise to the testing of economic theories using econometric tools. Modern economists utilise mathematics to formulate economic models and use econometrics and statistics to test economic theory against the empirical evidence. Today economists make extensive use of mathematical principles in economic and financial analysis. For example, the techniques of partial differentiation are used to calculate the marginal product of capital and labour and labour in the production function. In market equilibrium, simultaneous linear equations are useful to calculate the equilibrium price and quantity in supply and demand theory. Geometric series techniques are used to calculate the future value of a lump sum which is invested to earn interest.

B) Limitations of Positive Economics

Positive economics has been criticised for extensively using a sophisticated mathematisation of economics which lacks realism in constructing economic models. One may ask whether or not the assumptions underlying the mathematisation of economics enable economists to make accurate predictions about human behaviour. As McCloskey (1985) argues, economists' efforts to employ mathematical techniques and econometrics to test economic theories against facts have produced only moderate success in resolving theoretical controversies. Most controversies in economics involve disagreement over the nature of economic reality[25]. Economists may disagree on how the economy works, on what is the appropriate model of the economy, and on how households and firms are able to perceive and calculate their self-interest (Tiemstra, 1998; Peter, 2001). The implication of disagreements in positive economics is that different models will produce different results. Even though economists may agree about an economic model, they may disagree on policy recommendations. In this case, the source of disagreement in normative economics may concern differences in values (how they evaluate the consequences of alternative public policy).

Moreover, despite claims of its universality and the use of the language of mathematics, classical economics has been criticised for being based on unrealistic assumptions about rational individuals, complete information, and perfectly competitive markets. According to Bell and Kristol (1981), the assumption that economics is a universal science applicable to all times and places can lead to analytic distortions and faulty policy prescriptions. The unwillingness or inability to recognize the significance of differences among states and societies and/or the influence of cultural and historical settings limits the usefulness of economics. Friedman (1953) rejected this assertion and argued that what is important is whether or not the assumptions underlying the mathematisation of economics lead to fruitful

[25]"If all economists were laid end to end, they would not reach a conclusion" see George Bernard Shaw, www.quotationspage.com/subjects/economics.

propositions that can be tested empirically and thereby shown to be valid or invalid.

C) *Normative Methodology*

Positive methodology involves statements of facts that can be objectively verified. However, such opportunities are often not possible in the social sciences. Economists have to collect the data in everyday life where many variables are changing over time. It then becomes difficult to measure human behaviour. It may be possible to predict or record people's decisions on a macro level, but this ignores the fact that people are individual actors with their own sets of motives, backgrounds and expected outcomes (Flurbaey, 2008). As human behaviour is not the same over time and across countries, therefore, the principles of economics cannot be measured like the laws of the natural sciences (Mises, 1949; Friedman, 2005). Given the limitations of positivism, an alternative school of thought known as subjectivism has arisen from the rejection of the view that scientific empiricism can be applied to the social world. Since Adam Smith published *Inquiry into the Wealth of Nations* in 1776, the classical and neoclassical schools of economic thought - dominated by the free market and a reification of *homo economicus* - have tried to separate economic behaviour and morality and ethics in the study of human action. By applying economic methodology, economists from different schools of thought have formulated conflicting theories to explain economic reality, making positive and normative economics; whether positive economics seeks to explain the economic world *'as it is'* and normative economics explains '*how it should be'*. Normative economics expresses value judgements about economic fairness, justice and ethics (Cadwell, 1982).

The analysis of ontological, epistemological and methodological issues in economics show that economic research must fall in to one of the competing methodologies. The crucial question here is where how the methodology chosen in the present study sits within this context. What is the rationale for choosing the paradigm that has shaped the research methodology? Since each paradigm comes with its own strengths and weaknesses, the best option is to seek a convergence of views which reconciles competing philosophical views.

5.2.4 Towards Convergence in Methodological Views in Economics

The convergence in methodological views in economics has been explained in the integrated framework discussed in chapters II and III combining the growth and macroeconomic effects of regional integration in a supply-demand framework. This framework logically allows such a convergence of views about the real world and the economy. This study agrees with Friedman (1953), who rejects the distinction between positive economics and normative economics since the former depends on the latter. As scientists and advisers, economists are asked to play two roles: explaining economic reality and recommending policy prescriptions to improve economic performance. In such tasks, economists cannot recommend a good policy prescription unless they have a clear understanding of its consequences, which are described by positive economics (Anderson, 2000). In the real economic world, positive and normative economics have tended to accompany one another. Today the harmony in a market economy is no longer the result of an 'invisible hand'. Economic liberalism incorporates fundamental values, and there is recognition that human actions inevitably involve questions concerning noneconomic factors such as ethics and moral values. If positive and normative talk are two faces of the same coin of the economy; namely production and consumption (or growth and distributional issues), the goal of the economy is no longer solely to increase growth, but also income distribution which enhances production efficiency. There is recognition that the goal of the economy is not only production, but also income distribution, poverty reduction, and attention to environmental issues, since such factors are likely to contribute to growth (Amitave, 2003). In many cases, this study argues that the market economy and state intervention must go hand in hand for the sake of economic growth, social cohesion, and welfare.

The topic of the economic effects of government policies on economic activity is the most controversial in modern macroeconomics. This is because different school of economic thought disagree on how individuals, firms and financial markets would react to changes in public policies such as government spending and taxation, or changes in interest rates and exchange rates. Following the 1980s international debt and the 1990s financial crisis, neoclassical economics was given a dominant

place. Today, Keynesian economics seems to be relevant to rescue the national economies from the current financial and industrial crisis. As the current mortgage crisis has affected the whole economy in industrial countries (destroying a lot of assets, earnings and capital), the governments are using public finances to rescue the financial markets and industrial firms. There is agreement that the state is offering opportunities for private businesses. Countries and firms that cannot cope with the current financial crisis need bailout packages to rescue their economies and maintain economic recovery. The bailout package policies are seen in both views of the economy as important for growth. Many economists (such as Stiglitz, 2002 and Taylor, 2004) are in favour of equity and accept that there are tradeoff between efficiency and equity. The policy implication here would be to achieve some degree of income distribution with production efficiency. Government intervention should be limited to restoring the market mechanisms, promoting savings and investments, and avoiding corruption and rent-seeking. Friedman (2005) has argued that economic growth promotes tolerance and democracy, social cohesion and peace. There is no doubt that the reduction of income inequalities among countries would lead to better opportunities in international trade, investment, security and the protection of environment. Reduction of income disparities within countries would lead to reductions of poverty and increasing social cohesion, and thus to growth and welfare.

Moreover, since positive economics considers human action to be driven by self-interest and optimising behaviour, it may be overstated (Sen, 2006). Unintended effects of social and ethical considerations may influence human action. In their economic choices, individuals choose what they value more over what they value less. This is where economics meets other sciences such a psychology, sociology, religion, anthropology, history, geography and biology. Mises (1949) acknowledged that humans are complex and economic behavior is informed and influenced by unique, ever-changing combinations of various religious, psychological, sociological and anthropological, and biological motivations. Therefore social reality is multiple, complex and cannot be easily quantifiable. Economics, like logic and mathematics, is a display of abstract reasoning and it can never be experimental and empirical (Mises, 1949).

Although the complexity of issues in economics may induce researchers to consider a convergence of views, this study has used a positive methodology,

ignoring the normative/qualitative methodology due to a lack of the time and budget necessary to collect qualitative data. Some of the major reasons for choosing a positive/quantitative methodology are the nature of the topic, the nature of the research objective, and the research questions and hypotheses in the current study. Given that the aim of this study is to empirically investigate the growth and macroeconomic effects of regional integration, it is obvious that the data to be collected are primarily quantitative. Quantitative methodology is a method of scientific inquiry based on gathering observable data, empirical and measurable evidence subject to specific principles of reasoning.

The second reason is the triumph of the positivism in economic profession and the developments of econometric techniques for data analysis. Positive methodology stems from positivist philosophy which is the dominant philosophical view in economics where an empirical framework organising ideas by using economic models and econometric models, collecting and analysing data for policy prescription. Since the 1930s economists started applying mathematics and statistics to empirically test economic relationships such as linking wages to the marginal productivity of labour, and business cycles to climate variation. The proliferation of the application of mathematics and statistics to economic analysis and the developments in computation techniques have changed the nature of the discipline in terms of empirical studies. The mathematisation of economics has transformed the object of economics into more abstract terms. Today large macroeconometric models allow the simulation of the functioning and dynamics of national economies, thanks to the progress made in the computing revolution and the developments of dynamic econometric modelling.

5.3 Econometric Modelling

In the economics profession economists formulate theories in such a way that they can be tested empirically and the concepts operationalised in a way that enables data to be measured quantitatively. The theories or models are expressed in the form of systems of equations and, implicitly, the econometric model itself. A major objective of economic modelling is to develop a systematic understanding of the structure and operations of economic systems. The choice of economic theory or model is therefore critical to the construction and interpretation of an econometric

model (Harris, 1985). An economic model is a system of equations, each one representing a different relation in the economy. All the equations of an economic model can be solved simultaneously to determine the levels of variables and what changes would occur with differing economic policies. Econometric model are derived from economic models expressed in mathematical form. Econometrics is simply defined as the application of mathematics and statistics to economic analysis Juselius(1999). According to Gujurati (2003), econometrics is a tool for the measurement of basic relationships between variables through the analysis of economic data as posited by economic theory. The fundamental purposes of the use of econometrics in economic research are: (1) to test existing theories against empirical evidence to ensure their validity over time; (2) to measure unknown values of parameters or unobserved variables; and (3) to predict or forecast the values of variables (Spanos, 1999; Stigum, 2003). Despite the role of econometric techniques in economic analysis, there are problems of the use of economic and econometric models for developing countries. This creates a big problem for macroeconomic modelers

5.3.1 Economic and Econometric Modelling Issues in Developing Economies

In practice economic modelling requires an aggregative representation of gross domestic product or national income, domestic spending or absorption, external trade, financial sector, price stability, and external debt. The model can be highly disaggregated in order to capture the details of institutional and structural characteristics of the economy (Harris, 1985). There are several aspects of models where one can consider further disaggregated models such as production blocs, investment expenditure and prices. For example, the production or supply sector could be disaggregated into, say, agriculture, livestock, mining, manufacturing, utilities, building, construction, distribution, transport, communications, government, and other services. Many of the above can, in turn, be sub-divided into smaller sub-sectors. In many developing countries, including in EAC countries, economic models as inputs into economic policy analysis are not consistent with the structures and characteristics of the economy and do not explain the issues of declining growth and macroeconomic instability in a coherent framework. This is because they are often developed in academic work by students or foreign experts who ignore the

institutional structures of African economies. The economic model underlying structural adjustment policies is an unfortunate example of the failure of World Bank economists to comprehend the characteristics of African economies. Modelling African economies must be based on an appreciation of their characteristics as dual economic systems (with modern and traditional sectors), structural rigidities (intra-sector immobility), rudimentary financial systems, and economic activities heavily dominated by the government. As a result policymakers in developing countries are not guided by any consistent economic and econometric model or by the real characteristics of their economies. The emphasis is often on building models that track recent records and apply mainly to short-run policy analysis. Modelling efforts have therefore largely proceeded by specifying equations that appear too simplistic and give sensible explanations only of short-run economic behaviour. The long-run sustainability of short-run economic behaviour is not emphasized. Therefore, one of the major challenges facing macroeconomists in Africa has to do with the development of an appropriate theory that reflects an understanding of how African economies work and using this as a guide in the specification of models that are designed to explain the effects of alternative policy actions (Harris, 1985).

The above considerations must be taken into account in designing an economic model underlying regional integration and growth. As mentioned in chapters II and III, the forms of regional integration, namely trade integration, labour integration, monetary and financial integration, and the co-ordination of macroeconomic policies, can be grouped into two broad models concerning the demand-side and the supply-side. The literature on regional integration, growth and convergence has been split into two: applied microeconomics and macroeconomics. But, both demand and supply conditions must be met in order to proceed with deeper regional integration. Therefore, the evaluation of growth and the macroeconomic effects of economic integration policies require a model that combines elements of the Keynesian framework and the neo-classical long-term growth model (Khan and Monteil, 1989).

5.3.2 Modelling Regional Integration, Growth and Macroeconomic Convergence in Integrated Framework

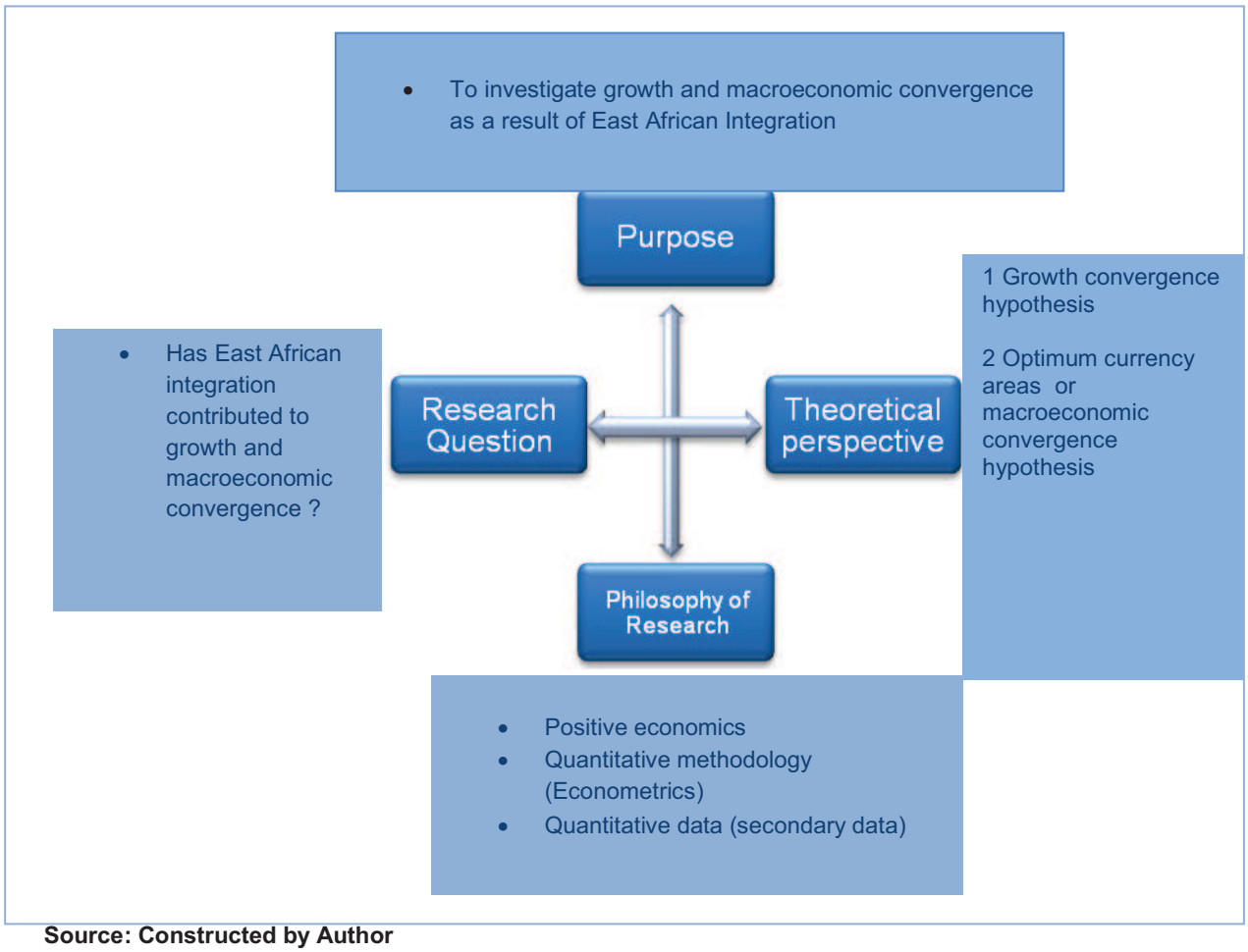
As mentioned in chapter I, the forms of regional integration, namely trade integration, labour integration, and monetary and financial integration, can be split into two broad models: the demand and the supply sides. Both chapters II and III have provided a critical assessment of the theoretical and empirical literature on growth theories, and convergence and sustainability hypotheses. Although there is an intricate interaction between the microeconomic and macroeconomic aspects of regional integration policies, there is no theoretical ground that integrates the demand and the supply sides into a coherent framework. The existing literature does not provide a single economic model which could underlie an econometric model and policy prescriptions. The specification of equations is not rooted in any unique theoretical framework of economic behaviour. So far, the existing theories on growth convergence and macroeconomic convergence do not offer operational definitions, an economic model and, implicitly, econometric models.

As mentioned in Chapter I, the objective of this study is to investigate growth convergence and macroeconomic convergence as a result of East African integration. However, such an evaluation poses the problem of methodological issues in developing economies, such as the economic and econometric models, and operational variables that must be addressed. To tackle the problem of measuring the impact of East African integration on overall sustainable economic performance, this study looks into an integrated framework encompassing both growth and macroeconomic stabilisation theories (national accounting and balance of payments accounting).

In chapters II and III, Figures 2.1, 2.2, 2.3, and 3.1 give an overall picture of this integrated macroeconomic model that take into long-run growth, short run growth and the forms of regional integration; namely, trade, labour, capital, monetary, political integration. This approach encompassing internal and external balance has been adopted by Fitz Breus (2001) in measuring the growth and macroeconomic effects of EU enlargement for old and new members. To investigate the growth and macroeconomic stability effects of East African integration, this study follows the approach adopted by Fitz Breus (2001). Figure 5.2 indicates how the economic model stems from an integrated framework as explained in the literature review. The

figure shows the relationship between the key aspects of this study; namely, philosophy of research, research question, the theoretical perspectives, the methods to be used.

Figure 5.2 Regional Integration, Growth and Macroeconomic Convergence in Integrated Framework



Source: Constructed by Author

The existing literature on regional integration, growth and convergence hypotheses as reviewed in Chapters II and Chapter III does not allow an explicit specification of economic models and, implicitly, econometric models. This study draws heavily on definitions of convergence as proposed by Bernard and Durlauf (1995), Williamson and Flemming (2002), and Carmignani (2005). The proposed methodologies for measuring growth and macroeconomic convergence use the coefficient of variation, unit root tests, cointegration analysis, and error correction models. These methodologies were chosen for the following reasons. The relative stability in coefficients of variation over a certain period gives insights into convergence among the variables under study. The observation of graphs of coefficients of variation can

then give a rough idea of stationarity and nonstationarity. Investigating the presence of unit roots in coefficients of variation is the first stage in characterising some of the key features of time series data. The unit root test distinguishes between stationary trends and stationary difference processes. A time series seems to go through sustained periods of increase and decrease with no tendency to revert to a long-run mean. This is typical of nonstationary series and is known as random walk behaviour. Overall, empirical econometric studies show that most macroeconomic time series follow a unit root process. Any shock to a series displays a high degree of persistence. Some time series have short-run and long-run relationships with other series. Although each time series can meander individually, it may be closely tied to another series due to underlying common economic forces. Economic theory often suggests that a certain subset of variables should be linked by a long-run equilibrium relationship. Although the variables may drift away from equilibrium for a while, economic forces or government action may be expected to restore equilibrium. This phenomenon is captured by the cointegation and error correction models.

5.4 Model Specification

As mentioned above, econometrics is a measurement of economic phenomena in which mathematics and statistics are applied to economic analysis. To conduct economic analysis, economists express economic models in mathematical terms, and then use statistical tools (estimation and testing) for econometric investigation. Without a purely mathematical model, an econometric investigation cannot be carried out. Unfortunately, the existing literature on regional integration, growth and macroeconomic convergence does not provide a unique and purely mathematical model. However, based on the definitions and common measures of convergence, this section identifies the specification of the coefficient of variation technique, unit root and cointegration analysis and error correction models.

5.5.1 The Specification of Convergence Using the Coefficient of Variation Technique

According to Williamson and Flemming (2002), the coefficient of variation is calculated by dividing the standard deviation by the mean of the sample. It is the ratio of the standard deviation to the mean, expressed as a percentage. In measuring convergence or divergence, Williamson and Fleming (2002) express the mean convergence per year symbolically as follows:

$$MC/Year = [\frac{(CV_{t1} - CV_{t2})}{CV_{t1}} \times 100] / t_2 - t_1 \quad (5.1)$$

where MC/Year is the mean convergence per year, Cv_{t1} is the coefficient of variation at the earlier date, CV_{t2} is the coefficient of variation at the later date, $_{t1}$ is the earlier date, and $_{t2}$ is the later date. The coefficient of variation is applied to GDP growth as well as to macroeconomic stability indicators in measuring whether or not countries are converging in fiscal and monetary policy. This methodology investigates convergence by modelling the individual behaviour of mean convergence in equation (5.1). Convergence occurs if the coefficient of variation declines exactly to zero.

5.5.2 The Specification of Convergence Using Unit Root

In contrast to the coefficient of variation method for assessing convergence, a time series notion of convergence examines the behaviour of the long-run evolution of variables within the group of countries. According to the new definition of convergence, two countries *i* and *j* are said to converge in a situation where the difference of their income per capita ($y_{it} – y_{jt}$) evolves into a stationary process. The difference ($y_{it} – y_{it}$) is assumed to be time varying, where y_i represents income per capita in country *i* and y_j represents income per capita in country *j*. Statistically convergence is defined as a situation in which the difference between two economic series evolves into a stationary process. Based on this definition, unit root specification is the following equation:

$$(\ln Y_{i;t} - \ln Y_{j,t}) = \varphi_1 \ (\ln Y_{i;t-1} - \ln Y_{j,t-1}) + \in_t \qquad (5.2)$$

Intuitively if the series y is stationary the null hypothesis is $\varphi_1 - 1$. In the case where $\varphi_1 = 1$, this is the so called unit root. The first differencing will make a series stationary. Nonstationarity is a natural characteristic of a time series and differencing techniques are regarded as an appropriate way of addressing the problem of nonstationarity in economic time series. The question of interest is what happens if the variables evolve into a nonstationary process. The presence of nonstationarity in economic time series has posed the serious problem of estimation and testing. It has been recognised that running a regression on nonstationary data using OLS with such data could produce misleading or spurious results. To overcome the problem of spurious results, some investigators such as Box and Jenkins (1970) have suggested differencing the data to remove random walk from the trend components in the data.

In a univariate time series model, nonstationarity can be removed by the Box-Jenkins differencing technique, and then the resulting stationarity can be estimated using the Ordinary Least Square (OLS) technique. Since almost all economic time series contain trends, it follows that these series have to be detrended before any sensitive regression analysis can be performed. Thus a convenient way of getting rid of a trend in a time series is by using first differentials rather than the levels of the variables. In this regard it is convenient to use the concept of the integrated series. If the time series data are shown to be nonstationary, this may be purged by differencing and estimating using only differentiated variables [26](Perron, 1989). A key contribution of the Box-Jenkins methodology is the assumption that differencing nonstationary data will make them stationary and so the OLS can then be used for estimation. This is an appropriate route to transforming nonstationary variables in order to make them stationary. In the econometrics literature a variable is said to be integrated of order *d,* written I (*d*), if it must be differenced *d* times to be made stationary (Box-Jenkins, 1970). Thus, as in a linear function, if a stationary variable is integrated of the order zero I (*0*), and a variable must be differenced once to become stationary, it said to be I (1), integrated of order one, and so on.

[26]This solution is borrowed from mathematics where the successive derivative of nonlinear or exponential functions can make them linear or deterministic functions.

In the literature a series which is I (*0*) is said to be stationary, a series which is I *(1*) has a unit root, and a series which is I (*d*) has also d unit roots.

5.5.3 The Specification of Convergence Using Cointegration

Although differencing nonstationary variables would make them stationary, regressing nonstationary time series data may lead to spurious regressions in which estimators and test statistics are misleading (Walter and Enders, 1995). This would mean that valuable information from economic theory concerning the long run equilibrium properties of the data would be lost (Banerjee *et al*., 1993; Walter and Enders, 1995; Maddala, 2003). Rather than differencing nonstationary variables, it is thus natural that econometricians have tried to find another technique for studying the dynamics in macroeconomic time series data when two or more nonstationary variables are cointegrated, that is, there is a particular linear combination which is stationary. In that case the problems of spurious results do not occur if the nonstationary series have a common stochastic trend. According to Koop (2005), if two or more nonstationary variables are integrated in the same order, they are co-integrated and form a long-run relationship and move together through time. A departure from an equilibrium relationship should not be too large and there should always be a tendency to return to equilibrium after a shock occurs.

So far the new definition of convergence tells us how to deal with two time series of two countries, but it doesn't tell us about more than two countries. To tackle a multi-country situation, some econometricians determine the differences between a leading economy as the reference and each country under study. In the case of a non-leading economy, the time varying difference ($y_{it} - y_{jt}$) becomes ($y_{it} - y_{Rt}$), where y_i represents income per capita in each other country and y_{Rt} represents average regional income per capita at time t. The test of convergence is about testing for a unit root in the process ($y_{i,t} - y_{R,t}$). The rejection of the unit root implies a form of convergence in expectation between two series $y_{i,t}$ and $y_{R,t}$. Convergence is defined as a situation where the difference ($y_{it} - y_{Rt}$) evolves into a stationary process (Carmignani, 2005). This requires testing for a unit root in the process ($y_{it} - y_{Rt}$) in

level. The difference ($y_{it} - y_{Rt}$) is known as time varying, where y_i represents an economic variable such as per capita income in country *i* and y_R represents a regional average (average real income in the group of countries). According to Carmignani (2005), the time varying difference ($y_{it} - y_{Rt}$) is assumed to be generated by the dynamic model, in particular by a first-order autoregressive process, AR (1):

$$(\ln y_{it} - \ln y_{Rt}) = \phi \ln(y_{it-1} - \ln y_{Rt-1}) + \in_t \quad (5.3)$$

where ϕ is a parameter to be estimated and $+\in_t$ is a stochastic disturbance with zero mean and finite variance.

As the name suggests, in the AR (1) model the dependent variable, y, depends on one lag of itself. Because the autoregression function or autoregressive model reveals information about a time series, it is the most important tool used for summarising the features of a time series, in particular for forecasting. It was believed that if one wants to predict a time series, the best way is to start in the immediate past. For example to forecast the change in GDP from this year to next year, the best way is to see whether GDP rose or fell last year, but doing so ignores useful information in the more distant past. One way to consider this information is to include additional lags in the AR (1) model, this yields the p-th order autoregressive, AR(p) model which is a linear function of p of its lagged values (Stock and Watson, 2003). However, economic theory often suggests other variables that could help to predict the change in a variable of interest. These variables can be included in an AR (1) model to produce a time series regression model with multiple variables. The result is known as an autoregressive distributed lag model, ADL model. In general an autoregressive distributed lag model with *p* lags of dependent variable, Y_t, depends on *p* lags of itself, the current value of an explanatory variable, as well as *q* lags of X_t. Since the model contains the lags *p* of Y_t and the lags *q* of X_t, it is noted as ADL (*p, q*). The commonly used ADL (*p, q*) model is written as follows:

$$Y_t = \alpha + \varphi_1 Y_{t-1} + \ldots + \varphi_p Y_{t-p} + \beta_0 X_t + \beta_1 X_{t-1} + \ldots + \beta_q X_{t-q} + \in_t \quad (5.4)$$

The vector autoregressive (VAR)[27] is extensively used in analysing the dynamic

[27] The term 'vector' refers to the fact that a vector of two (or more) variables is included in the system of equations, while the term 'autoregressive' refers to the lagged values of the dependent variable (its past

impact of random shocks on the system of equations and for forecasting systems of interrelated variables. A VAR system can be expressed in the mathematical representation or matrices as follows.

$$[Y]_t=[A][Y]_{t-1}+\ldots+[A'][Y]_{t-k}+[e]_t \quad (5.5)$$

$$\begin{bmatrix} Y_t^1 \\ Y_t^2 \\ Y_t^3 \\ \ldots \\ Y_t^P \end{bmatrix} = \begin{bmatrix} A_{11} & A_{12} & A_{13} & \ldots & A_{1p} \\ A_{21} & A_{22} & A_{23} & \ldots & A_{2p} \\ A_{31} & A_{32} & A_{33} & \ldots & A_{3p} \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ A_{p1} & A_{p2} & A_{p3} & \ldots & A_{pp} \end{bmatrix} \begin{bmatrix} Y_{t-1}^1 \\ Y_{t-1}^2 \\ Y_{t-1}^2 \\ \ldots \\ Y_{t-1}^p \end{bmatrix} + \ldots + \begin{bmatrix} A'_{11} & A'_{12} & A'_{13} & \ldots & A'_{1p} \\ A'_{21} & A'_{22} & A'_{23} & \ldots & A'_{2p} \\ A'_{31} & A'_{32} & A'_{33} & \ldots & A'_{3p} \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ A'_{p1} & A'_{p2} & A'_{p3} & \ldots & A'_{pp} \end{bmatrix} \begin{bmatrix} Y_{t-k}^1 \\ Y_{t-k}^2 \\ Y_{t-k}^2 \\ \ldots \\ Y_{t-k}^p \end{bmatrix} + \begin{bmatrix} e_{1t} \\ e_{2t} \\ e_{3t} \\ \ldots \\ e_{pt} \end{bmatrix}$$

where: p represent the number of variables under study in the system of equations, k represents the number of lags in the system, $[Y]_t$, $[Y]_{t-1}$, …$[Y]_{t-k}$ represent the 1xp vector of variables, [A], … and [A'] represent the p_xp the coefficients of matrices to be estimated, $[e]_t$ represents a 1xp vector of innovations which are uncorrelated with their own lagged values and other variables.

Equation (5.4) has been used by Ben-David (1993) to assess the postwar convergence among OECD countries related to their trade liberalization, and by Carmignani (2005) to assess macroeconomic convergence in COMESA member countries. The same equation (5.4) has been extended to equation (5.5) which has been used by Johansen and Jeselius (1990) to elaborate the cointegration technique. Equation (5.5) is used in this study to assess the convergence hypothesis and sustainability in other key macro variables such as inflation, fiscal deficits, real exchange rates, the current account, and external debt. The variables to be assessed require the computation of two elements: the regional average and the standard deviation of each variable in each country from the regional average.

5.4.4 Specification of Convergence Using Error Correction Models

While cointegration regression considers the long run relationship properties of the model, it does not deal with the short–run dynamics explicitly. However, good time

values).

series modeling should simultaneously describe both short-run dynamics and the long-run equilibrium. The application of cointegration and error correction models seeks to capture the characteristics of time series data by taking into consideration the short-run and long-run relationship. Once equilibrium or a cointegrating relationship has been found, it is important to find the short-run dynamics for the cointegration models using an error correction models (ECM). The ECM begins with the recognition that a time series is stationary or nonstationary. A time series that requires the first differencing to obtain stationarity is said to be integrated of order 1, I (1) or nonstationary. A time series that requires no differencing to obtain stationarity is said to be integrated of order 0, I(0). It is stationary because it is purged of its trend or long-run component. Similarly a set of nonstationary time series is cointegrated if a linear combination of the series is purged of its trend or long-run component. To develop an error correction model we start with the error correction term from equation (5.3) $\in_t = Y_t - \beta_0 - \beta_1 X_t$, X_t, where $\in_t$ is the error from a regression of y_t on x_t, β is the cointegrating coefficient or long-run parameter. Then the error correction is simply defined as:

$$\Delta y_t = + \alpha \in_{t-1} + \gamma \Delta x_t + u_t \qquad (5.7)$$

where u_t is independent and identically distributed (iid), and α and γ are short-run parameters. The parameter γ is embedded in $\in_{t-1}$ and α fundamentally captures the short-run behaviour. The ECM equation (5.7) simply states that Δy_t is dependent of the lagged $\in_{t-1}$ and Δx_t (Δy_t and Δx_t, meaning that change in X cause Y to change). The variable $\in_{t-1}$ and Δx_t are explanatory.

So far we have discussed the simplest ECM. In practice, just as the distributed lag model (ADL) (p, q) model has lags of dependent and explanatory variables, the ECM may have lags and the models may also have a deterministic trend. Incorporating these features into the ECM yields:

$$\Delta y_t = \Phi + \lambda_t + \alpha \in_{t-1} + \omega \Delta y_{t-1} + \gamma \Delta x_t + \ldots + \omega \Delta y_{t-p} + \gamma \Delta x_t + \ldots + \gamma \Delta x_{t-q} + u_t \qquad (5.8).$$

Equation (5.8) is used in this study to estimate the speed of adjustment of coefficients amongst the variables under investigation.

5.4.5 Specification of the Sustainability Hypothesis Using the Coefficient of Variation and Time Series Econometrics

In investigating the sustainability hypothesis, recent empirical studies such as that by Sawada (1994) have used econometric tests of unit roots and co-integration to assess the stability or stationarity of the current account deficit and external debt in developing countries. Empirical studies have utilized several methods to investigate current account balance and external debt sustainability, ranging from testing for the stationarity of discounted debt to cointegration between the current account and external debt. Hamilton and Flavin (1986) and Sawada (1994) have tested debt sustainability using cointegration among GDP growth, exports, imports and world interest rates. The problem with these empirical studies is that they are based on intertemporal solvency and financial accounting approaches. We have seen that these approaches suffer from drawbacks because they are based on the unrealistic assumption of a constant world interest rate. In the real world, international interest rates vary over time. In addition, these approaches are not appropriate to testing for the sustainability of the external position in developing countries.

Given the limitations of those two approaches in assessing current account and external debt sustainability, the ideal solution would focus on investigating the stationarity process in current account-to-GDP ratios and the long-run relationship between current account-to-GDP ratios across the EAC countries. Our approach follows the same specification model for empirical analysis developed in the case of testing the convergence hypothesis, namely pairwise convergence. In the case of the sustainability hypothesis for current accounts the pairwise model specification look likes this:

$$\left\lceil \frac{CA}{GDP} \right\rfloor i \; - \; \left\lceil \frac{CA}{GDP} \right\rfloor j = \partial \left\lceil \left(\frac{CA}{GDP}\right)^{it-1} - \left(\frac{CA}{GDP}\right)^{jt-1} \right\rfloor \qquad (5.9)$$

where the dependent variable, $\left(\frac{CA}{GDP}\right)_{it}$, is the current account balance–to-GDP ratio in each country in comparison with the deviation from the regional average current account value. This testing for sustainability is similar to that used by the

International Monetary Fund to answer the question of whether the level of the external position is at an acceptable level, that is, sustainable. According to the IMF financial accounting approach, as long as the current account-to-GDP ratio is constant, there is nothing to worry about in the external position of a country, because it is evolving in a sustainable manner over time.

Similarly a reasonable measure of the sustainability of external debt is the external debt/GDP ratio. The ideal solution would focus on investigating the dynamic stability of the external debt-to-GDP ratio and the long-run relationship between external debt-to-GDP ratios across the EAC countries. The pairwise model specification is as follows:

$$\left\lceil \frac{EXTD}{GDP} \right\rfloor i \; - \; \left\lceil \frac{EXTD}{GDP} \right\rfloor j = \eta \left\lceil \left(\frac{EXTD}{GDP}\right)^{it-1} - \left(\frac{EXTD}{GDP}\right)^{jt-1} \right\rfloor \qquad (5.10)$$

where the dependent variable, $\left(\frac{EXTD}{GDP}\right)_{it}$, is the external debt-to-GDP ratio in each country *i* in comparison with its deviation from the regional average external debt.

5.6 Data Collection

To estimate the parameters of the econometric models given in the previous section, we need data which are related to the growth and macroeconomic convergence and sustainability hypotheses. The integrated framework as indentified in the literature review and in Figure 5.2 shows the nature of the data that must be collected. These data are also mentioned in the East African Development Strategy 1999-2005; namely, GDP per capita, inflation, fiscal and current account deficits, and external debt.

5.5.1 Data Collection and Reliability

Measuring growth and macroeconomic convergence as a result of East African integration is at the heart of the present study's empirical investigation. However, this investigation is hampered by the confusion over the reliability of data to be collected. The estimation is conducted on key macro aggregates (GDP per capita, inflation, and the ratios of fiscal deficit-to-GDP, current account-to-GDP and external debt-to-GDP). These are essentially secondary data collected and reported by national

governments, and compiled, published, and maintained by authoritative international institutions such as the IMF, World Bank, WTO, and African Development Bank. Before running econometric tests and drawing conclusions from the findings, researchers must ask several questions including: what are the features of the economies? How were the data collected? Do the government statistics agencies in developing countries collect data using the international accounting standards prescribed by the IMF/World Bank? Economists have to recognize that most of these secondary data sources are subject to considerable error. In addition, governments collect data for specific purposes, and many figures are fabricated for political purposes because they are interested in constructing the best estimates of macroeconomic indicators for particular years in which foreign donors are interested. Many other countries prefer to keep economic data secret in order to increase their leverage with foreign investors or to strengthen their relative positions in the intensifying competition for capital inflows. This poses the problem of the reliability of secondary data.

Another problem is that some of the time series data used do not quite match those which are needed to carry out and achieve the objectives of this study. It can reasonably be argued that the quality of econometric analysis is as good as the quality of data used in calibrating the model. One of the problems with using time series data in some developing countries is the lack of consistency of data collection across time. The governmental and international bodies that collect and process the data continuously revise and modify their methods, and develop new techniques and procedures. The disparities in the values of data collected from different sources, and the absence of a data series for several years, has made the present research more difficult. For many series, blank columns for several years are common features of the major statistical publications of the IMF and World Bank. For this reason the economic variables used for empirical studies have different starting periods. For instance, the convergence in GDP per capita series start from 1980, while some data for macroeconomic policy convergence start in 1970 or in 1972. The series on current accounts starts in 1980.The system of classifying the data has changed so radically that it is not possible to construct continuous time series data for the period needed. Furthermore, the incompatibility of data from different sources or even data from the same source but published at different periods, is a frustrating experience. Some economists such as Kevin (1999) argue that secondary data that

fail to provide the information needed to answer a research question or meet its objectives will result in invalid answers. But this does not mean giving up. Considerable care and discretion are therefore needed in deciding which sources to rely on for different data series. As Saunders *et al.* (2000) note, data which are not completely reliable and contain some bias are better than no data at all if they enable a research question to be partially answered and an objective to be met. In spite of all the caution exercised, it is difficult to guarantee the quality or reliability of the data series used in the study. For this reason the coefficients emanating from our estimations, and indeed from most macroeconomic analysis, must be interpreted with caution. Table 5.4 gives the data that have been collected by the national statistics agencies and compiled by international organisations such as the IMF and World Bank. Given their availability, the data cover different periods.

Table 5.4 : Key Macroeconomic Indicators

Variable	Sources	Appendix
GDP Per Capita 1980-2007	IMF (1999, 2007), World Economic Outlook Data.	TableA1
Consumer Price Index 1970-2007	IMF (1999, 2007), World Economic Outlook Data.	TableA2
Fiscal Deficit/Surplus (Millions in Domestic Currencies), 1970-2007	IMF (2002, 2007), International Financial Statistics, Year Book	TableA3
Real Exchange Rates Indices, 1972-2007	IMF (2002, 2007), International Financial Statistics, Year Book.	TableA4
Current Accounts as Percent of GDP, 1980-2007	IMF(1999, 2007), World Economic Outlook Data	TableA5
Total External Debt as Percentage of GDP, 1980-2007	World Bank (1988-89; 1992-1993), World Debt Tables: External Debt of Developing Countries, Vol.2, Washington D.C, World Bank. World Bank (1997, 2000, 2005), Global Development Finance, Country Tables, Vol. 2 Washington, D.C., World Bank.	TableA6

Source: Made by Author

5.5.2 Generating Data

An important issue in econometric methodology is that the raw data must be transformed before estimating the parameters. In the context of this study the stationarity and long-run relationships among these data are indications of such transformation. Traditionally, measuring convergence consists of investigation whether poor countries are catching up with richer ones. In the literature there are three methods for measuring convergence: regression analysis, standard of deviation or coefficient of variation, and time series econometrics (convergence towards a common trend).

The regression analysis stems from Solow growth theory and consists of investigating whether growth is negatively related to income per capita levels and consequently poor countries grow faster than the rich ones (known as beta convergence). Standard deviation from the income average or coefficient of variation is another measure of convergence (sigma convergence). The coefficient of variation is calculated by dividing the standard deviation by the mean of the sample, hence the name of mean convergence (see equation 5.1 proposed by Williamson and Flemming, 2002).

The variables to be assessed for their stationarity are computed from the standard deviation and coefficient of variation and they are generated by autoregressive process (see equation 5.2 as proposed by Carmignani, 2005).The convergence to common convergence is based on a new definition of convergence according to which two countries *i* and *j* are said to converge in a situation where the difference of their income per capita ($y_{it} - y_{jt}$) evolves into a stationary process (see equation 5.3 proposed by Carmignani, 2005). The new variable known as mean convergence is generated by the dynamic differential process in equation (5.2). In Table B1 to B6 (Appendix B), the mean convergences (MC) of key macroeconomic indicators variables are made of the acronyms representing mean convergences (MC) and the initials of the countries.

MC-BU represents the mean convergence in Burundi

MC-Rw represents the mean convergence in Rwanda

MC-KE represents the mean convergence in Kenya

MC-TA represents the mean convergence in Tanzania
MC-UG represents the mean convergence in Uganda.
These variables will then be assessed for their stationarity and short-run and long-run relationships using Eviews. Eviews is software which has powerful features for statistics and econometric analysis and forecasting. It is used extensively in economics.

5.6 Conclusion

The integrated theoretical framework in chapters I and II has suggested that quantitative methodology is an appropriate for empirically investigating growth and macroeconomic convergence as a result of regional integration. This chapter has explained the way this study has been conducted by exploring the fundamental ontological, epistemological and methodological questions underpinning economic research. These questions include what is the nature of reality and what can be known about that reality? How do know what we know? How do researchers go through the research process? This discussion clarified the position of this study within the philosophy of economics and in identifying the nature of the problem under study. This chapter argues that, although the complexity of issues in economics may induce researchers to consider a convergence of philosophical views, this study used the positive methodology, ignoring the normative/qualitative methodology due to lack of time and budget for collecting qualitative data. Given the nature of the topic and research questions and hypothesises, it was obvious that the data to be collected are primarily quantitative. One of the reasons for choosing quantitative methods is also the triumph of quantification in the economics profession marked by recent development in econometrics and computational techniques for data analysis. In this study a merit of econometrics is to allow the data to be tested for stationarity and long-run relationships. This task requires the computing the standard deviation and coefficient of variation, testing for unit roots, cointegration and error correction analysis. Having explored economic modelling this chapter has identified the data to be collected related to growth and macroeconomic convergence and sustainability hypotheses. These data are mentioned in the East African Development Strategy 1999-2005; namely, GDP per capita, inflation, fiscal and current account deficits, and

external debt. They are secondary data collected by national statistics agencies and compiled by international organisations such as the IMF/World Bank. The data have been transformed into mean convergence (MC) and also are generated by the dynamic differential process. Having chosen the econometric specification and obtained the data on key macroeconomic variables such as in Table B1 to B6 (Appendix B), the next chapter assesses their stationality and long-run relationships by estimating the parameters of the chosen econometric models, and discusses the findings and their policy implications.

Chapter VI

Estimation of Econometric Models and Discussion of Findings

"I believed in the importance of a careful reading of the empirical evidence. In particular, our prescriptions need to be based on a solid understanding of recent experience. This may seem like a trivial point to emphasis, but it is remarkable how frequently it is overlooked"
Dani Rodrik (2007)

The aim of this study is to investigate whether or not regional integration contributes significantly to growth and macroeconomic convergence in among member states. Generally, economists estimate the parameters of the chosen econometric models to predict such relationships. Given the data on macroeconomic variables the estimates of the parameters of the chosen econometric models in previous chapter can be computed. The following section focuses on inspecting the data as a pre-assessment of the degree of variability, stability or stationarity, and sustainability on key macro-aggregates using the coefficient of variation and correlation matrix. The subsequent section presents the econometric tests of the convergence hypothesis. The final section relates the findings to existing theories and empirical studies and the past experiences of the East Africa Community in achieving convergence indicators.

6.1 Inspection of Data

Sometimes researchers violate econometric theory by drawing conclusions from econometric tests without looking at the data and checking whether or not they have a regular deterministic trend and regular stochastic trend. Running statistical tests without inspecting the data could lead to the mistaken interpretations of econometric test results. This section looks at the graph representing the degree of stationarity or nonstationarity using the coefficient of variation and correlation matrix for a pre-assessment of convergence in key macro-aggregate variables. It is necessary to seek to detect the regularity or stationarity, nonstationarity, and co-movement among variables under investigation before or during econometric testing in other to avoid

what Friedman (1992) calls 'regression fallacies'. It is unfortunate reality that researchers sometimes obtain econometric test results which do not make any economic sense. Researcher should be aware of the common errors in hypothesis testing. When a researcher rejects or accepts the null hypothesis, he/she may commit two types of errors at the same time: type-I error and type-II error. While the first error is the probability of rejecting the null hypothesis when it true, the second is the probability of accepting the null hypothesis when it is false. In the literature the probability of a type-I error is called level of significance (Gujurati, 2003). Ideally a researcher is interested in minimising both type-I and type-II errors, even if it is impossible to do so simultaneously. The solution is to keep the level of significance at a low level such as 1% and 5%. According to Kennedy (2001, p.580),

> "*hypothesis testing is overstated; overused and practically useless as a means of illuminating what the data in some experiments are trying to tell us".*

Before running the econometric tests and drawing out conclusion from findings, this section inspects the data using the coefficient of variation and correlation matrix approaches.

6.1.3 Data Inspection Using Coefficient of Variation Approach

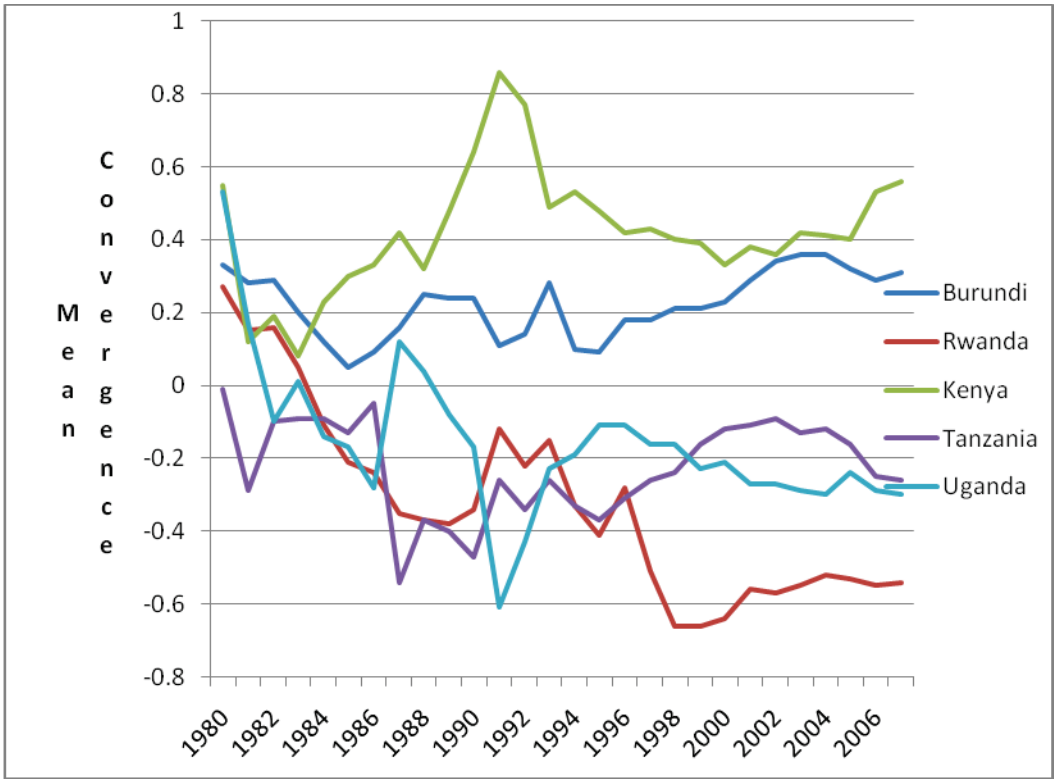
While some researchers use the coefficient of variation to investigate growth and macroeconomic convergence, in this study, it is used as a pre-assessment for stationarity and co-movement among the variables under investigation. It is applied to mean convergence calculated from the key macro-aggregates identified as crucial for the convergence and sustainability hypotheses. These include GDP per capita, inflation, fiscal and current account deficits and external debt.

A) Mean Convergence in GDP per Capita

To begin with, Figure 6.1 depicts the preliminary evidence of how the East African countries are converging or diverging towards zero in terms of GDP per capita over the sample period 1980-2007. Overall observation indicates that the EAC countries were relatively converging during the 1980s and diverging during the 1990s. Figure

6.1 indicates that there has not been significant growth convergence in the founding countries (Kenya, Tanzania, and Uganda), whose mean convergence of GDP in per capita has fluctuated between -0.60 and 0.80, suggesting that the value of mean convergence is not approaching zero. In the new members (Burundi and Rwanda) the mean convergence has fluctuated between -0.62 and 0.40, suggesting divergence in GDP per capita. Put together, the Figure 6.1 shows that all the EAC countries deviate from zero, suggesting divergence in income per capita.

Figure 6.1 Mean Convergence for GDP Per Capita in the East Africa Community

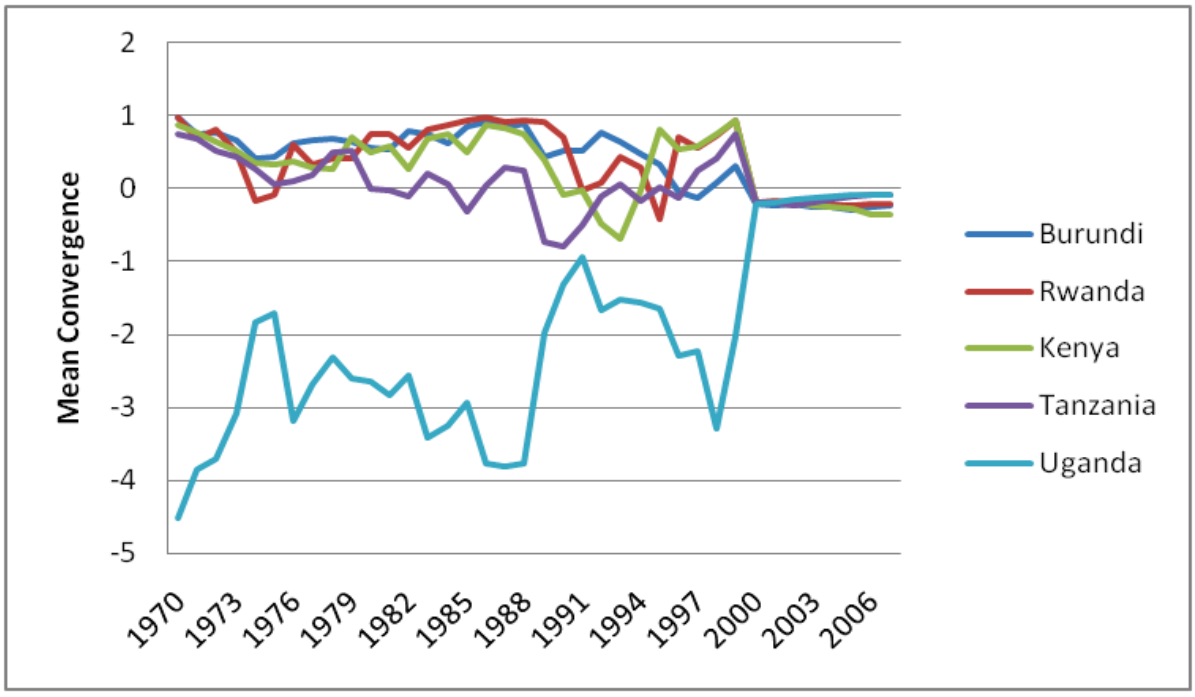


Source: Calculated from Data in Table A1, Appendix A

B) Mean Convergence in Inflation

The graph in Figure 6.2 shows that the mean convergences do not drift too much a kind of convergence. Apart from Uganda, the dispersion of inflation around zero has a tendency to fluctuate within the margin from -1 to 1. An apparent anomaly occurs in 2000, where perfect convergence appears. This is explained by the change in the year of reference used in the data. In this period, the IMF chose the 100-consumer index for all its members.

Figure 6.2 Mean Convergence for Inflation in the East Africa Community

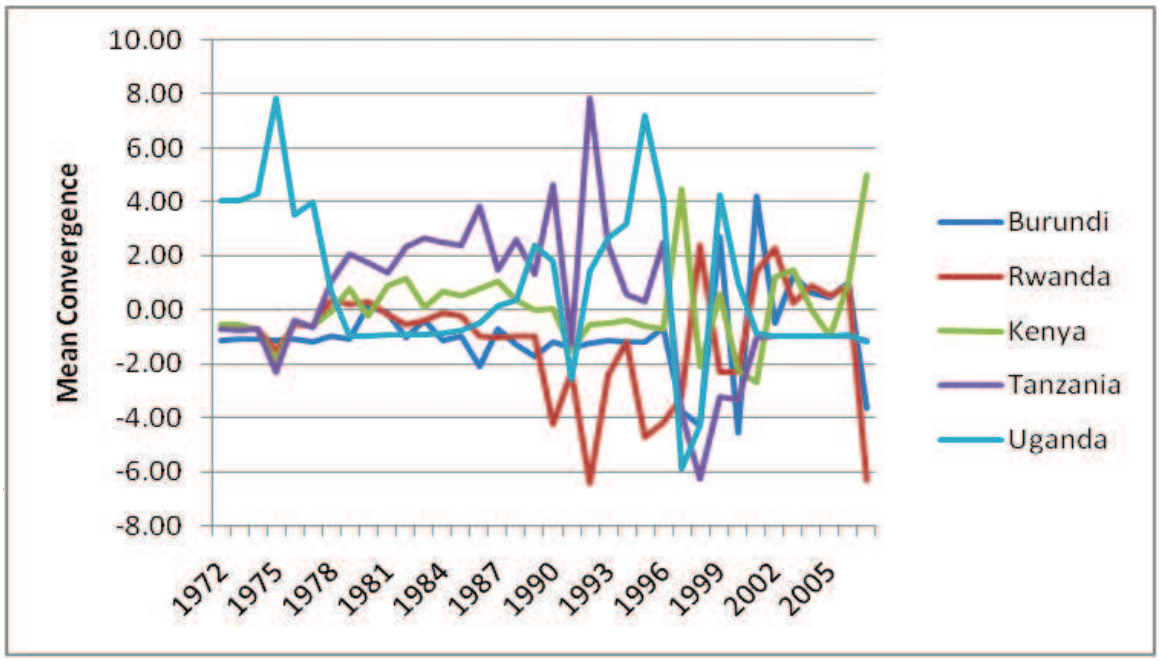


Source: Calculated from Data in Table A2 in Appendix A

C) Mean Convergence in Government Budget Deficit/Surplus

As shown in Figure 6.3, convergence and divergence in budget deficits are features of the East African countries. The variability of government budget deficits, measured by the coefficient of variation was stable during the 1970s-1980s ranging from 2 to –2. From the 1990s the fluctuation has ranged from - 6 to 8, meaning a large divergence.

Figure 6.3 Mean Convergence for Fiscal Deficit/Surplus in the East Africa Community

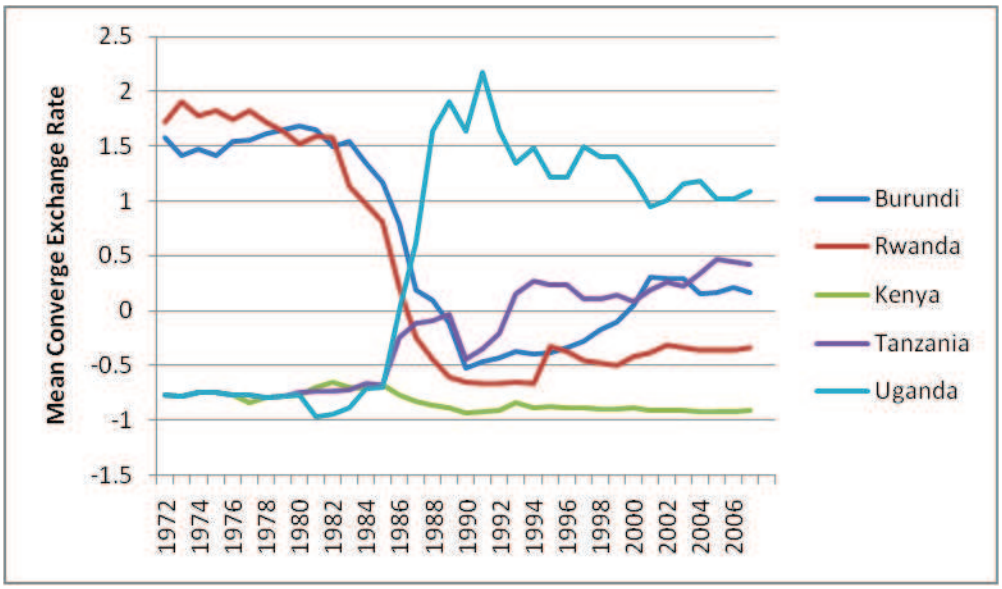


Source: Calculated from Data in Table A3 in Appendix A

D) Mean Convergence for Real Exchange Rates

Figure 6.4 shows that the real exchange rates in EAC countries were relatively converging to zero in the 1970s and have been unstable since the 1980s. This fluctuation may be explained by the change in monetary policies following the implementation of structural adjustment programmes which forced the devaluation of domestic currencies

Figure 6.4 Mean Convergence for Real Exchange Rates in East Africa Community

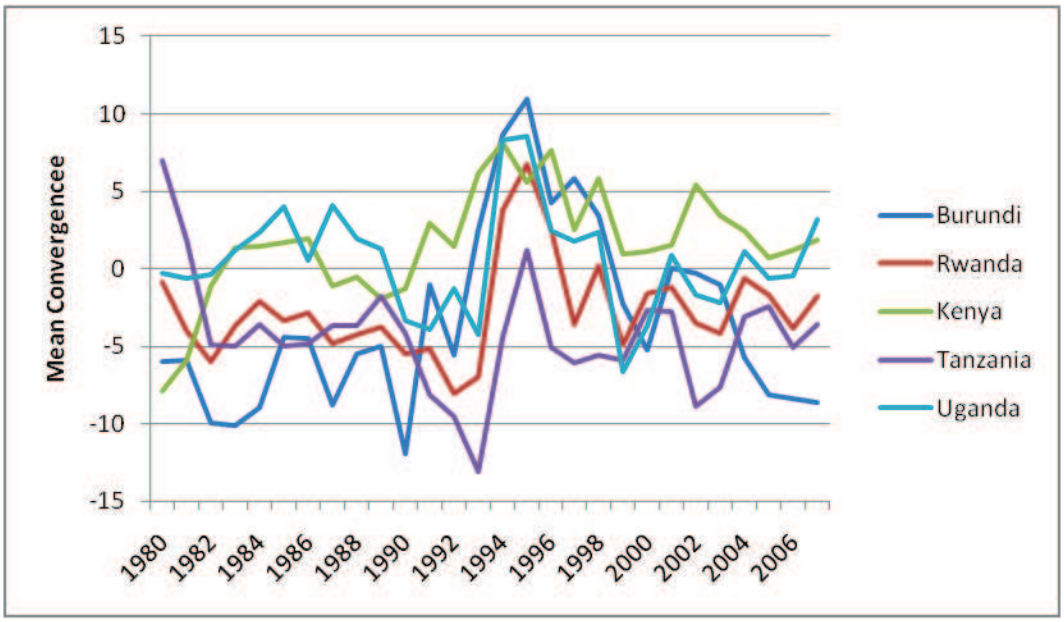


Source: Computation of Data from Table A5 in Annex A

F) Mean Convergence in Current Accounts

Figure 6.5 shows that the current accounts do not follow a stationary process in EAC countries. The variables do not tend to converge toward zero, in particular for Tanzania , Kenya, and Burundi where the fluctuation margin ranged from -10 and 10 in 1993

Figure 6.5 Mean Convergence for Current Accounts as Percentage of GDP in East Africa Community

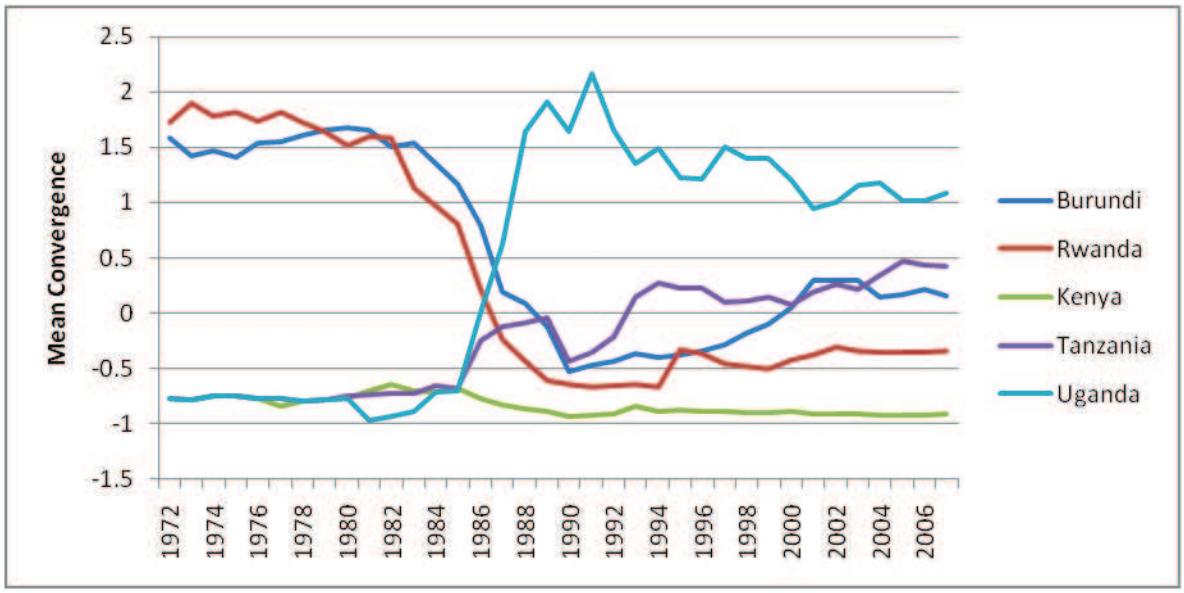


Source: Computation of Data from Table A5 in Annex A

G) Mean Convergence in External Debt

Figure 6.6 shows that the external debts in EAC countries do not converging to zero. However, they are fluctuating in the reasonable margin of 1 and -1 except for Uganda where the margin of fluctuation is above 1.

Figure 6.6 Mean Convergence for External Debt as Percentage of GDP in East Africa Community



Source: Calculated from Data in Table A6 in Appendix A

The graph representation of coefficient of variation technique has been used as a tool for inspecting the behaviour of data. A simple observation of Figures 6.1 to 6.6 gives an idea of stationarity or nonstationarity. Another technique for inspecting the data considers interdependence among variables. This can be done with a correlation matrix.

6.1.2 Data Inspection Using Correlation Matrix Approach

In the case that the variables do not exhibit unit roots, and/or are stationary, both correlation and regression analyses are used to assess the degree to which they are related and moving together. However these two concepts are not interchangeable. While regression analysis assumes one-way or cause-effect relationships, the use of correlation does not make such assumptions. Regression analysis is used to model the functional relationship between dependent variables and independent or explanatory variables. This functional relationship can be formally expressed as an equation with parameters which describe how the equation fits the data. Correlation

analysis estimates the degree of association or interdependence among the variables. The correlation coefficient tells us about the synchronisation of convergence between variables. Generally the economies belonging to the same regional integration arrangement could display high correlation coefficients in key macro-aggregates simply because they are subject to the same supply and demand shocks (sources of economic fluctuation).

As this study is interested in looking for economic fluctuations and co-movements in the East African economies, the correlation matrix is used to detect the pairwise correlation coefficients between two economies. As Koop (2005) suggests, the properties of correlation coefficients lie between -1 to +1, meaning perfect negative and positive relations. If the correlation coefficient is greater than 0.50 there is a possibility of a significant relationship. The correlation matrices in Tables 6.1 to 6.12 are used to detect the nature of relationships between key macro-aggregates in East African countries.

Table 6.1: Correlation Matrix for GDP Per Capita

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	-0.14	-0.11	0.24	0.15
Rwanda	-0.14	1	-0.18	0.13	0.49
Kenya	-0.11	-0.18	1	-0.39	-0.42
Tanzania	0.24	0.13	-0.39	1	-0.04
Uganda	0.15	0.49	-0.42	-0.01	1

Source: Author Calculation

Table 6.1 reports the correlation coefficients for GDP per capita. As can be seen, these are relatively low and none is greater than 0.50, meaning that there is no evidence of co-movement or synchronisation behaviour between the variables.

Table 6.2: Correlation Matrix for Inflation

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	0.64	0.57	0.46	0.72
Rwanda	0.66	1	0.68	0.29	-0.83
Kenya	0.52	0.68	1	0.56	-0.82
Tanzania	0.32	0.29	0.56	1	-0.57
Uganda	-0.81	-0.83	-0.82	-0.57	1

Source: Author Calculation

Table 6.2 reports how inflation rates in each countries might be transmitted to other member states. As can be seen, the correlation coefficients for inflation are above 0.50, meaning that they are more highly correlated. Kenya and Uganda are moving together with all countries in the region. Rwanda and Burundi are moving with other countries except Tanzania, which is moving only with Uganda. The perfect correlation for inflation can be explained by price differentials in the region. People in EAC countries could take advantage of prices differential, so that inflation in one country can be transmitted in other countries.

Table 6.3: Correlation Matrix for Fiscal Deficits

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	0.32	-0.19	0.11	0.13
Rwanda	0.32	1	-0.25	-0.32	-0.30
Kenya	-0.19	-0.25	1	0.06	-0.39
Tanzania	0.11	-0.32	0.06	1	0.11
Uganda	0.13	-0.30	-0.39	0.11	1

Source: Author Calculation

Table 6.3 reports the correlation coefficients for fiscal deficits. All correlation coefficients are below 0.50, meaning that there is no evidence of synchronisation. This situation can be explained by a lack of fiscal coordination policy, where each country is independently conducts its own fiscal policy regardless of its impact on other member economies

Table 6.4: Correlation Matrix for Exchange Rates

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	0.96	0.83	-0.81	-0.97
Rwanda	0.96	1	0.81	-0.87	-0.95
Kenya	0.83	0.81	1	-0.80	-0.88
Tanzania	-0.81	-0.87	-0.80	1	0.82
Uganda	-0.97	-0.95	-0.88	0.82	1

Source: Author Calculation

Table 6.4 reports the correlation coefficient for exchange rates. Since all correlation coefficients are above 0.50 there is evidence that the variables are moving together, meaning that there is evidence of the interdependence of exchange rates. This situation can be explained by the differential exchange rates among domestic currencies.

Table 6.5: Correlation Matrix for Current Account Deficit

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	0.25	-0.01	-0.36	-0.23
Rwanda	0.25	1	-0.15	0.07	-0.16
Kenya	-0.01	-0.15	1	-0.06	0.51
Tanzania	-0.36	0.07	-0.06	1	0.14
Uganda	-0.23	-0.16	0.51	0.14	1

Source: Author Calculation

Table 6.5 reports the correlation coefficients for current accounts deficits. As can be seen there is no evidence of interdependence. This makes sense, because the current accounts represent the trade transactions (exports and imports) of countries. Since EAC intra-trade is weak, the lack of interdependence is expected.

Table 6.6: Correlation Matrix for External Debt

	Burundi	Rwanda	Kenya	Tanzania	Uganda
Burundi	1	0.79	-0.80	-0.63	-0.43
Rwanda	0.79	1	-0.62	-0.60	-0.33
Kenya	-0.80	-0.62	1	0.27	0.56
Tanzania	-0.63	-0.60	0.27	1	0.18
Uganda	-0.43	-0.33	0.56	0.18	1

Source: Author Calculation

Table 6.6 reports the correlation coefficients for external debt. The results show that Rwanda and Burundi are more correlated with other countries except for Uganda. Kenya is correlated with all countries except Tanzania, which is correlated only with Kenya. The overall findings from the correlation matrices show that the correlation coefficients tend to be higher between some countries and very low between other countries. There are noticeably high correlation coefficients in terms of inflation, exchange rates and external debt.

There is a weak relationship in terms of GDP per capita and fiscal and current account deficits.

6.2 Time Series Econometric Testing

Since Nelson and Ploser (1982) published their paper, '*Trends and Random Walks in Macroeconomic Time Series*', the presence or absence of a unit root in time series data has become a controversial subject. They argued that almost macroeconomic time series have a unit root and are nonstationary. It was believed that estimating regression with nonstationary data using ordinary least standard (OLS) measures would lead to misleading results. To overcome the problem of spurious results, differencing the nonstationary data has been proposed. Although differencing nonstationary variables would make them stationary, this would mean that valuable information from economic theory concerning the short run and the long run equilibrium properties of the data would be lost. Cointegration and error correction mechanism have since become new approaches for studying the dynamics in macroeconomic time series data.

This section focuses on testing for the degree of stationarity, co-movement in the key macro-aggregates and exploring the short-run and long-run relationships between variables using time series econometric analysis; namely unit root, error correction and cointegration tests.

6.2.1 Univariate Analysis: Testing for Unit Root

In measuring convergence, econometric investigation entails an initial univariate analysis of each mean convergence as in expressed equation 5.1(see chapter V). Traditionally the Augmented Dickey-Fuller (ADF, 1979) test is widely used for testing unit root. More recently the Elliot, Rothenberg and Stock (ERS, 1996) test is used because of its power characteristics compared with ADF. The problem with ERS (1996) is that the critical values calculated for 50 observations cannot be accurate for a small sample. The Elliot-Rothenberg-Stock Unit Root test procedure is employed because it has powerful characteristics and exhibits less distortion in testing stationarity. There are practical issues in performing a unit root test. The first is the

choice of including intercept first, and then intercept and linear trend in the test regression. The second is the specification of the number of lagged difference terms to be added to the test regression. The number of lags is determined using the Akaike and Schwartz criteria. The third issue is choosing the level of significance. In the language of econometrics, a statistic test is said to be statistically significant if the value of the test statistic lies in the critical region where the null hypothesis is rejected. It is said to be statistically insignificant if the values of the test statistic lie in the acceptance region where the null hypothesis is not rejected. If the null hypothesis is rejected, the finding is said to be statistically significant at different levels of significance such 1%, 5%, 10% (Gujarati, 2003).

In order to minimise both the probability of rejecting the null hypothesis when it true and the probability of accepting the null hypothesis when it is false, the level of significance is kept at the low level of 5% which gives an indication of the acceptance and rejection areas. The decision of this criterion is that if t-statistic falls in critical region, the null hypothesis is rejected. If the t-statistic falls in the confidence interval or region of acceptance, the null hypothesis is accepted. The hypothesis testing follows a chi-square distribution for the unit root simply because it has higher power and is appropriate for small sample size like the one used in the present study (27 and 29 observations). The hypothesis testing assumes that;

Ho: the variable is nonstationary and has a unit root

H1: the variable is stationary and does not have a unit root

The unit root test results are reported in Tables 6.7 to 6.12.

Table 6.7: Elliot, Rothenberg- Stock Unit Root Test Results for GDP Per Capita

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**5.17** 1.87 2.97 3.91	**16.45** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Rwanda	**42.40** 1.87 2.97 3.91	**19.39** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Kenya	**3.99** 1.87 2.97 3.91	**13.43** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Tanzania	**4.47** 1.87 2.97 3.91	**7.75** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Uganda	**4.17** 1.87 2.97 3.91	**7.20** 4.22 5.72 6.77	 1% 5% 10%

Source: Calculated from Data in Table A1 in Appendix A

Note: Considering the intercept and trend at the 5% level of significance, all t-statistics marked in bold are in the rejection area because they are greater than the critical value and are thus statistically significant, meaning that the variables in all countries are stationary.

Table 6.8: Elliot, Rothenberg- Stock Unit Root Test Results for Inflation

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**15.44** 1.87 2.97 3.91	**10.64** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Rwanda	**4.23** 1.87 2.97 3.91	**7.03** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Kenya	**4.58** 1.87 2.97 3.91	**8.23** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Tanzania	**5.83** 1.87 2.97 3.91	**8.14** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Uganda	**14.35** 1.87 2.97 3.91	**9.74** 4.22 5.72 6.77	 1% 5% 10%

Source: Calculated from Data in Table A2 in Appendix A

Note: Considering the intercept and trend at the 5% level of significance, all t-statistics marked in bold are in the rejection area because they are greater than the critical value and are statistically significant, meaning that variables in all countries are stationary.

Table 6.9: Elliot, Rothenberg-Stock Unit Root Test Results for Fiscal Deficits

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**3.47** 1.87 2.97 3.91***	**11.69** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Rwanda	**1.80** 1.87* 2.97** 3.91***	**6.48** 4.22 5.72 6.77***	 1% 5% 10%
Mean Convergence for Kenya	**1.51** 1.87* 2.97** 3.91***	**5.39** 4.22 5.72** 6.77***	 1% 5% 10%
Mean Convergence for Tanzania	**4.16** 1.87 2.97 3.91	**14.55** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Uganda	**2.81** 1.87 2.97** 3.91***	**6.47** 4.22 5.72 6.77***	 1% 5% 10%

Source: Calculated from Data in Table A3 in Appendix A

Note: *denotes finding is in acceptance area and not statistically significant at the 1 per cent level

** denotes finding is in acceptance area and is not statistically significant at the 5 per cent level

***denotes finding is in acceptance area and is not statistically significant at the 10 per cent level

Considering the intercept and trend at the 5% level of significance, the t-statistics marked in bold for Burundi, Rwanda, Tanzania, and Uganda are in the rejection area because they are greater than the critical value and are statistically significant, meaning that the variables are stationary. But the t-statistics for Kenya is in acceptance region, meaning that it is nonstationary.

Table 6.10: Elliot, Rothenberg- Stock Unit Root Test Results for Exchange Rates

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**19.36**	**16.61**	
	1.87	4.22	1%
	2.97	5.72	5%
	3.91	6.77	10%
Mean Convergence for Rwanda	**42.59**	**24.52**	
	1.87	4.22	1%
	2.97	5.72	5%
	3.91	6.77	10%
Mean Convergence for Kenya	**10.77**	**13.63**	
	1.87	4.22	1%
	2.97	5.72	5%
	3.91	6.77	10%
Mean Convergence for Tanzania	**32.79**	**5.10**	
	1.87	4.22	1%
	2.97	5.72**	5%
	3.91	6.77***	10%
Mean Convergence for Uganda	**29.67**	**13.67**	
	1.87	4.22	1%
	2.97	5.72	5%
	3.91	6.77	10%

Source: Calculated from Data in Table A3 in Appendix A

Note: *denotes finding is in acceptance area and is not statistically significant at the 1 per cent level

** denotes finding is in acceptance area and is not statistically significant at the 5 per cent level

***denotes finding is in acceptance area and is not statistically significant at the 10 per cent level

Considering the intercept and trend at the 5% level of significance, the t-statistics marked in bold for Burundi, Rwanda, Kenya, and Uganda are in rejection area because they are greater than the critical value and are statistically significant, meaning that variables are stationary. But the t-statistics for Tanzania is in acceptance region, meaning that it is nonstationary.

Table 6.11: Elliot, Rothenberg- Stock Unit Root Test Results for Current Account

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**4.00** 1.87 2.97 3.91	**13.23** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Rwanda	**2.34** 1.87 2.97** 3.91***	**8.30** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Kenya	**14.92** 1.87 2.97 3.91	**17.10** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Tanzania	**6.84** 1.87 2.97 3.91	**8.51** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Uganda	**2.08** 1.87 2.97** 3.91***	**7.39** 4.22 5.72 6.77	 1% 5% 10%

Source: Calculated from Data in Table A3 in Appendix A

Note: *denotes finding is in acceptance area and is not statistically significant at the 1 per cent
** denotes finding is in acceptance area and is not statistically significant at the 5 per cent
***denotes finding is in acceptance area and is not statistically significant at the 10 per cent

Considering the intercept and trend at the 5% level of significance, the t-statistics marked for all countries are in rejection area because they are greater than the critical value and are statistically significant, meaning that the variables are stationary.

Table 6.12: Elliot, Rothenberg- Stock Unit Root Test Results for External Debt

Variable	Level		Critical Level
	Intercept	Intercept and Trend	
Mean Convergence for Burundi	**6.8** 1.87 2.97 3.91	**8.25** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Rwanda	**6.89** 1.87 2.97 3.91	**11.05** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Kenya	**26.46** 1.87 2.97 3.91	**10.21** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Tanzania	**9.58** 1.87 2.97 3.91	**28.04** 4.22 5.72 6.77	 1% 5% 10%
Mean Convergence for Uganda	**7.12** 1.87 2.97 3.91	**5.32** 1.87 2.97 3.91	 1% 5% 10%

Source: Calculated from Data in Table A3 in Appendix A

Note: Considering the intercept and trend at the 5% level of significance, all t-statistics marked in bold are in the rejection area because they are greater than the critical value and are statistically significant, meaning that the variables in all countries are stationary.

From Tables 6.7 to 6.12, the GLS Elliot -Rothenberg-Stock tests show that the overall results are mixed. In many cases such as GDP per capita, inflation, current account, and external debt the null hypothesis that variables have unit roots can be rejected, meaning that the data are stationary and are converging in all member states. Concerning other variables such as fiscal deficits, and exchange rates, the results are mixed. While Kenya is not converging in fiscal deficits, and Tanzania not in

exchange rates, other countries are converging in these variables, meaning that the data are nonstationary. At this level no decision can be taken about convergence or divergence, and consequently the decision about running cointegration tests for nonstationary variables. Generally, the unit root test is the first stage in running cointegration tests between nonstationary variables. If the unit root test shows that the variables are stationary there is no need to proceed with cointegration tests. However, since Nelson and Ploser (1982) argued that almost all macroeconomic time series have a unit root and are nonstationary, the absence of unit roots in some variables must be interpreted with caution. It is wise to check if the absence of a unit root is genuine. This is simply because most time series data are characterised by regular persistent change (stochastic trends) and sudden, unanticipated and large change (structural break). Perron (1989, 1997) and Zivot and Andrews (1992) argued that failure to ignore an existing structural break in a time series would lead to a bias that reduces the ability to reject the null hypothesis. They proposed the inclusion of the break endogenously from the data. Following this development, this study performs unit root tests with structural break in 1993 to ensure that the stationarity found throughout period is genuine. A break could be any change in time series data as a result of economic shocks such as government policies or economic crisis hitting the economies. In this study regional integration policy is considered as a break which hit the East African economies in 1993. The following tables show the results with and without structural break.

6.13 Elliot, Rothenberg- Stock Unit Root Test Results for GDP with Structural Break

GDP	**1980-1993**			**1993-2007**		
	t-statistic	p-value 5%	Conclusion	t-statistic	p-value 5%	Conclusion
Burundi	18.10	5.72	Convergence	4.12*	5.72	No Convergence
Rwanda	5.56*	5.72	No convergence	2.56*	5.72	No Convergence
Kenya	3.95*	5.72	No convergence	8.36	5.72	Convergence
Tanzania	18.42	5.72	Convergence	1.29*	5.72	No Convergence
Uganda	5.45*	5.72	No Convergence	21.94	5.72	Convergence
Inflation	**1972-1993**			**1993-2007**		
Burundi	12.68	5.72	Convergence	5.68*	5.72	No Convergence
Rwanda	13.31	5.72	Convergence	12.72	5.72	Convergence
Kenya	19.83	5.72	Convergence	21.78	5.72	Convergence
Tanzania	1.57*	5.72	No convergence	15.78	5.72	Convergence
Uganda	14.96	5.72	Convergence	16.78	5.72	Convergence
Fiscal Deficits	**1972-1993**			**1993-2007**		
Burundi	8.64	5.72	Convergence	15.12	5.72	Convergence
Rwanda	11.9	5.72	Convergence	11.93	5.72	Convergence
Kenya	11.37	5.72	Convergence	18.83	5.72	Convergence
Tanzania	6.44	5.72	Convergence	17.91	5.72	Convergence
Uganda	11.74	5.72	Convergence	8.06	5.72	Convergence
Exchange Rates	**1972-1993**			**1993-2007**		
Burundi	55.94	5.72	Convergence	30.80	5.72	Convergence
Rwanda	21.96	5.72	Convergence	56.11	5.72	Convergence
Kenya	22.09	5.72	Convergence	14.31	5.72	Convergence
Tanzania	14.33	5.72	Convergence	12.27	5.72	Convergence
Uganda	1.07*	5.72	No Convergence	7.96	5.72	Convergence

Source: Calculated from Data in Appendix A

Table 6.13 Elliot- Rothenberg-Stock Unit Root Test Results for GDP with Structural Break (continued)

Current Account Deficits	**1972-1993**			**1993-2007**		
Burundi	14.10	5.72	Convergence	12.47	5.72	Convergence
Rwanda	14.23	5.72	Convergence	13.00	5.72	Convergence
Kenya	1.79*	5.72	No Convergence	13.79	5.72	Convergence
Tanzania	26.79	5.72	Convergence	1019	5.72	Convergence
Uganda	17.75	5.72	Convergence	17.8	5.72	Convergence
External Debt	**1980-1993**			**1993-2007**		
Burundi	22.50	5.72	Convergence	16.92	5.72	Convergence
Rwanda	28.52	5.72	Convergence	13.71	5.72	Convergence
Kenya	17.60	5.72	Convergence	14.70	5.72	Convergence
Tanzania	5.35*	5.72	No Convergence	14.58	5.72	Convergence
Uganda	17.50	5.72	No Convergence	9.67	5.72	Convergence

Source: Calculated from Data in Appendix A

Considering the intercept and trend at 5% level of significance, Table 6.13 shows that all countries are not converging in GDP per capita throughout the period 1980-2007. The data are either stationary or nonstationary before or after the break in 1993. These results contradict those in Table 6.2 where the data are stationary over the sample period 1980-2007. This is not the same situation as for other variables. All countries are converging in fiscal deficits. Rwanda, Kenya, and Uganda are converging in inflation. All countries are converging in current accounts except Kenya. All countries are converging in exchange rates and external debt except Uganda. While Burundi, Rwanda and Kenya are converging in external debt, Tanzania and Uganda are not.

According to econometric theory, if unit roots tests show that the variables are stationary there is no need to run cointegration tests. However, in order to ensure that the results of the unit root tests are genuinely stationary, a structural break was introduced in the data in 1993. The year 1993 was chosen for the following reasons: As defined a break could be any change in time series data as a result of economic shocks such as government policies or economic crisis hitting the economies. Since regional integration policy was adopted in 1993, in this study it is considered as a

shock which hit the East African economies. Change in national economies was expected as a result of regional integration. Since the results from unit root tests with the break are inconclusive, the crucial question is whether or not it is necessary to run cointegration tests. To answer this question let us put together the previous results and see what they say. Table 6.14 provides insight into whether or not cointegration tests can be performed.

Table 6.14 Summary of Data Inspection and Econometric Tests Results

	Inspection of Data		Econometric Test		Decision on Cointegration
Variable	Coefficient of variation	Correlation Matrix	Unit Root	Structural Break	Testing or No Testing
GDP	Convergence & Divergence	Divergence	Convergence	Convergence & Divergence	Testing
Inflation	Convergence	Divergence	Convergence	Convergence & Divergence	Testing
Fiscal Deficits	Convergence & Divergence	Convergence	Convergence & Divergence	Convergence	Testing
Exchange Rates	Convergence & Divergence	Divergence	Convergence	Convergence & Divergence	Testing
Current Account	Convergence	Divergence	Convergence & Divergence	Convergence & Divergence	Testing
External Debt	Convergence & Divergence	Divergence	Convergence	Convergence & Divergence	Testing

Source: Compilation from Data Inspection and Preliminary Econometric Tests

In order to detect a long-run relationship between variables, Table 6.14 gives a reasonable decision for running cointegration tests. However, the question is whether or not the structural break may be incorporated into the cointegration test. A few empirical studies, such as Gregory and Hansen (1996) and Saikkonen and Lütkepohl (2000), have proposed cointegration incorporating a structural break if it is known. In this study the regional integration policy is assumed to be a shock to the regional economies, and hence taken as a break. However, a cointegration test incorporating a structural break cannot be performed, for technical reasons. The cointegration test cannot be performed using Eviews[28] for small samples as is the

[28] Eviews is a powerful software that is used in the most time series econometric investigations, including the

case in this study. The best solution therefore is to run cointegration tests without break to detect whether or not there is a long-run relationship between variables.

6.2.2 *Multivariate Analysis: Test for Cointegration*

As mentioned above, co-integration is thought of as convergence towards a long-run equilibrium relationship. The notion of convergence involves testing for the existence of a co-integrating relationship between economic variables in different countries (Carmignani, 2005). In the sense of the Maastritcht-type criteria, if the economies diverge in their economic growth and macroeconomic policies, the costs of using a common currency would be high. In order to reduce the costs of losing control over monetary policy as an instrument for macroeconomic stabilization, there are a number of preconditions. These include convergence in key macroeconomic variables such as inflation, exchange rates, and government deficits. The objective of this study is to investigate the long-run relationship among these. The study looks at the variables of each of the member countries in comparison with that of the regional economy which can be considered as the benchmark for convergence. The test is performed on annual data for fiscal deficits as indicators of fiscal policy and inflation and exchange rates as the proxy for monetary policy covering the period 1972-2007.

The trend assumption is of a linear deterministic trend. The co-integration test follows Johansen's approach, with a lag length of value 2. The decision criterion for testing for a cointegrating relationship in a set of variables (N-1) is made on the basis of the number of cointegrating vectors (r). According to Eagle and Granger (1987), there is convergence if the combination of nonstationary variables is stationary. Such combination is possible up to N-1 distinct cointegrating vectors.

- If r = N-1, there is a complete convergence.
- If r<N-1, there is a weak convergence
- If r = 0, there is no convergence

Tables 6.15 to 6.21 report the cointegration test results as follows. According to the decision criteria, the number of possible distinct cointegrating vectors is 5 (6-1)

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current study.

- If r = 5, there is a complete convergence.
- If r<5, there is a weak convergence
- If r = 0, there is no convergence

Table 6.15a Unrestricted Co-integration Rank Test (Trace) for GDP Per Capita

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.974	172.091	63.818
At most 1*, r ≤1	r=2	0.789	83.558	47.856
At most 2*, r ≤2	r=3	0.604	46.180	29.797
At most 3* r≤3	r=4	0.504	23.898	15.494

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the null hypothesis at the 0.05 per cent level

Trace test indicates 5 cointegrating equations at the 0.05 per cent level.

Table 6.15b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) for GDP Per Capita

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.974	88.532	33.876
At most 1*, r ≤1	r=2	0.789	37.378	27.584
At most 2*, r ≤2	r=3	0.604	22.281	21.131
At most 3* r≤3	r=4	0.505	16.910	14.264

Source: Calculated from Data in Table 5.1a

Note: *denotes rejection of the null hypothesis at the 0.05 per cent level, max-eigenvalue test indicates 5 cointegrating equations at the 0.05 per cent level.

Tables 6.15a and 6.15b show trace and maximum eigenvalues tests indicating at most 5 co-integrating equations, and the null hypothesis of non-cointegrating vectors is rejected. The existence of 5 co-integrating vectors suggests that the variables are cointegrated, and there is a complete convergence.

Table 6.15c Estimation of the Speed of Adjustment Coefficient for GDP Per Capita

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	-0.072	0.089	-0.803
MC-RW	0.357	0.148	2.400
MC-KN	0.371	0.116	3.193
MC-TZ	0.324	0.207	1.565
MC-UGA	-0.706	0.149	-4.730

Source: Calculated From Table 5.1a

Table 6.15c presents the speed of adjustment coefficients for GDP per capita, which indicate the speed at which the variables adjust towards their long-run equilibrium. As can be seen in table the adjustment coefficients in countries such as Rwanda (35 per cent), Kenya (37 per cent), and Tanzania (32 per cent) are significant, as the dynamics of the variables are influenced by the long-run equilibrium relationship.

Table 6.16a Unrestricted Co-integration Rank Test (Trace) for Inflation

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.867	117.192	69.818
At most 1*, r ≤1	r=2	0.553	48.410	47.856
At most 2, r ≤2	r=3	0.317	21.020	29.797
At most 3 r≤3	r=4	0.206	8.063	15.494

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the null hypothesis at the 0.05 per cent level. Trace test indicates 2 cointegrating equations at the 0.05 per cent level.

Table 6.16b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) inflation

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.867	68.781	33.876
At most 1*, r ≤1	r=2	0.553	27.380	27.584
At most 2, r ≤2	r=3	0.317	12.966	21.131
At most 3 r≤3	r=4	0.206	7.879	14.264

Source: Calculated from Data in Table 5.1a

Note: *denotes rejection of the null hypothesis at the 0.05 per cent level. Max-eigenvalue test indicates 2 cointegrating equations at 0.05 per cent level.

Tables 6.16a to 6.16b show that trace and maximum eigenvalue tests indicate 2 cointegrating equations, and the null hypothesis of no-cointegration is rejected. The rejection of null hypothesis implies the existence of 2 co-integrating vectors, suggesting that the variables are cointegrated, and there is a weak convergence.

Table 6.16c Estimation of the Speed of Adjustment Coefficient for Inflation

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	0.221	0.232	0.953
MC-RW	0.929	0.371	2.500
MC-KN	-0.959	0.394	-2.432
MC-TZ	-0.192	0.407	-0.471
MC-UGA	-2.159	0.890	-2.424

Source: Calculated from Table 5.1c

Table 6.16c presents the speed of adjustment coefficients for inflation. As can be seen in the table the adjustment coefficients in countries such as Burundi (22 per cent), Rwanda (92 per cent) are significant, as the dynamics of the variables are influenced by the long-run equilibrium relationship between inflation in the two countries.

Table 6.17a Unrestricted Co-integration Rank Test (Trace) for Fiscal Deficits

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.770	111.363	69.818
At most 1*, r ≤1	r=2	0.650	64.227	47.856
At most 2, r ≤2	r=3	0.412	30.574	29.797
At most 3 r≤3	r=4	0.331	15.572	15.494

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the hypothesis at the 0.05 per cent level. Trace test indicates 2 cointegratings equations at the 0.05 per cent level.

Table 6.17b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) for Fiscal Deficits

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.770	47.135	33.876
At most 1*, r ≤1	r=2	0.650	33.653	27.584
At most 2, r ≤2	r=3	0.412	17.00	21.131
At most 3, r≤3	r=4	0.331	12.872	14.264

Source: Calculated from Data in Table 5.1a

Note: *denotes rejection of the null hypothesis at 0.05 per cent level. Max-eignvalue test indicates 2 cointegrating equations at the 0.05 per cent level

Tables 6.17a and 6.17b show that trace and maximum eigenvalue tests indicate 2 cointegrating equations, and the null hypothesis of no-cointegration is rejected. The existence of 2 co-integrating vectors suggests that there is a weak convergence.

Table 6.17c Estimation of the Speed of Adjustment Coefficient for Fiscal Deficits

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	-0.086	0.125	-0.689
MC-RW	0.484	0.246	-1.949
MC-KN	-0.251	0.191	-1.312
MC-TZ	-0.630	0.234	-2.693
MC-UGA	-0.710	0.240	-2.94

Source: Calculated from Table 5.1b

Table 6.17c presents the speed of adjustment coefficients in EAC countries for fiscal deficits where there is only a significant coefficient in Rwanda

Table 6.18a Unrestricted Co-integration Rank Test (Trace) for Exchange Rates

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.777	97.258	69.818
At most 1*, r $\leq$1	r=2	0.621	49.890	47.856
At most 2, r $\leq$2	r=3	0.349	18.781	29.797
At most 3, r$\leq$3	r=4	0.093	5.008	15.495

Source: Calculated from Data in Table 5.1a

Note: *denotes rejection of the null hypothesis at the 0.05 per cent level. Trace test indicates 2 cointegrating equations at the 0.05 per cent level.

Table 6.18b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) for Exchange Rates

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.772	47.367	33.876
At most 1*, r ≤1	r=2	0.621	31.104	27.584
At most 2, r ≤2	r=3	0.349	13.773	21.131
At most 3 r≤3	r=4	0.093	3.155	14.264

Source: Calculated from Data in Table 5.1a

Note: *denotes rejection of the null hypothesis at the 0.05 per cent level. Max-eignvalue test indicates 2 cointegratings equations at the 0.05 per cent level.

Tables 6.18a and 6.18b show that trace and maximum eigenvalue tests indicate 2 cointegrating equations, and the null hypothesis of no-cointegration is rejected. The existence of 2 cointegration equations suggests a weak convergence.

Table 6.18c Estimation of the Speed of Adjustment Coefficient for Exchange Rates

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	0.088	0.252	0.792
MC-RW	0.252	0.111	2.270
MC-KN	0.022	0.030	-0.734
MC-TZ	-0.381	0.075	-5.082
MC-UGA	-0.370	0.164	-2.258

Source: Calculated from Table 6.1d

Table 6.18c presents the speed of adjustment coefficients for exchanges rates. As can be seen in Table 6.18 c the adjustment coefficients are weak and are significant only in Rwanda (25 per cent), Burundi (8 per cent) and Kenya (2 per cent).

Table 6.19a Unrestricted Co-integration Rank Test (Trace) for Current Account Deficits

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.918	111.504	69.818
At most 1*, r ≤1	r=2	0.612	48.955	47.856
At most 2, r ≤2	r=3	0.463	25.270	29.797
At most 3 r≤3	r=4	0.278	9.682	15.494

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the null hypothesis at the 0.05 per cent level. Trace test indicates 2 cointegratings equations at the 0.05 per cent level.

Table 6.19b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) for Current Account Deficits

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.918	62.548	33.876
At most 1, r ≤1	r=2	0.612	23.685	27.584
At most 2, r ≤2	r=3	0.463	15.587	21.131
At most 3 r≤3	r=4	0.278	8.169	14.264

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the hypothesis at 0.05 per cent level. Max-eigenvalue test indicates 1 cointegrating equation at 0.05 per cent level.

Tables 6.19a and 6.19b show that the trace test indicates 2 cointegrating equations and maximum eigenvalue indicates 1 cointegration equation. The existence of 2 cointegrating equations in trace and 1 cointerating equation in max-eigenvalue suggests a weak convergence.

Table 6.19c Estimation of the Speed of Adjustment Coefficient for Current Account Deficits

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	-0.542	0.323	-1.679
MC-RW	-2.273	0.268	-1.018
MC-KN	0.377	0.229	1.642
MC-TZ	-0.613	0.230	-2.661
MC-UGA	-0.369	0.328	-1.122

Source: Calculated From Table 5.1e

Table 6.19c presents the speed of adjustment coefficients for current account. As it can be seen the adjustment coefficient is only significant in Kenya (37 per cent).

Table 6.20a Unrestricted Co-integration Rank Test (Trace) for External Debt

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Trace Statistic	5% Critical value
None*, r=0	r=1	0.997	324.436	95.753
At most 1*, r ≤1	r=2	0.976	172.076	69.818
At most 2*, r ≤2	r=3	0.735	78.113	47.869
At most 3* r≤3	r=4	0.711	44.889	29.797

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the null hypothesis at the 0.05 per cent level

Trace test indicates 4 cointegrating equations at the 0.05 per cent level.

Table 6.20b Unrestricted Co-integration Rank Test (Maximum Eigenvalue) for External Debt

Null Hypothesis	Alternative Hypothesis	Eigenvalue	Max-Eigen Statistic	5% Critical value
None*, r=0	r=1	0.997	152.360	40.077
At most 1*, r ≤1	r=2	0.976	93.962	33.876
At most 2*, r ≤2	r=3	0.735	33.223	27.584
At most 3* r≤3	r=4	0.711	31.105	21.131

Source: Calculated from Data in Table 5.1a

Note: *denotes the rejection of the hypothesis at the 0.05 per cent level

Max-Eigenvlue indicates 4 cointegrating equations at the 0.05 per cent level

Tables 6.20a and 6.20b show the trace and maximum eigenvalue tests indicate at most 4 cointegrating equations, and the null hypothesis of non-cointegrating vectors is rejected. The existence of 4 cointegrating vectors suggests that the variables are cointegrated, and that there is a weak convergence.

Table 6.20c Estimation of the Speed of Adjustment Coefficient for External Debt

Variables	Adjustment Coefficient	Standard Error	t-statistic
MC-BU	0.132	0.301	0.439
MC-RW	0.344	0.229	1.502
MC-KN	1.122	0.206	2.439
MC-TZ	0.187	0.595	0.314
MC-UGA	-0.922	0.259	-3.552

Source: Calculated fromTable 5.1f

Table 6.20c presents the speed of adjustment coefficients for external debt which indicates the speed at which the variables adjust towards their long-run equilibrium. As can be seen, the adjustment coefficient in Kenya (112 per cent) is higher than those in other countries such as Rwanda (32 per cent), Tanzania (18 per cent), and Burundi (12 per cent).

Having inspected the data and run the times series econometric tests the crucial questions are: Have the research findings confirmed or rejected the research hypothesis? What the findings tell us and what is the policy implications. The next section tries to answer these questions.

6.3 Discussion of Findings.

As mentioned above, one of the contributions of this study is to empirically investigate whether or not East Africa integration has contributed to growth and macroeconomic convergence. Generally, economists use econometric tests to predict the relationship between variables. However, as Kendel and Stuart (19961) suggested, a simple statistics can never establish the relationship between variables. The idea of relationship must come from outside statistics, ultimately from some theory and experience. This study is the first study investigating macroeconomic convergence and sustainability as proxied by sustainable growth, inflation, fiscal and current account deficits and external debt. This section discusses the findings in comparison with the existing empirical studies and past experiences in the East Africa Community.

6.3.1 Findings of the Study

The results from data inspection and unit root test results are inconclusive. In this case the decision to go ahead with cointegration was taken on the reasonable basis of the assumption of nonstationarity. The results from the cointegration test show a complete convergence in GDP per capita and weak convergence in inflation, exchange rates, fiscal and current account deficits, and external debt. Generally the overall findings are mixed. However, they do give insight in helping to go beyond econometric test results, and to use common sense, existing empirical studies, and past experiences of the economies under study in order to draw useful conclusion and policy recommendations.

6.3.2 Findings and the Existing Empirical Studies

To date there is one empirical study, by UNECA (2010), which has investigated growth convergence. That study found little evidence that supports growth convergence among East African countries. The East African economies are characterized by both growth divergence and convergence. The persistent income inequalities between Kenya and the rest of the East African countries over the period

1980-2007 leads to the conclusion that, in general, Kenya will remain the richest country in the region. Although other countries are converging, they will continue to lag behind Kenya.

Regarding macroeconomic convergence, a few empirical studies such as those Mkenda (2001), Buigut and Valev (2004), Falagiarda (2010), and Opolot (2010) have examined the suitability of East African countries for monetary union, and the findings are mixed and contradictory. Using a G-PPP-cointegration approach, Mkenda (2001) investigated similarity in the movements of real exchange rates against a strong currency as anchor and he found that the East African countries are suitable for monetary union. Using vector autoregression (VAR) techniques, Buigut and Valev (2004) investigated the symmetry and asymmetry of the underlying shocks in East African economies. He found that the East Africa countries are not suitable for forming monetary union. Falagiarda (2010) used the traditional OCA criteria and G-PPP cointegration analysis. The findings of his study suggest convergence on levels. Using G-PPP cointegration analysis, Falagiarda (2010) investigates the suitability of East African countries for a common currency. He concluded his paper saying that the monetary union could be viable. In investigating macroeconomic convergence in EAC countries Opolot (2010) used standard deviations, panel unit roots test and cointegration analysis. He found that there is some partial convergence of macroeconomic convergence. There was convergence in monetary policy variables and no evidence of convergence in fiscal policy variables. For other variables the results were mixed.

6.3.3 Interpretation of Findings Using Common Sense and Theories

Econometricians have a tendency to pay undue attention to econometric testing and stop looking for further insights, and searching for additional evidence beyond econometric tests using observation, common sense, sagacious economic reasoning, and a historical perspective (Mcclosskey and Ziliak, 1996). The extensive use of powerful computer softwares such as Eviews, STATA, and Microfit has diverted economists from using use common sense and theories in their interpretation of econometric tests (Peerce, 1987). The role of common sense has been recommended by Stock and Watson (2003, p. 558) in clear terms;

"*it is important to check whether the estimated cointegrating relationship*

makes sense in practice. Because cointegration tests can be misleading (they can improperly reject null hypothesis of no cointegration more frequently than they should and frequently they improperly fail to reject the null), it is especially important to rely on economic theory, institutional knowledge, and common sense when estimating and using cointegrating relationships".

Data analysis requires the researcher to go beyond the findings, reconciling them with the theory and practice. To do that they should become intimately familiar with the phenomenon and features of the economies being investigated the institutions, operating constraints measurement difficulties, and cultural customs (Kennedy 2001).The use of common sense, economic theories, and experiences of East African economies could suggest that some country-specific, statistical testing anomalies cast doubt on the reliability of findings. One of the examples is the stationarity found in GDP per capita. While econometrics theory states that almost macroeconomic time series in industrial economies have a unit root and are nonstationary because they are generated by a stochastic process(Nelson and Ploser ,1982), this study found that GDP per capita in EAC economies are stationary.

6.3.4 Findings and Recent Experiences in the East Africa Community

Looking at the macroeconomic indicators and trends towards growth and macroeconomic convergence criteria in the East Africa Community, table 6.21 shows that there has been some progress and evidence of serious intention in achieving the objectives as set out in the EAC Development Strategy 1999-2005. Even if the target of 7 per cent set in 1999 was unrealistic, the overall assessment shows that there has been positive progress toward growth at 5.8 percent at in 2005. Over the past seven years, Uganda and Tanzania have achieved spectacular growth rates of 5 per cent and 4.8 per cent respectively. During the same period Kenya's economy grew slowly at a growth rate of 1.3 per cent a year. According to the Solow growth theory, in particular the assumption of diminishing returns, one could conclude that Uganda and Tanzania are catching up with Kenya. But in reality they do not. The Kenya's slow growth during the period 1999-2005 may be explained by the endemic corruption and political unrest.

Regarding macroeconomic convergence and sustainability criteria, the results are mixed. While inflation rates in Uganda and Tanzania were maintained in single

digits and fluctuated only moderately, inflation in Kenya fluctuated sharply from 3.5 per cent in 1999 to 13.1 per cent in 2005. Over the period fiscal deficits in the three member states also fluctuated sharply. While fiscal deficits in Kenya were decreasing at a steady rate from -0.1 percent to 3.5 per cent, the fiscal deficits were increasing from -6.1 to -8.6 per cent in Uganda and from -2.1 to -11.8 per cent in Tanzania. Concerning the external position in the member states, the overall assessment shows that the current account deficits were maintained at low level. The situation is much better in Uganda with a surplus of 2.8 per cent of GDP. There is also an improvement in maintaining foreign exchange reserves at reasonable levels in all three member states.

The past experiences in the East Africa Community show that the macroeconomic performances are mixed.

Table 6. 21 : Macroeconomics Indicators and Trends towards Convergence for EAC Economies

Aggregate	EAC Partners	1999	2000	2001	2002	2003	2004	2005
GDP Growth Rate	Uganda Kenya Tanzania	7.3 1.4 4.7	5.9 -0.3 4.9	5.7 1.2 5.7	6.2 1.1 6.2	4.5 1.8 5.7	5.8 4.9 6.7	5.3 5.8 6.8
Inflation – Annual Average	Uganda Kenya Tanzania	6.1 3.5 7.8	2.5 10.0 6.0	2 5.8 5.2	1.8 2.0 4.5	5.7 9.8 4.4	5.0 11.6 4.2	5.4 13.1 4.3
Budget Deficit (Excl. Grants)/ GDP	Uganda Kenya Tanzania	-6.9 -0.1 -2.1	-9.1 0.4 -5.9	-11.2 -5.1 -4.9	-13.0 -4.7 -6.4	-12.0 -3.9 -9.3	-12.6 -3.3 -5.5	-8.6 -3.3 -11.8
Current Account Deficit/ GDP	Uganda Kenya Tanzania	-9.1 -2.0 -13.2	-10.7 -3.4 -7.4	-14.3 -4.3 -7.0	-13.0 -0.1 -3.8	-12.9 -1.1 -4.5	-12.6 -3.3 -5.5	2.8 -2.6 -4.9
Gross Foreign Exchange Reserves in Months of Imports of goods & non-factor services.	Uganda Kenya Tanzania	4.9 2.9 4.5	4.4 209 5.7	6.1 3.2 6.6	6.3 3.2 6.6	6.1 4.2 9.3	6.6 3.5 8.1	6.6 3.3 6.4

Source: EAC Development Strategy 2001-2010.

6.4 Conclusion

In answering the question of whether or not the data have confirmed or rejected the research hypothesis, this chapter has examined what the data reveals by inspecting the features of the data, and running unit root and cointegration tests to see if stationarity and co-movement exist among the variables.

Inspecting the data is motivated by the fact that sometimes researchers violate econometric theory by drawing conclusions from econometric tests without looking at data and checking whether or not they have found regular deterministic and regular stochastic trends. Such negligence could lead to the wrong interpretation of econometric test results. This section looked at the graphs representing the degree of stationarity or nonstationarity using coefficients of variation and correlation matrices for a pre-assessment of convergence in key macro-aggregate variables.

Using time series econometric analysis, this chapter focused on testing for the degree of stationarity, and co-movement in the key macro-aggregates and exploring the short-run and long-run relationship between variables.

Generally, data analysis requires the researcher to go beyond the findings, reconcile them with theory, practice and experience. This chapter has compared the findings of the study with those of existing empirical studies and recent experience in the East Africa community. The findings from previous empirical studies on East African integration are mixed. The overall findings from the present study show complete growth convergence and weak macroeconomic convergence. These findings lead to general conclusions and implications which are examined in the next concluding chapter.

Chapter VII General Conclusion

In order to gain an overall idea of the achievements of this study, this chapter summarises the main points in each chapter, discusses the findings and their theoretical and practical implications, and then recognises the limitations of the study and proposes further research.

7.1 Summary of Chapters

7.1.1 Introduction

The issue of poor economic performance in developing countries have been debated intensively among economists and policymakers. Since the 1980s economic crisis, most African economies have been facing persistent economic crisis characterised by declining growth, serious balance of payments deficits and mounting external debt. In 1993, East African politicians attempted to save their countries, individually and collectively, from declining economic growth and crippling external debts. They departed from their past narrow nationalism and strongly supported the revival of the East Africa Community, which had previously collapsed in 1977. It was believed that East African integration would facilitate sustainable growth and macroeconomic convergence among the member countries.

The question of interest in this study is whether or not East African economies are converging as a result of regional integration. This study has answered this question by investigating convergence in key macroeconomic variables and their sustainability. Chapter I described briefly the characteristics of African economies, posed the research questions and hypotheses, and discussed the rationale for investigating growth and macroeconomic convergence using coefficient of variation and time series econometric methodology, particularly unit root and cointegration analysis.

7.1.2 Chapter III Regional Integration, Growth and Convergence

The question of why countries grow at different rates and why incomes converge or diverge across countries has long been of concern to economists. The traditional frameworks for analysing growth and convergence are neoclassical and endogenous growth theories. Although, these models are appropriate frameworks in explaining the long-run determinants of growth, much work has yet to be done in explaining Africa's slow growth. The traditional growth theories neither help policymakers explain the persistent slow growth and macroeconomic instability in African countries nor indicate what should be done. Neither do they help to fully understand the causes of either the success stories in East Asian countries, or the rapid sustained growth of China and India. The theoretical explanation of the determinants of growth has been plagued by the lack of a unifying theory and severe methodological problems (Artelaris *et al.,* 2007). This has made it difficult to explain the poor economic performance in developing African countries. As Sala-i-Martin (2002) suggests, the recent literature on growth has produced a number of theoretical and empirical explanations for understanding macroeconomics. But economists still cannot explain Africa's slow growth.

Alongside the main determinants of long-run growth and convergence, such as investment in physical and human capital and technological progress, this chapter also explored other determinants of growth that advance and hinder growth in African countries. These include internal and external factors. while the causes of Africa's slow growth are many and diverse, the general explanations considered so far place the blame on internal factors, including the low quality of public institutions, poor governance, inadequate microeconomic and macroeconomic policies, weak financial systems, inadequate infrastructure, low levels of human capital (World Bank, 2008). The external factors include trade-related factors such as the slave trade, the colonial legacy and unfair international trade, the deterioration of the terms of exchange, world economic recession, the decrease of foreign capital (official development aid, international loans and foreign direct investment), volatility and misalignment in the exchange rates of major currencies, the worsening balance of payments and increasing debt crisis. Therefore, the question of why African countries grow differently is controversial.

From the existing literature, the debate on the causes of Africa's slow growth is

essentially a sterile and confusing one. Africa will take off before the debate is resolved, and when this happens, each side will claim Africa's performance was predicted by their model, as has been the case for East Asian countries (Fafchamps, 2000). However, this take-off will never come from vacuum. The growth boom in East Asian countries during the 1980s and 1990s was primarily led by trade and foreign capital inflow seeking high returns and the imports of technology and know-how (Park and Song (1998). In the similar way growth in African countries will come from their integration into the world economy (Artadi and Sala-i-Martin, 2003). Whilst the role of international trade and finance in growth and convergence is controversial, the literature suggests that economic integration is an unquestionably powerful source of growth and convergence in income per capita. By opening up to the world economy, goods and services, capital, labour and technology can flow from the rich countries to poor countries. According to the convergence hypothesis, developing countries can attract foreign capital in search of a high return, assimilate technology much more quickly than pioneering countries, and grow faster than developed countries, thus 'catching-up' with richer ones. This chapter has shown that the mobility of goods, capital, labour and information and the diffusion of technology are the five most important aspects of international and regional integration that lead to the convergence and catching up among nations.

7.1.3 Regional Integration, Macroeconomic Convergence, and Sustainability

In order to make progress with further trade integration the East African countries have decided to cooperate in monetary and financial matters and ultimately reintroduce East African monetary union with a single currency and Central Bank. Chapter III demonstrated that the rationale for the macroeconomic coordination of fiscal, monetary and exchange rate policies in international and regional integration is derived from the spillover effects associated with linkages between domestic economies and the rest of the world. There are economic costs and benefits associated with regional macroeconomic coordination or monetary union. The potential costs of monetary integration (loss of freedom to conduct monetary policy independently as a tool to adjust for asymmetric shock) have led the candidate countries for monetary union to agree on a number of rules, with the sustainability of

public finances and sound fiscal policies as essential objectives. When a member country exhibits macroeconomic instability (low economic growth, high unemployment and inflation, and trade and government budget deficits), the economic situation within the region is very worrying because this instability can be transmitted across other countries.

7.1.4 Chapter IV: An Overview of Economic and Institutional Features in East African Countries

To better understand the effectiveness and feasibility of deeper East African integration, there are good reasons to understand the initial conditions of each of the national economies within the region**.** Chapter IV explored the geographical and demographical aspects of the region, and economic and institutional features in which East African integration is taking place. There are two reasons for this focus. The first is that there are still substantial differences between the EAC countries in terms of economic structures and social and political performance. Every country has its own geographical, demographic, agricultural and industrial conditions and business traditions reflecting comparative advantages. These differences will not necessarily disappear. The second reason is that, despite the important economic differences that may arise from country-specific history, economic systems and political systems, legal institutions, resource endowment and many other factors, the East African countries have, as a group, shared some commonalities in macroeconomic performance. To the central question of what went wrong with the successive African development strategies adopted so far. This chapter also explored the different development strategies practised. The findings show that the colonial preferential trading arrangements and the import substitution industrialisation policies performed better than the structural adjustment programmes. They worked very well for about 30 golden years prior to the 1980s economic crisis. Things became worse due to the first and second oil price shocks in the 1970s.

The disappointing outcomes of structural adjustment policies recommended by the IMF/World Bank following the 1980s economic crisis have led developing countries to turn to regional integration as an alternative strategy to promote growth and macroeconomic stability. This has raised the research question of whether or not

regional integration is likely to promote growth and macroeconomic stability in East African countries and their integration into the global economy. Chapter V sought to answer this question by exploring the appropriate methodology.

7.1.5 Methodology and Data Collection

Investigating growth and macroeconomic convergence a result of East African integration raises methodological issues that require an integrated supply-demand framework. Chapter V therefore firstly analysed the relevant philosophical and epistemological issues that have shaped the quantitative methodology used in measuring growth convergence and macroeconomic convergence. Secondly the chapter explored issues related to economic and econometric modelling, econometric specification, the collection of data. The empirical literature reviewed in Chapters II and III suggested an appropriate methodology to be used in this study. Using the coefficient of variation as pre-assessment and recent developments in time series econometrics, this chapter investigated the convergence in per capita income and macroeconomic convergence proxied by convergence in inflation, fiscal deficits and real exchange rates and the sustainability of current account deficits and external debt as a result of East African integration. The next section focused on estimation of the parameters of econometric models and summarised the findings

7.1.6 Estimation of Econometric Models and Discussion of Findings

This chapter focused on answering the main question of interest which is: Have the research findings confirmed or rejected the research hypothesis according to which East African integration has contributed to growth and macroeconomic convergence. Using unit root and cointegration techniques, this study has investigated macroeconomic convergence and sustainability criteria as set out by East African countries in their EAC Development Strategy 1999-2005. The findings are mixed.

The overall findings suggested complete growth convergence and weak macroeconomic convergence.The overall observations indicate that the EAC countries were converging to some extent and they are moving towards a common trend. The results from the unit roots and cointegration tests show a complete

convergence in GDP per capita. However, these results must be taken with caution. According to Kennedy (2003) economists' search for 'truth' has over the years given rise to the view that economists are people searching in dark room for non-existing cat; econometricians are regularly accused of finding one. The growth convergence in East African countries may be like a non-existing cat in dark room.

Regarding macroeconomic convergence criteria the econometric tests shows that the results are mixed and there is only weak macroeconomic convergence. In contrast, the experiences in the East Africa Community show that the external position of member states is improving. The current accounts deficits are maintained at low levels. This situation has led foreign exchange reserves to be maintained at reasonable level. The results of the present study and past experiences in the East African Community then lead to general conclusion and important theoretical and policy implications.

7.2 Policy Implications and General Conclusion

7.2.1 Policy Implications

This study investigated growth and macroeconomic convergence as a result of East African integration. The findings show a complete growth convergence and weak macroeconomic convergence.

The results of complete growth convergence may imply the need to reassess the case of East Africa Community as integrated economies. According to the theory, regional integration contributes to growth convergence via integrated economies in trade and factor mobility and similar institutions. But, looking at the characteristics of the East African economies, the growth convergence is likely to be very weak. The volume of intra-trade in goods and services is weak. The financial system is less developed. The labour markets are dominated by the absence of labour mobility, with nationalistic sentiments still dominating the market. The observation from data on income per capita during the period of sample 1980-2007, reveals that Kenya economy is far ahead of the other partner states. Historically income divergence is attributable to the imbalances in trade and industrial development that reflect the structure of EAC economies. The existence or absence of growth convergence is very controversial issue and the empirical literature seems

unable to reach a consensus on many crucial aspects of the debate. It should therefore be clear that decisive policy recommendations should be based on the present results and supported by the experiences in East African countries. In addition the findings can help to propose policy recommendations based on a deeper understanding of the specific features of East African economies and focusing on the factors hindering growth and convergence in developing countries.

The presence of weak convergence in macroeconomic stability indicators could lead policymakers in East African countries to worry about it. Furthermore, the weak convergence may push East African countries to go ahead with further integration and address the problem of unsustainable fiscal and current account deficits. Since the East Africa countries have run large fiscal and current account deficits and borrowed too much to finance these deficits, domestic and foreign investors may become increasingly nervous about unsustainable fiscal and current account deficits and external debt. The consequences of this situation are enormous, including capital flight, decreasing investment and growth. Furthermore the unsustainable fiscal and current account deficits have raised concerns about the prospects for future East African monetary union which cannot be viable without common fiscal and monetary policy.

7.2.2 General Conclusion

From the situation of complete convergence and weak macroeconomic convergence a general conclusion can be drawn. As extension of structural adjustment programme, regional integration policy coupled with more disciplined fiscal and monetary policy appears to represent the most promising development strategy. This study considers growth and macroeconomic convergence as tools for successful East African integration. They may help to considerably reduce income disparities, transaction costs, and political tensions. Given what happened in the past experience with the East Africa Community, which collapsed in 1977, it is essential to understand that growth and macroeconomic convergence are preconditions for the sustainability of the new East Africa Community. East African countries have made an important step towards deeper integration and the creation of monetary union by

setting out stringent macroeconomic convergence criteria. But to achieve these criteria member states should continue to work together, increase intra-industry trade, and create appropriate economic and political institutions such as an East African Parliament and the East African Central Bank. Policymakers should continue with strengthening the macroeconomic convergence criteria as set out in the EAC Development Strategy. In order to be able to do that, policymakers should establish agreements on fiscal and monetary policies, in particular setting the rules of fiscal deficits and public debt discipline. This requires strong political will and leadership. The crucial question concerns whether or not the current political conditions, leadership and public consent will guarantee the sustainability of East African integration.

Regional integration is an important economic and political project where all member countries gain, but not equally, as is usually the case with international integration. Greater potential gains from regional cooperation can be achieved from an open focus on regional projects of common interest in agriculture, the joint construction of transport and communications infrastructure, education and research and development, environmental issues, food security, energy management, defense and security, and monetary and fiscal policy coordination.

Furthermore, East African integration is considered as the first step which is pushing countries into the international economy. This is regarded as the first step, where each country develops its comparative advantages in order to gain from the global economy, and hence increases sustainable growth and development.

7.3 Limitations of the Study

The investigation of growth and macroeconomic convergence raises various methodological issues, including the lack of economic and econometric models and data reliability. As a result this study was not guided by any consistent economic and econometric models or by the real characteristics of economies. According to Abelson (1995), in good research and data analysis, the results must be sensitive to the sample period, functional form, set of explanatory variables, and measurements or proxies for variables. These characteristics of good research are unfortunately somewhat weak in the present study, for reasons beyond the author's control.

7.3.1 Integrated Macroeconomic Framework for Empirical Analysis

The investigation of growth and macroeconomic convergence requires an integrated macroeconomic framework which encompasses different forms of regional integration; namely, trade, labour, monetary and financial integration, and the co-ordination of macroeconomic policies. Such frameworks can be split into applied microeconomics, and macroeconomics, suggesting demand and supply models. Therefore the evaluation of the growth and macroeconomic effects of economic integration policies requires a model that combines elements of the Keynesian framework and the neo-classical long-term growth model.[29] However, such a model that combines the demand and supply sides poses various theoretical problems. The debate on the market-driven economy and state intervention has led economists to disagree on policy recommendations.

Although there is an intricate interaction between the microeconomic and macroeconomic aspects of regional integration policies, there is no theoretical ground that integrates the demand and the supply sides into a coherent framework. The existing literature does not provide a single economic model which could underlie an econometric model and policy prescriptions. Development economics does not provide a single economic growth theory which could underlie economic policy, and therefore there is intense disagreement among economists, public officials, and other experts over the best ways to achieve economic growth and development in developing countries. This is a big problem for African macroeconomics modelers.

One of the limitations of this study is that the specification of equations is not rooted in theoretical frameworks of economic behaviour. One may argue that policy prescriptions so far have been not grounded in appropriate economic theory and do not work well in the African context. The existing literature on regional integration, growth and convergence, as reviewed in Chapters III and V, does not allow the appropriate specification of economic models nor implicitly, econometric models. The choice of a theoretical framework is therefore critical to the construction and interpretation of econometric models. To tackle the problem of measuring the impact

[29] This approach has been analyzed by Khan and Monteil (1989)

of East African integration on overall sustainable economic performance, the starting point in this study has been to choose the key macroeconomic variables from national and balance of payments accounting.

7.3.2 Data Reliability

Getting accurate and reliable data on East Africa countries has created a great problem in studying these economies. This study is essentially based on secondary data. Even though such secondary data has been maintained by authoritative international institutions such as the IMF, World Bank, WTO, and African Development Bank, it is subject to many sources of error. Another problem is that some of the time series data used do not quite match those which researchers need in carrying out and achieving their objectives. It can reasonably be argued that the quality of econometric analysis is as good as the quality of data used in calibrating the model. This may be true for the East African countries where the quality and availability of macroeconomic data are highly suspect. Furthermore, the incompatibility of data from different sources or even data from the same source but published in different periods is a frustrating experience. In spite of all the caution exercised, it is difficult to guarantee the quality or reliability of the data series used in the study. For this reason the coefficients emanating from the present estimations, as indeed in most macroeconomic analysis, must be interpreted with caution.

7.4 Further Research

In attempting to summarise the growth and macroeconomic stability effects of regional integration, this study has established a linkage between the different forms of regional integration. However, it has not specified a clear theoretical framework in which the trade in goods and services, factors mobility, and monetary matters are linked in a system of equations for an empirical analysis. It is the author's hope that this study will stimulate thinking among economists who have much experience and knowledge of modelling to apply and extend the relevant parts of the supply and demand sides into an appropriate system of equations. Further research should focus on the theoretical ground reviewed, in particular on modelling a coherent

economic framework that takes into account the growth and balance of payment accountings. This is because there is a recognition that Africa's slow growth has been caused by a mix of domestic and international factors. These factors may help explain the reason why African countries are growing slowly and differently rather than by the assumption of diminishing returns as proposed by Solo and endogenous growth models.

Moreover this study has focused on the economic rationale for regional integration. However, it should also never be overlooked that regional integration is primarily driven by political forces, whereas economic analysis comes later. When the political decision to create regional integration is considered, the role of economists is to give economic analysis of the impact of regional integration on the regional economies that should be taken into consideration. The economic advice can be given to member states, not only after confronting the theories with the data, but also when considering the political and social environments prevailing in the region. Further research should go beyond the economic aspects and investigate the role of political conditionality and leadership in designing and implementing regional integration policy.

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Appendixes

Appendix A: Key Macroeconomic Indicators

Table A1: GDP Per Capita in US$ in EAC Countries, 1980-2007

Year	Burundi	Rwanda	Kenya	Tanzania	Uganda
1980	232.54	253.89	607.23	299.88	366.52
1981	235.108	277.93	551.37	347.64	575.29
1982	241.25	285.85	512.24	386.84	387.01
1983	248.16	294.23	457.34	383.93	428.92
1984	219.15	275.21	458.19	338.56	319.28
1985	247.82	316.18	440.13	296.08	282.29
1986	253.6	346.25	504.63	362.17	271.24
1987	232.1	371.51	534.26	172.58	421.34
1988	211.32	383.99	535.29	256.43	420.29
1989	213.32	387.26	526.12	213.35	328.35
1990	207.26	362.23	513.26	167.203	258.43
1991	207.82	259.25	473.7	188.621	99.86
1992	187.37	266.96	453.39	169.77	145.03
1993	162.68	259.11	306.68	152.36	157.92
1994	157.58	231.96	358.15	156.66	188.9
1995	167.29	259.72	443.67	189.94	267.17
1996	142.69	224.36	437.41	211.98	273.33
1997	157.16	290.4	471.6	243.16	276.1
1998	141.85	298.27	478.82	259.83	287.75
1999	128.27	269.61	438.03	265.68	243.01
2000	110.35	235.69	409.17	270.21	243.12
2001	98.12	214.07	423.09	273.69	224.99
2002	89.72	213.07	418.52	278.18	224.7
2003	82.63	201.31	467.465	286.24	232.34
2004	90.48	213.58	493.73	308.95	245.05
2005	106.86	238.27	560.03	336.18	303.08
2006	118.84	260.53	681.06	334.74	316.29
2007	128.24	286.55	761.96	362.03	339.24

Source: IMF (1999, 2007) World Economic Outlook Data, April Edition, Washington D.C, International Monetary Fund.

Table A2: Fiscal Deficit/Surplus (Millions in Domestic Currencies)

Year	Burundi	Rwanda	Kenya	Tanzania	Uganda
1972	183.2	-529.3	-782	-555	-8990
1973	113.2	-653	-696	-360	-8610
1974	219.5	-728	-558	-851	-15260
1975	-136.6	-727	-1259	-1865	12370
1976	162.4	-1225	-1558	-1805	-13180
1977	390.7	-1026	-1020	-855	-12780
1978	-19.8	-1291	-871	-1936	-1600
1979	67.1	-1618	-2411	-4134	-35
1980	-1708	-1875	-1122	-4046	-39
1981	-1873	-1728	-3897	-5026	-100
1982	-1.362	-935.5	-4462	-7024	-146
1983	-917.8	-876.8	-1597	-5383	-134
1984	231	-1432.1	-2710	-5669	-221
1985	-148.5	-1892.7	-3775	-8408	-630
1986	3475	53.8	-5586	-15406	-1639
1987	-1433	87.1	-9841	-11908	-5557
1988	1116.1	38.9	-5526	-14698	-5499
1989	4649.1	29.733	-6574	-15340	-22582
1990	1273	27454	-8374	-47324	-23494
1991	4219.3	36081	-11171	-9601	-23494
1992	1796.8	44389	-3443	-72141	-19631
1993	3442.6	44005	-14931	-104515	-113513
1994	6743.1	7547	-23415	-64559	-169806
1995	2630	60033	-6172	-21269	-131554
1996	-7890.5	70935	-6228	-77139	-112872
1997	-16777.4	98398	13605	-68139	-12191
1998	-15069	87930	-5304	-24421	-15286
1999	-12244	129466	-5189	-114472	-17358
2000	23525	92817	8394	-151281	-13419
2001	-22312	-10228	7341	110	-640
2002	-6317	-40840	-27760	-96	-268
2003	-32871	-17713	-35586	-39	-360
2004	-49936	-30660	-16074	-147	-443
2005	-70910	-23902	-221	-371	-618
2006	-26044	-24683	-26067	-539	-721
2007	21280	-20158	21251	-433	-685

Source: IMF (2002, 2007) International Financial Statistics, Year Book, Washington DC, IMF

Table A3: Consumer Price Index in EAC Countries, 1970-2007

Year	Burundi	Rwanda	Kenya	Tanzania	Uganda
1970	0.31	0.51	2.07	3.52	74.93
1971	3.90	5.00	3.80	4.80	74.93
1972	3.80	3.10	5.80	7.60	74.93
1973	6.00	9.40	9.30	10.40	74.93
1974	15.70	31.10	17.80	19.60	74.93
1975	15.50	30.20	19.10	26.10	74.93
1976	6.90	7.20	11.40	6.90	74.93
1977	6.80	13.70	14.80	11.60	74.93
1978	23.90	13.30	16.90	6.60	74.93
1979	26.50	15.70	8.00	12.90	94.95
1980	12.17	7.20	13.90	30.20	99.20
1981	12.20	6.50	11.60	25.70	100.00
1982	5.90	12.60	20.70	28.90	100.00
1983	8.20	6.60	11.40	27.10	150.00
1984	14.30	5.40	10.30	36.10	160.70
1985	3.80	1.80	13.00	33.30	100.00
1986	3.00	1.10	4.80	32.40	161.00
1987	7.10	4.10	7.60	29.90	200.00
1988	4.70	3.10	11.20	31.20	196.00
1989	11.70	2.00	12.90	35.80	61.40
1990	7.00	4.20	15.60	25.80	33.10
1991	9.00	19.60	19.80	28.70	36.80
1992	4.50	9.60	29.50	21.80	52.35
1993	9.70	12.40	45.80	25.30	68.04
1994	14.90	20.00	29.00	33.10	72.02
1995	19.30	41.00	8.00	28.40	76.91
1996	26.40	7.40	5.80	28.40	82.69
1997	31.10	12.00	12.00	21.10	89.08
1998	12.50	6.20	5.80	12.80	94.27
1999	80.44	2.40	2.60	7.90	94.47
2000	100.00	100.00	100.00	100.00	100.00
2001	109.25	103.36	105.75	106.17	104.50
2002	107.80	105.40	107.83	109.93	102.38
2003	119.33	113.25	118.42	114.80	108.21
2004	128.87	126.78	132.18	119.55	113.62
2005	146.11	138.39	145.81	124.77	122.70
2006	150.19	146.00	166.40	131.96	130.95
2007	156.51	153.30	173.29	139.28	138.38

Source: IMF (2002, 2007) International Financial Statistics, Year Book, Washington, DC.

Table A4: Real Exchange Rates Indices, Official Rates in National Currency/units SDR

Year	Burundi	Rwanda	Kenya	Tanzania	Uganda
1972	95.00	100.00	8.32	8.32	8.32
1973	95.00	113.67	8.74	8.74	8.74
1974	96.42	108.68	9.66	9.66	9.66
1975	92.19	107.86	9.66	9.66	9.66
1976	104.56	112.77	9.66	9.66	9.66
1977	109.32	120.95	6.66	9.66	9.66
1978	117.25	122.30	9.66	9.66	9.66
1979	118.56	118.41	9.66	9.66	9.66
1980	114.79	108.06	9.66	10.83	9.94
1981	104.76	102.41	11.95	10.43	1.17
1982	99.28	102.71	14.06	10.55	2.51
1983	122.70	102.71	14.42	13.41	5.10
1984	122.70	102.71	15.19	17.74	15.38
1985	122.70	102.71	17.84	18.12	17.12
1986	151.50	102.71	19.13	63.26	85.12
1987	161.00	102.71	23.43	118.76	220.00
1988	201.00	102.71	25.02	168.21	486.20
1989	232.14	102.71	28.38	252.71	768.20
1990	232.14	171.18	34.26	279.69	1,308.80
1991	273.07	171.18	40.16	334.58	1,623.60
1992	332.90	201.39	49.80	460.63	1,552.30
1993	362.99	201.39	93.63	659.13	1,352.90
1994	360.78	201.94	65.46	764.16	1,500.50
1995	413.37	445.67	83.15	818.10	1,480.50
1996	462.63	437.37	79.12	856.51	1,538.30
1997	551.56	411.31	84.57	842.71	1,918.70
1998	710.64	450.75	87.16	958.87	2,067.10
1999	860.83	479.24	100.00	1,091.34	2,301.80
2000	1,014.76	560.67	101.70	1,046.58	2,121.00
2001	1,451.00	695.80	104.76	1,322.51	2,170.60
2002	1,618.00	862.23	113.14	1,580.51	2,518.60
2003	1,717.00	880.34	120.11	1,619.23	2,875.80
2004	1,425.00	791.41	103.43	1,665.83	2,700.00
2005	1,506.00	825.39	104.46	1,898.61	2,596.80
2006	1,576.00	825.34	103.23	1,875.60	2,619.80
2007	1,526.00	865.23	123.25	1,859.31	2,747.10

Source: IMF (2002, 2007) International Financial Statistics, Year Book, Washington DC, IMF.

Table A5: Current Accounts as Percentage of GDP in EAC Countries

Year	Burundi	Kenya	Rwanda	Tanzania	Uganda
1980	-8.8	-10.7	-3.7	-8.6	-3.1
1981	-6.8	-6.8	-4.9	-6.8	-1.5
1982	-12.2	-3.3	-8.2	-5.7	-2.6
1983	-12	-0.5	-5.5	-5.2	-0.7
1984	-11.7	-1.3	-4.9	-4.4	-0.4
1985	-7.3	-1.2	-6.2	-5.4	1.1
1986	-6.8	-0.4	-5.2	-3.2	-1.8
1987	-12	-4.3	-8	-2.2	0.9
1988	-8.9	-3.9	-7.6	-1.5	-1.4
1989	-8.9	-5.8	-7.6	-3.4	-2.6
1990	-14.5	-3.9	-8.1	-5.5	-5.9
1991	-5.3	-1.3	-9.4	-5.4	-8.2
1992	-7.9	-0.9	-10.4	-5.6	-3.6
1993	-1.5	2.1	-11	-8.4	-8.3
1994	0.3	-0.2	-4.6	-14.1	-0.1
1995	1.1	-4.3	-3.1	-12.7	-1.3
1996	-5	-1.6	-6.7	-2.3	-6.8
1997	-0.1	-3.4	-9.5	-5.3	-4.1
1998	-6.4	-4	-9.6	-11	-7.5
1999	-5	-1.8	-7.7	-9.9	-9.4
2000	-8.6	-2.3	-5	-5.3	-7.1
2001	-4.6	-3.1	-5.9	-5	-3.8
2002	-3.5	2.2	-6.7	-6.8	-4.9
2003	-4.6	-0.2	-7.8	-4.7	-5.8
2004	-8.1	0.1	-3	-3.9	-1.2
2005	-9.6	-0.8	-3.2	-4.5	-2.1
2006	-12	-2.4	-7.5	-8.6	-4.1
2007	-14.2	-3.7	-7.3	-10.6	-2.4

Source: IMF (1999, 2007), World Economic Outlook Data, April Edition, Washington D.C, IMF.

Table A6: External Debt as Percentage of GDP

Year	Burundi	Rwanda	Kenya	Tanzania	Uganda
1980	18.1	16.3	51.1	50	42.3
1981	18.8	14.8	52.2	45.5	56.1
1982	23	15.5	57.7	47.9	49
1983	29.1	16.1	67.6	55.7	45.1
1984	36	18.4	63.3	62.4	38.2
1985	39.9	20.8	76.2	61	30.9
1986	44.2	23	71.2	91	28.6
1987	63.4	28	76.9	153.2	37.3
1988	75.3	28.3	70.4	203.5	79.6
1989	82.7	29.7	72.1	220.7	76.7
1990	82.8	34.8	84.6	285.4	96.4
1991	82.3	53.7	89.6	250.8	109.2
1992	94.4	55.4	88.6	239.9	94.9
1993	109.8	63.4	135.2	285.2	77
1994	123.2	127	106.6	178.7	85.7
1995	117.2	79.6	85.3	148.9	62.7
1996	127.1	74.9	77.3	125.6	61.2
1997	112.9	60.1	64	100.9	61.6
1998	128.3	60.8	61.5	94.3	58.2
1999	117.6	79.4	83.8	144.6	62.9
2000	153.2	70.9	48.9	77.4	60.5
2001	165.6	76.5	46	66.8	67.1
2002	197.5	83.9	47.9	70.5	70
2003	230.1	93.1	47.6	68.1	74.8
2004	214.8	92	43.2	69.4	71.8
2005	169.4	71.3	33.1	64.4	52.2

Source: World Bank (1988-89; 1992-1993) World Debt Tables: External Debt of Developing Countries, Vol.2, Washington D.C, World Bank. World Bank (1997, 2000, 2005) Global Development Finance, Country Tables, Vol. 2, Washington, D.C., World Bank.

Appendix B: Mean Convergence of Key Macroeconomic Indicators

Table B1: Mean Convergence in GDP Per Capita

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UGA
1980	0.33	0.27	0.55	-0.01	0.53
1981	0.28	0.15	0.12	-0.29	0.17
1982	0.29	0.16	0.19	-0.10	-0.10
1983	0.20	0.05	0.08	-0.09	0.01
1984	0.12	-0.11	0.23	-0.09	-0.14
1985	0.05	-0.21	0.30	-0.13	-0.17
1986	0.09	-0.24	0.33	-0.05	-0.28
1987	0.16	-0.35	0.42	-0.54	0.12
1988	0.25	-0.37	0.32	-0.37	0.04
1989	0.24	-0.38	0.48	-0.40	-0.08
1990	0.24	-0.34	0.64	-0.47	-0.17
1991	0.11	-0.12	0.86	-0.26	-0.61
1992	0.14	-0.22	0.77	-0.34	-0.43
1993	0.28	-0.15	0.49	-0.26	-0.23
1994	0.10	-0.33	0.53	-0.33	-0.19
1995	0.09	-0.41	0.48	-0.37	-0.11
1996	0.18	-0.28	0.42	-0.31	-0.11
1997	0.18	-0.51	0.43	-0.26	-0.16
1998	0.21	-0.66	0.40	-0.24	-0.16
1999	0.21	-0.66	0.39	-0.16	-0.23
2000	0.23	-0.64	0.33	-0.12	-0.21
2001	0.29	-0.56	0.38	-0.11	-0.27
2002	0.34	-0.57	0.36	-0.09	-0.27
2003	0.36	-0.55	0.42	-0.13	-0.29
2004	0.36	-0.52	0.41	-0.12	-0.30
2005	0.32	-0.53	0.40	-0.16	-0.24
2006	0.29	-0.55	0.53	-0.25	-0.29
2007	0.31	-0.54	0.56	-0.26	-0.30

Source: Calculated from Data in Table A1 in Appendix A

Table B2: Mean Convergence in Fiscal Deficit

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UG
1972	-1.10	-0.70	-0.56	-0.69	4.05
1973	-1.07	-0.62	-0.59	-0.79	4.06
1974	-1.08	-0.75	-0.81	-0.70	4.33
1975	-1.10	-1.52	-1.90	-2.33	7.85
1976	-1.06	-0.58	-0.47	-0.38	3.49
1977	-1.15	-0.60	-0.60	-0.66	4.01
1978	-0.98	0.35	-0.09	1.03	0.68
1979	-1.05	0.19	0.78	2.05	-0.97
1980	0.17	0.28	-0.23	1.76	-0.97
1981	-0.11	-0.18	0.85	1.39	-0.95
1982	-1.00	-0.55	1.13	2.35	-0.93
1983	-0.38	-0.41	0.08	2.63	-0.91
1984	-1.14	-0.12	0.66	2.47	-0.86
1985	-0.94	-0.24	0.52	2.40	-0.75
1986	-2.09	-1.02	0.75	3.84	-0.49
1987	-0.70	-1.02	1.06	1.49	0.16
1988	-1.27	-1.01	0.35	2.59	0.34
1989	-1.70	-1.00	-0.01	1.31	2.40
1990	-1.15	-4.26	0.00	4.63	1.79
1991	-1.38	-2.30	-1.55	-1.31	-2.58
1992	-1.22	-6.43	-0.58	7.83	1.40
1993	-1.11	-2.42	-0.52	2.38	2.67
1994	-1.17	-1.19	-0.42	0.59	3.18
1995	-1.16	-4.74	-0.62	0.32	7.19
1996	-0.64	-4.20	-0.72	2.47	4.08
1997	-3.76	-3.21	4.48	-3.87	-5.91
1998	-4.25	2.37	-2.14	-6.26	-4.29
1999	2.71	-2.31	0.57	-3.21	4.26
2000	-4.53	-2.34	-2.26	-3.31	1.01
2001	4.20	1.39	-2.71	-1.03	-0.85
2002	-0.50	2.26	1.21	-0.99	-0.98
2003	1.28	0.23	1.47	-1.00	-0.98
2004	0.61	0.89	-0.01	-0.99	-0.97
2005	0.45	0.49	-0.99	-0.98	-0.96
2006	1.00	0.90	1.00	-0.96	-0.94
2007	-3.61	-6.35	5.00	-1.12	-1.19

Source: Calculated from Data in Table A2 in Appendix A

Table B3: Mean Convergence in Inflation

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UG
1970	0.98	0.96	0.85	0.74	-4.53
1971	0.75	0.68	0.75	0.69	-3.86
1972	0.76	0.80	0.63	0.52	-3.72
1973	0.67	0.49	0.49	0.43	-3.09
1974	0.41	-0.17	0.33	0.26	-1.83
1975	0.44	-0.09	0.31	0.06	-1.71
1976	0.61	0.60	0.36	0.09	-3.19
1977	0.67	0.33	0.27	0.19	-2.69
1978	0.68	0.41	0.25	0.50	-2.31
1979	0.65	0.40	0.70	0.51	-2.60
1980	0.55	0.73	0.49	0.00	-2.66
1981	0.53	0.75	0.55	-0.02	-2.85
1982	0.79	0.55	0.26	-0.11	-2.57
1983	0.76	0.81	0.66	0.20	-3.43
1984	0.62	0.86	0.73	0.04	-3.25
1985	0.85	0.93	0.49	-0.32	-2.95
1986	0.91	0.97	0.86	0.04	-3.78
1987	0.83	0.90	0.82	0.28	-3.83
1988	0.89	0.92	0.73	0.24	-3.78
1989	0.43	0.90	0.37	-0.74	-1.98
1990	0.51	0.71	-0.09	-0.81	-1.32
1991	0.53	-0.03	-0.04	-0.51	-0.94
1992	0.77	0.07	-0.50	-0.11	-1.67
1993	0.64	0.43	-0.70	0.06	-1.53
1994	0.47	0.29	-0.03	-0.17	-1.56
1995	0.33	-0.42	0.79	0.02	-1.66
1996	-0.05	0.71	0.52	-0.13	-2.29
1997	-0.13	0.56	0.56	0.23	-2.23
1998	0.08	0.72	0.74	0.42	-3.30
1999	0.32	0.92	0.92	0.75	-2.02
2000	-0.20	-0.20	-0.20	-0.20	-0.20
2001	-0.24	-0.17	-0.20	-0.20	-0.19
2002	-0.21	-0.19	-0.21	-0.24	-0.15
2003	-0.25	-0.18	-0.24	-0.20	-0.13
2004	-0.25	-0.22	-0.28	-0.16	-0.10
2005	-0.29	-0.23	-0.29	-0.10	-0.09
2006	-0.24	-0.21	-0.38	-0.09	-0.08
2007	-0.23	-0.21	-0.37	-0.10	-0.09

Source: Calculated from Data in Table A3 in Appendix A

Table B4: Mean Convergence in Exchange Rates

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UGA
1972	1.58	1.72	-0.77	-0.77	-0.77
1973	1.42	1.90	-0.78	-0.78	-0.78
1974	1.47	1.78	-0.75	-0.75	-0.75
1975	1.41	1.82	-0.75	-0.75	-0.75
1976	1.54	1.74	-0.77	-0.77	-0.77
1977	1.55	1.82	-0.84	-0.77	-0.77
1978	1.61	1.72	-0.79	-0.79	-0.79
1979	1.65	1.64	-0.78	-0.78	-0.78
1980	1.68	1.52	-0.77	-0.75	-0.77
1981	1.65	1.59	-0.70	-0.74	-0.97
1982	1.50	1.58	-0.65	-0.73	-0.94
1983	1.54	1.13	-0.70	-0.72	-0.89
1984	1.35	0.97	-0.71	-0.66	-0.71
1985	1.17	0.81	-0.68	-0.68	-0.70
1986	0.79	0.21	-0.77	-0.25	0.00
1987	0.19	-0.24	-0.83	-0.12	0.62
1988	0.09	-0.44	-0.86	-0.09	1.64
1989	-0.12	-0.61	-0.89	-0.04	1.91
1990	-0.53	-0.65	-0.93	-0.44	1.64
1991	-0.47	-0.67	-0.92	-0.35	2.17
1992	-0.43	-0.66	-0.91	-0.21	1.65
1993	-0.37	-0.65	-0.84	0.15	1.35
1994	-0.40	-0.67	-0.89	0.27	1.49
1995	-0.38	-0.33	-0.88	0.23	1.22
1996	-0.34	-0.37	-0.89	0.23	1.21
1997	-0.28	-0.46	-0.89	0.10	1.50
1998	-0.18	-0.48	-0.90	0.11	1.40
1999	-0.10	-0.50	-0.90	0.14	1.40
2000	0.05	-0.42	-0.89	0.08	1.20
2001	0.30	-0.38	-0.91	0.19	0.95
2002	0.29	-0.31	-0.91	0.26	1.00
2003	0.29	-0.34	-0.91	0.22	1.16
2004	0.15	-0.36	-0.92	0.34	1.18
2005	0.17	-0.36	-0.92	0.47	1.02
2006	0.21	-0.36	-0.92	0.44	1.02
2007	0.16	-0.34	-0.91	0.42	1.09

Source: Calculated from Data in Table A4 in Appendix A

Table B5: Mean Convergence in Current Account Deficit

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UG
1980	-5.98	-0.88	-7.88	7.00	-0.28
1981	-5.88	-3.98	-5.88	1.90	-0.58
1982	-9.98	-5.98	-1.08	-4.90	-0.38
1983	-10.13	-3.63	1.37	-5.00	1.17
1984	-8.93	-2.13	1.47	-3.60	2.37
1985	-4.40	-3.30	1.70	-5.00	4.00
1986	-4.47	-2.87	1.93	-4.80	0.53
1987	-8.80	-4.80	-1.10	-3.70	4.10
1988	-5.52	-4.22	-0.52	-3.70	1.98
1989	-5.02	-3.72	-1.92	-1.80	1.28
1990	-11.90	-5.50	-1.30	-4.20	-3.30
1991	-1.05	-5.15	2.95	-8.10	-3.95
1992	-5.58	-8.08	1.42	-9.50	-1.28
1993	2.53	-6.97	6.13	-13.10	-4.27
1994	8.67	3.77	8.17	-4.40	8.27
1995	10.97	6.77	5.57	1.20	8.57
1996	4.23	2.53	7.63	-5.10	2.43
1997	5.80	-3.60	2.50	-6.10	1.80
1998	3.45	0.25	5.85	-5.60	2.35
1999	-2.23	-4.93	0.97	-5.90	-6.63
2000	-5.20	-1.60	1.10	-2.70	-3.70
2001	0.07	-1.23	1.57	-2.80	0.87
2002	-0.32	-3.52	5.38	-8.90	-1.72
2003	-1.00	-4.20	3.40	-7.60	-2.20
2004	-5.75	-0.65	2.45	-3.10	1.15
2005	-8.10	-1.70	0.70	-2.40	-0.60
2006	-8.37	-3.87	1.23	-5.10	-0.47
2007	-8.65	-1.75	1.85	-3.60	3.15

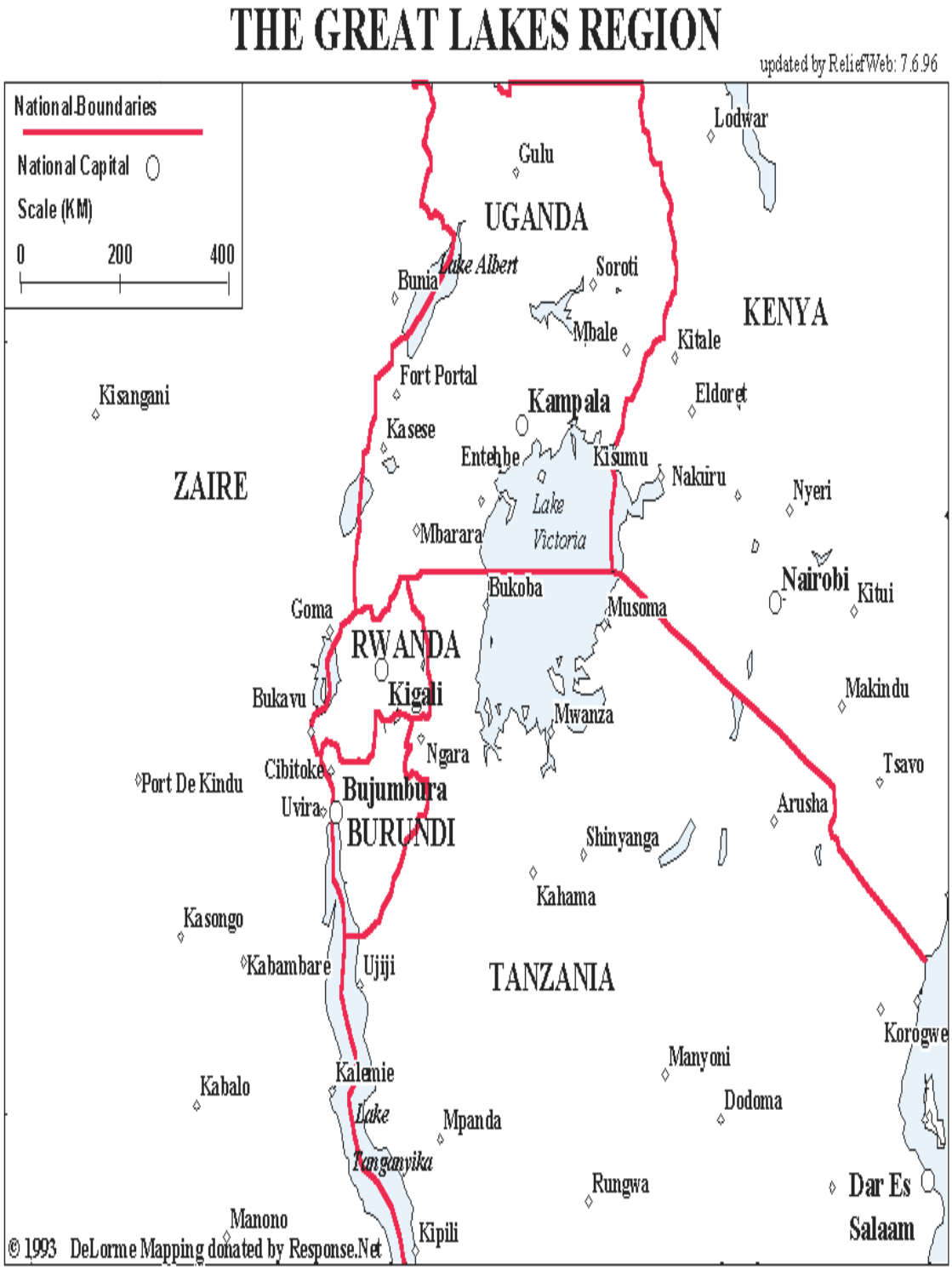
Source: Calculated from Data in Table A4 in Appendix A

Table B6: Mean Convergence in External Debt

	MC-BU	MC-RW	MC-KN	MC-TN	MC-UGA
1980	0.52	0.57	-0.36	-0.33	-0.12
1981	0.54	0.63	-0.29	-0.12	-0.39
1982	0.44	0.62	-0.40	-0.16	-0.19
1983	0.38	0.66	-0.43	-0.18	0.04
1984	0.37	0.68	-0.11	-0.09	0.33
1985	0.37	0.67	-0.21	0.03	0.51
1986	0.32	0.65	-0.09	-0.39	0.56
1987	0.27	0.68	0.12	-0.76	0.57
1988	0.32	0.75	0.37	-0.83	0.29
1989	0.24	0.73	0.34	-1.03	0.29
1990	0.29	0.70	0.28	-1.43	0.18
1991	0.30	0.55	0.24	-1.12	0.08
1992	0.20	0.53	0.25	-1.04	0.19
1993	0.18	0.53	-0.01	-1.12	0.43
1994	0.09	0.07	0.22	-0.31	0.37
1995	0.04	0.35	0.30	-0.21	0.49
1996	-0.07	0.37	0.35	-0.05	0.49
1997	-0.07	0.43	0.39	0.04	0.42
1998	-0.26	0.40	0.40	0.07	0.43
1999	0.07	0.37	0.34	-0.14	0.50
2000	-0.30	0.40	0.59	0.35	0.49
2001	-0.44	0.34	0.60	0.42	0.42
2002	-0.79	0.24	0.57	0.36	0.36
2003	-0.92	0.22	0.60	0.43	0.38
2004	-0.92	0.18	0.61	0.38	0.36
2005	-0.86	0.22	0.64	0.29	0.43

Source: Calculated from Data in Table A6 in Appendix A

Appendix C: Map of East African Countries



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