# EXPLAINING KENYA'S ECONOMIC GROWTH PERFORMANCE: AN ECONOMETRIC STUDY





UNIVERSITY OF NAIROBI EASTAFRICANA COLLECTION

Research Paper submitted to the Department of Economics, University of Nairobi, in partial fulfilment of the requirements for the award of the degree of Master of Arts in Economics.

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## DECLARATION

I declare that this paper is my original work and has not been presented for a degree in any other University.

September, 5, 2003.

This Research Paper has been submitted for examination with our approval as University Supervisors

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## DEDICATION

This piece of work is dedicated to my beloved wife Rodah and our children Leopold and Euphemiah. To my children, I hope you will grow up to be God fearing.

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However, I am responsible for the errors and views expressed in this paper.

#### ABSTRACT

The development economy that Kenya inherited at independence gradually gave way to negative growth and high inflationary rates reaching its peak of 46 per cent in 1993. The growth problem became so critical that the country embarked on the Economic Recovery and Structural Programmes to arrest the imminent disaster.

In the first decade of independence, the gross domestic product grew at an average of 7% per annum. However, this growth rate was not sustained in the subsequent periods. The periods between the late 1970s and the late 1990s were characterized by persistently low growth and limited economic transformation, despite the fact that over that time span, the country maintained a large measure of political stability and pursued a fairly consistent development strategy

This study has tried to explain the mixed economic growth in the period 1963-1999 and highlighted the key findings. Most of the empirical literature, which forms the basis of this study, have concentrated in explaining Africa's economic performance using cross-section data and have assumed that growth processes across countries and over time are similar. Our study supplements the cross-country endogenous growth methodology with a time series analysis.

An attempt has been made in this study to econometrically investigate some of the key factors, which explained the growth performance in Kenya. The study has been premised on the concept that the growth process in Kenya transcends the basic neo-classical formulation, which places the onus of economic growth on capital and labour as the key inputs. The variables, which have explained growth in a positive way, include investment, terms of trade, money supply and wet captured by a wet index. The variables, which have explained growth in a negative way, include real exchange rate, external debt and external orientation of the economy captured by the openness of the economy. Others are government expenditure and human capital.

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#### **CHAPTER 1**

### **INTRODUCTION**

Kuznets (1972)<sup>1</sup> defines economic growth as a long-term rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands. Jhingan (1997) breaks this definition into three components; first, the economic growth of a nation is identified by the sustained increase in the supply of goods. Secondly, advancing technology is the permissive factor in economic growth, which determines the growth of capacity in supplying diverse goods to the population. Third, for an efficient and wide use of technology and its development, institutional and ideological adjustments must be made to affect the proper use of innovations generated by advancing stock of human knowledge.

Two types of factors, economic and non-economic, determine the process of economic growth. The economic factors are; natural resources, human resources, capital, enterprises, technology and non-economic factors include social institutions. political conditions and moral values. Various empirical studies have been done which supports this assertion. The empirics of Collier and Gunning (1998), Easterly and Levine et al (1991), O'Connell and Ndulu (2000), Burnside and Dollar (2000), and Mwega and Ndung'u (2002) confirm this. Most of the empirical literature use cross section data for analysis. This paper will rely on the good works of these studies to explain Kenya's economic growth performance but supplement the cross section analysis with time series analysis.

As quoted by M.L Jhingan in his book 'The Economics of Development and Planning'.

## 1.1 Background

During the first decade of independence, Kenya's economy was regarded as well managed and the country had attained one of the highest growth rates in Sub-Saharan Africa. This study will try to explain why this growth rate was not sustained in subsequent periods.

| Halfdecade | Average annual growth Rate of<br>Real GDP % | Average annual growth Rate of<br>Real per Capita GDP % |
|------------|---|--|
| 1963-69    | 6.8   | 3.4  |
| 1970-74    | 5.5   | -0.4   |
| 1975-79    | 5.6   | 3.0  |
| 1980-84    | 3.4   | -1.1   |
| 1985-89    | 5.2   | 3.0  |
| 1990-94    | 2.1   | -2.1   |
| 1995-99    | 3.0   | 0.1  |

Table 1.1: Kenya halfdecadal rates of growth of real GDP and real per capita GDP

Source: Central Bureau of Statistics

The country attained an average economic growth rate of 7 per cent per annum during the first decade of independence (see Table 1.1). Economic performance in the periods 1973-1983 and 1984-1999 encountered serious crises with the economy registering the lowest growth rate of negative 0.2 percent in 2000 (Economic survey 2001). The successful growth rates in the first decade of independence can be attributed to many factors, but the chief credit was seen as a government that created a conducive and stable political atmosphere for private investment and exercised consistent and sound management of the economy.

For the government to sustain economic growth and development after independence, *Sessional Paper No. 10 of 1965 on African Socialism and its application to Planning* was released. The paper outlined the key objectives of economic growth and development. Among the objectives was the fight against poverty, disease and ignorance. The governments' development strategy concentrated on expanding the public sector as a way of creating jobs and fighting poverty. These show an increased government capital budget

in the expansion of this sector. Public agencies such as the marketing boards and public enterprises were established. Consequently, public corporations were set up in all the sectors of the economy. The public investments were used to fight poverty hence they were a source of employment. The result was the run down of these investments, which necessitated the closure of some of them (Borrow, 1975) as quoted by Onjala (2000).

A stylized account of Kenya's economic performance shows that up to the mid 70s, respectable levels of per capita GDP were obtained, (see table 1.1), and the subsequent periods show a run-down of the economy with the per capita GDP growth recording negative growths in the 1990s. In the first decade of independence, the economy performed well with an average growth rate of 7 per cent. The oil shocks of 1973 and 1979 compounded by poor macroeconomic management, breaking the tradition of fiscal responsibility and prudent monetary policy followed during the early years of independence led to balance of payment problems. These show the economic growth decrease to an average of 5.6 per cent, 4.3 per cent and 2.5 per cent in the 70s, 80s and 90s, respectively.

The balance of payment problems induced the country to seek conditionality finances from the Bretton Woods institutions, so that substantial donor driven reforms were implemented in the 80s and 90s that covered all the sectors of the economy. These reforms included among others; Liberalization of the foreign exchange market, trade and payment systems, domestic financial and capital markets, and privatization and commercialization of public corporations. These reforms did not improve economic performance (Mwega and Ndung'u, 2002). The slow economic performance in the early 80s could be attributed to the oil price shock of 1979, the military attempted coup in 1982 and a severe drought in 1983-1984.

In the early 1990s, the economic performance became worse with an average growth rate of 2.1 percent. The drought of 1991-92, the oil price increase due to the Gulf war of 1991 compounded by the aid embargo by the Bilateral and Multilateral development partners to the Kenyan government led to an increased budget deficit. To finance the budget deficit during this period, the government resorted to domestic borrowing. The result was an

increase in money supply, which led to very high inflation rates, interest rates and a depreciation of the exchange rate.

In the last part of the 1990s, economic growth declined further with the economy registering a negative 0.2 per cent growth rate in 2000. This was as a result of the aid embargo in 1997-2000, 'ethnic clashes' of 1997 and the *El Nino* rains in 1997-98 followed by a major drought leading to power rationing in 2000 (Mwega and Ndung'u, 2002).

The rate of population growth increased from 3.0 per cent annually at independence to 3.8 per cent by the end of the 1970s, and the fertility rates increased from 6.8 per cent to 7.9 per cent in the same period. The slow economic performance due to population was as a result of the government not addressing the pressure imposed by the growth of population on arable land, social services, and productive employment.

## 1.2 Performance of the Kenyan Economy

In this subsection, we present an overview of the sectoral performance as well as the periodization of the performance of the economy. We focus on the period 1963 to 1999 and highlight the key economic performance over this period and try to give explanations of any shortcomings. We borrow from Mwega and Ndung'u (2002) and delineate the data into halfdecadal phases to capture economic performance and to control for short-term influences.

### 1.2.0 Sectoral Performance in Kenya

As indicated by Table 1.2, Kenya's economy has been dominated by agriculture, which contributes on average 30.8 per cent to GDP. Other services, government services and manufacturing each contribute on average 23.37 percent, 14.87 percent and 12.19 per cent respectively to GDP.

| Sector                |         |         | Share of | GDP (perci | entage) |         |         |
|-----------------------|---------|---------|----------|------------|---------|---------|---------|
|                       | 1963-69 | 1970-74 | 1975-79  | 1980-84    | 1985-89 | 1000-04 | 1992.99 |
| Agriculture           | 35.03   | 31.36   | 34.50    | 30.50      | 28 98   | 26.36   | 24.74   |
| Manutacturing         | 10.26   | 12.00   | 12.40    | 12.73      | 12.96   | 13.56   | 13.36   |
| Electricity and Water | 1.41    | 1.42    | 1 26     | 1,25       | 0 94    | 1.02    | 1.91    |
| Government Services   | 3.64    | 16.02   | 11.98    | 14.90      | 15.14   | 15.72   | 14.92   |
| Other Services        | 39.66   | 39.20   | 36.86    | 40.62      | 41.98   | 43.34   | 45.97   |
| GDP                   | 100.00  | 100.00  | 100.00   | 100.00     | 100.00  | 100.00  | 100.00  |

#### Table 1.2: Sector performance at constant prices, 1963-1999 (1982=100)

In general, the sectoral performance has been in the declining trend since independence with the 'other services'<sup>2</sup> recording increased contribution to GDP, at the expense of the sectors whose performance was the key to economic growth in Kenya.

The National Development Plan (1997-2001) has deplored this state of affairs. As indicated by Table 1.2, there has been structural transformation of the economy from the predominant agricultural to manufacturing

#### 1.2.1 Agriculture

Agriculture is the major shareholder of the Kenyan economy with a contribution, which is roughly a third of the total GDP. Agriculture's contribution to GDP has been in the declining trend since independence (Table 1.2). This decline can be attributed to faster growth of other sectors especially manufacturing and the poor policies and mismanagement of the resources received from agricultural exports, especially the coffee boom of 1976-78. The poor performance of the agricultural sector can explain why the country has lagged behind in economic growth comparing to the other countries where per capita levels were lower in the 60s. The sector had an impressive performance in the earlier years of independence when it contributed 35 per cent to GDP. As expected in the cause of economic development, the sector deteriorated in the subsequent period due to economic transformation only to contribute 25 per cent to GDP in the period 1995-99.

Other factors, which can explain this state, are the *El Nino* rains in 1998 and the poor infrastructure, especially the roads, which increase the production cost. The poor

<sup>&</sup>lt;sup>2</sup> Other services include tourism, transport and communication, fishing, mining etc

management of the AFC, which was instrumental in providing credit to the farmers, can also be attributed to the decimal performance of the sector. The cost of farm inputs and machinery is still far from access by many small-scale farmers. The agricultural inputs are heavily taxed, which makes them very expensive to the farmers. In most cases, the suppliers of these inputs are politically correct people who load their profit-making ego on the farmer and the government has done little to address this problem.

#### 1.2.2 Manufacturing

The share of the manufacturing sector to GDP increased marginally in the early years, from an average of 10.3 per cent in the 60s to 13.5 percent in the 90s. The growth in the sector was largely as a result of the expansion of domestic demand as a result of the rising agricultural incomes and investment in the protected regional market under EAC (Ndegwa, 2002). Ndegwa (2002) attributes the slow growth in the sector to investment constraint, increased competition from cheap imports, depressed domestic demand. power rationing and water shortages, and other costs overheads arising from poor infrastructure. The poor performance of the manufacturing firms can also be attributed to holding large stocks of inputs and outputs since these firms operate in economies with poor transport network (Collier and Gunning, 1998). The result is that when the firms are financially distressed or stocks are insufficient, late payments or late delivery is passed from one firm to the other. It should also be noted that due to the red tape and massive corruption in the public sector, many manufacturing firms have relocated to other countries.

Agents in the modern economy have also operated in a very risk environment. This is partly from natural causes; climate, mortality and morbidity, and commodity prices. A source of risk is the difficulty of enforcing contracts (Collier and Gunning, 1998). This may partly explain why Kenya's manufacturing sector has not expanded rapidly since independence. Also the firms faced considerable regulation on product and financial markets until the liberalization in the 1990s (Mwega and Ndung'u, 2002).

#### 1.2.3 Government services

By early 1980s, the public sector had become overextended and the civil service had expanded tremendously. This was as a result of the government's strategy to fight high

unemployment rates by creating jobs. The subsequent governments created jobs and financed them by squeezing non-wage expenditures and by reducing wages. In addition to that, wages were used to reward kin group connection rather than qualifications, skills or experience. This was perfected during the Moi regime (Mwega and Ndung'u, 2002). As a result public service delivery was deficient. In particular, the low level of education and public health as well as the under-provision of infrastructure and institutions of economic management and contract enforcement greatly hindered economic growth in Kenya.

The over-extension of the public sector was reflected in several indicators of economic inefficiency. The government changed from being a net provider of investment funds to being a net user of private savings to finance its investment and consumption expenditures. The surplus in the current budget dwindled to zero and economic classification of the budget showed that wages and salaries took up a large share with little left to fund non-wage operational and maintenance expenditures. The support of poorly justified projects by the government financial institutions, which were highly unproductive, shows the inefficiency of the public sector (Swamy, 1994). To boost morale and increase productivity, some type of rationalization with transparency and efficiency measures should be carried out in the public service (Amin, 2002). Already the government has started reducing the public service, but the salaries need to be raised and efficient means of promotion established. Public enterprises are also in the process of trimming, which needs to be carried out transparently and with care, taking into consideration the national interest. Above all, besides setting the national priorities right, let the expenditures intended for specific projects reach their targets. If an expenditure head is earmarked for a specific project e.g. for a cattle dip, the stated amount should go to that project.

#### 1.2.4 Other Services

Infrastructure can also be singled out as one variable that has hindered Kenya's economic growth (Easterly and Levine, 1997). Specific components of infrastructure to be explored are the poor roads network, poor telecommunication and electricity. The other services include Tourism, Trade and Transport and Communication, which in aggregate contribute about 40 per cent to the GDP (table 1.2). The poor state of the road network has had devastating effects on the growth of the economy. High transportation costs have hindered

economic growth. Tourism has not been developed either. Mismanagement of its resources and grabbing of land set aside for tourism expansion, and poaching are some of the reasons that can be attributed to the poor performance of this sector.

## 1.3 Markets

Undeveloped markets especially, financial markets, labour markets and product markets will be explored to ascertain their effects on Kenya's economic growth performance. Mwega and Ndung'u (2002) have shown that markets, which were emulated from the development strategies of the western industrialized countries, did not accelerate the pace of economic development. The government introduced major controls in all the markets with a view of protecting the indigenous industries. Mwega and Ndung'u (2002) show the controls which were introduced as: (1) selective controls on banking lending; (2) licensing of foreign exchange transactions; (3) quota restrictions on most imports; (4) direct price controls on goods; and (5) control on interest rates. These controls transcended all markets and acted as an easier response in controlling balance of payments and inflationary pressures as far as the policy makers were concerned. But these administrative controls produced major distortions and the discretionary powers gave room to pervasive rent-seeking activities in the public sector, which has been difficult to reverse.

#### 1.3.0 Financial Markets

Kenya engaged reforms in the financial sector early in independence by adopting the colonial financial systems but most reforms came into in the early 1980s. These reforms were part of an overall strategy toward establishing a more market-based, open, and private sector led economy, as in many developing countries. Some studies (see for example McKinnon and Shaw, 1973) have tried to show the existence of a positive impact of financial development on economic growth.

The role of financial deepening in the economic growth has been the focus of a vast literature. McKinnon (1973) and Shaw (1973) have showed the effect of financial repression and motivated the financial liberalisation policies. The World Bank report (1989) concludes that efficient financial systems help to grow, partly by mobilizing additional financial resources and partly by attracting those resources to the best uses.

The endogenous growth literature has reinforced the role of financial intermediation in the economic growth process. The role is shown by different aspects of the productive activities. The endogenous growth view considers the financial repression as detrimental to growth. King and Levine (1993) show the negative effects of financial repression. So the financial development view consider that financial development play a key role in the economic growth process. However, the issue of the causality between financial development and economic growth still remains theoretically and empirically controversial. Indeed, financial development is seen like a cause of economic growth. Other authors consider that finance is not a leading sector and that economic growth causes financial development. Another view considers the existence of a feedback relationship between finance and growth. The two way relationship are: financial system grow as a consequence of economic development which in turn feed back as a stimulant to growth.

#### 1.3.1 Labour markets

The process of economic growth is driven by a society's accumulation of knowledge and the ability, or skills, needed to apply it. Then the wealth of a society is determined by its stock of human capital, and economic growth is the process of human capital accumulation at the level of an economy. This means that growth is supported by human capital investment decisions that are made in labour markets. Investment in human capital responds to differences in wages between skilled and unskilled labour. Wage inequality spurs investment in human capital and more rapid economic growth, but increased relative abundance of skills serves to reduce inequality.

Kenya's labour market was for many years highly regulated, with wage guidelines, approval mechanisms for redundancies by the Ministry for labour, and the government's involvement in the elections of trade unions (Mwega and Ndung'u, 2002). The regulation of the labour market was expected to encourage rapid economic growth and development, and improve the welfare of the workers. This did not however, spur economic growth or improve the welfare of the workers. What was realised during this period is an increase in

the poverty rates from 38 per cent in 1963 to 52 per cent in 1997 (see WMS III, 1997 for poverty indicators).

The labour market in Kenya has undergone considerable liberalization in the 1990s. As a result of this liberalisation, various laws have been amended to allow firms to discharge more easily the redundant workers when necessary. The removal of wage guidelines makes it possible now for firms to negotiate and change the level of wages on the basis of productivity and performance rather than on the basis of cost of living indices (Mwega and Ndung'u, 2002).

#### 1.3.2 Product markets

In the early years of independence, the state through various co-operative societies controlled the marketing process of agricultural produce. Once the products market was under control of the state, it remained weak and undeveloped to function effectively for many years.

The manufacturing sector was not left out either. The policy prescription at this time was the import substitution strategy. This was meant at improving and increasing the domestic economy capacity in production of those goods which could be produced with the locally available resources and reduce the importation of such commodities. The manufacturing production was skewed toward consumer goods only. The manufacturing sector was highly helped by import protection. At this time, the government wanted to introduce and develop a product market based on the domestic production of goods imported and while at the same time attempted to use as much of the local resources available (Mwega and Ndung'u, 2002). Mwega and Ndung'u, 2002 argues that what slowed the sector in the later years was the problem of the policy of import substitution, which failed to proceed beyond the first phase, and the system of controls which did not allow the development of a product market. Final goods prices were controlled so that the price system that emerged did not reflect production efficiency and sectoral profitabilities.

#### 1.4 Some selected macro economic variables

In this sub-section, we present some macroeconomic variables that may explain the poor performance of the Kenyan economy. In order to advise in which sectors the government should invest, we would look at the importance of each of the macroeconomic variables that are likely to explain the dismal performance of the economy. We will explain how each variable influences economic growth and we will further look at how Kenya is doing on each of the macroeconomic variable.

#### 1.4.0 Initial level of GDP

The initial level of per capita GDP has a 'negative influence' on the long-term growth rate of an economy. This property, called the convergence property, is driven by diminishing returns to capital. If a country starts with a relatively low level of per capita GDP, it can enjoy high growth over an extended period before diminishing returns sets in. This is of course conditional on the long run steady state value of per capita GDP. The initial level of GDP per capita reflects endowments of physical capital and level of technology. Both Barro (1996) and Sachs and Warner (1997) find support for the convergence property, and estimate a negative coefficient for the initial GDP per capita or economically active population. Easterly and Levine (1995) argue that the convergence result is generally nonlinear; they find that the catch up effect is rather weak for low-income countries. For Kenya, the initial level of GDP should have spurred her economic performance relative to the more developed economies, whose initial level of GDP was much higher.

#### 1.4.1 Government expenditure

The size of government and its impact on economic growth has emerged as a major public choice issue facing economies in transition. Given the openness of most LDCs, trade dependency and the vulnerability to external shocks, the role and size of Government become germane to adjustment and stabilization programmes. The question of the size of government has traditionally been divided between two extremes. The first argues that larger government is typically detrimental to efficiency, productivity and growth. The basis being that the public sector is not responsive to market signals; an onerous regulatory process that engenders higher production costs; and distortions that arise from both fiscal and monetary policies. Arguments in favour of larger government articulate the need for

provision of certain goods and services that would otherwise not be provided by the private sector, in order to place the economy on a predetermined growth path. The premise of the latter position is predicated on the issue of market failure arising from externalities. There is a lack of consensus on both the empirical impacts of size of government on growth. Studies that have found a negative relationship between the size of government and growth include that of Barro (1990). Others that have found a positive relationship are those of Ram (1986) while other studies have found no significant relationship.

Most of the above studies have utilized aggregate measures of government size in the form of either growth in government consumption or government consumption as a ratio to GDP. The provision of social and physical infrastructure through public investment and expenditure on some goods and services theoretically can indirectly improve productivity in the private sector through a more efficient allocation of resources. Other benefits of government expenditure include the correction of market failure and the preservation of property rights through legislation and the provision of security services. Some developmental economists posit that some categories of government expenditure are necessary to overcome constraints to economic growth e.g. Chenery and Svrquin (1975). Economic growth has been found to be positively related to total expenditure in education. Barro (1991) notes that growth in real per capita GDP was negatively related to share of government consumption in GDP. The policy implications suggest that those categories of government spending that are complementary inputs to private production functions are growth enhancing. Most studies that utilize government consumption as a ratio of GDP generally find a negative correlation with growth while those that utilize the rate of growth in government spending generally find positive correlations.

#### 1.4.2 Investment

In the neo-classical growth model for a closed economy, the savings rate is exogenous and equal to the investment ratio to output. A higher investment rate raises the steady-state level of output per effective worker and therefore the growth rate for a given starting level of GDP. There has been some empirical evidence of a positive effect of investment on growth. But some have argued that these results are suffering from endogeneity. When using current investment, couldn't it be that high growth triggers investment, instead of investment causing high growth?

Being a high-risk environment, it can be expected that Africa, and Kenya in particular, has a high demand for the services of financial markets. Despite this fact, it is well known that savings rates are very low. The primary cause is the lack of financial institutions for the majority of its people. This lack of savings and credit facilities (both formal and informal) is in its turn the result of different reasons. To quote just but a few, there is the financial repression in the past, the lack of suitable collateral, poor performance of the legal system in case of repayment default, bad infrastructure, etc.

#### 1.4.3 Population growth

Kenya has experienced over the years lower levels of both health and education and higher levels of fertility. The population growth rate, averaging 3 per cent, has been high for meaningful economic performance. There are two reasons why population growth may influence growth in a negative way. First, population growth reduces the long-term steady state level of GDP per capita, because a portion of the economy's investment gets used to provide these new persons with capital, rather than raise capital per worker. The second reason is that childcare draws away time that cannot be used for production. Sachs and Warner (1997) use a slightly different measure to capture the effects of population growth. namely the difference between the growth rate of the working age population (between 15 and 65) and the growth rate of the whole population. Hence they expect and estimate a positive effect on growth for their measure. Barro (1991) has shown that human capital is a very important ingredient of growth, because it raises labour productivity, and education (especially for women) reduces fertility rates. High population growth is a determinant of poverty and a hindrance to economic growth. Economic growth depends on the initial income per capita and a higher income per capita generates saving. But high population growth with stagnating GDP leads to lower income per capita, lower saving rates and low economic growth and development (Chipeta and Mkandawire, 2002). In Kenya, the population growth rates are high because of improved health services and this has increased life expectancy, but low levels of education coupled by cultural beliefs still leads to high fertility rates.

#### 1.4.4 Human Capital

The original neo-classical growth models tried to explain growth in income using only three exogenous variables: the savings rate, the rate of population growth and technology. In their famous 1992 article, Mankiw, Romer and Weil argue that, although the Solow model rightly predict the direction of the effects of savings and population growth on GDP growth, the magnitude seems too large. They augment the model by including the accumulation of human capital as well and find that this decreases the coefficients on savings and population growth, while dramatically improving explanatory power.

Despite the fact that theory predicts large growth effects from education, macro-economic cross-country growth regressions only find secondary education to be significant. Primary education is insignificant, but Barro (1991) notes that primary education nevertheless is indirectly growth enhancing, because it is a prerequisite to secondary education. Easterly and Levine (1995) and Collier and Gunning (1998) also find a positive coefficient for secondary school enrolment. A more surprising feature shows up in Barro's regression. Differentiating between male and female secondary education, he finds no correlation between female secondary schooling and economic growth. This contradicts with the importance of female education witnessed on the micro-economic level. Barro (1991) notes that female education is correlated with other indicators of development: like lower infant mortality (thus increasing life expectancy), lower fertility rates and political freedom.

#### 1.4.5 Openness to International Trade

There are a variety of reasons why openness to international trade might affect the steady state level of income. Openness to trade is thought to encourage greater efficiency in the allocation of the economy's scarce resources. It also promotes competition, thereby reducing possible monopolies and increasing quality and customer care. It may also encourage the importation of technological innovations and improvements, raising total factor productivity in the entire economy. One might also argue that openness to trade encourages international factor mobility, especially in the form of financial and physical

capital. As long as capital flows from regions where it is abundant to regions where it is scarce, it will promote convergence of the capital/labour ratio.

Almost all authors of macro-economic cross-country growth studies find that Africa is less open than any other region (Collier an Gunning, 1998). On one measure, not only was Africa the area with the highest trade restrictions, but also the gap between it and the next most restrictive area, the Middle East, was wider than that between the Middle East and the most liberalised region, the Far East (Dollar, 1992). Sachs and Warner (1995, 1997) use a binary measure and find that almost all African economies were closed whereas 37% of other developing countries were open. Easterly and Levine (1997) use the parallel premium as their measure of openness and come to the same conclusion. Furthermore, the authors conclude that lack of openness has had a significant effect on the growth of African economies. Or, as Collier and Gunning (1998) put it: "openness explains why Africa has grown more slowly than other regions both because openness is important for growth while Africa has been much less open than other regions, and because a given level of trade restrictions has been more damaging in Africa than elsewhere. because it has been in the context of much smaller economies."

The multilateral international organisations have pushed economic liberalisation without taking into consideration the adverse effects on the poorest in developing countries. While developing countries abolish all their trade barriers, Western Countries increase their barriers in sectors like steel production and agriculture. Since developed countries are thought to have a comparative advantage in these sectors, these can have a disproportionate negative impact on developing countries. The high indebtedness and aid dependence of African countries also makes them vulnerable to outside influence. All this resulted in a fear for globalisation. Institutions like the World Bank and the World Trade Organisations have shown us the downside of global capitalism: the rich and powerful become richer and the poor become more dependent and exploited.

Early years of Kenya's development show the country turn away from globalisation as the policy makers thought that international trade was invariably harmful to developing countries, and reinstated various trade regulations. This was sad, because the fastest and easiest way to grow was through trade.

#### 1.4.6 Social Capital

Collier and Gunning (1999) make a distinction between civic social capital on the one hand and public social capital on the other hand. In this study, we are interested in their concept of public social capital. These are the institutions of government that facilitate private activity such as the courts. Civic social capital, on the other hand, is the economic benefits that accrue form social interactions on a more micro-economic level. These benefits can arrive from the building of trust, which lowers transaction costs, from the knowledge externalities of social networks, and from enhanced capacity for collective action.

Quantifying the quality of public social capital is hard. Keefer and Knack (1994) and Barro (1996) use an index of institutional quality. It is an average of 5 sub-indexes. The *rule of law index* "reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes". The *bureaucratic quality index* measures "autonomy from political pressure", and "strength and expertise to govern without drastic changes in policy or interruptions in government services." The *corruption in government index* measures whether "illegal payments are generally expected throughout the government", in the form of "bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans." The *risk of expropriation index* measures high risk of "outright confiscation" or "forced nationalisation." The *government repudiation of contracts index* measures the "risk of a modification in a contract taking the form of a repudiation, postponement or scaling down". This study does not use the social capital variable for its analysis because of unavailability of reliable data.

#### 1.4.7 Terms of Trade

A deterioration of the terms of trade, defined as the ratio of export to import prices, of developing countries is frequently quoted as the cause of persistent slow or even negative growth. Most of the developing countries indeed specialise their exports in a few primary commodities. Barro (1996) finds a significant positive effect of changes in the terms of trade. It seems that an improvement of the terms of trade indeed stimulates an expansion of real GDP.





From 1963 till 1973, the terms of trade for Kenya remained relatively stable. The country recorded the lowest terms of trade in 1974, with a substantial increase in 1977 with the coffee boom. But after 1979, the term of trade has been unstable. This is illustrated in Figure 1.1.

#### 1.4.8 Other Variables

We put three more explanatory variables that may explain the poor economic performance of the country. The first is *political instability*. This variable is measured by different variables; it may be proxied by the number of revolutions, the number of assassinations, or the months of civil war. For Kenya, social disturbance is probably a minor issue except the tribal crashes of 1992 and 1997.

Another measure that seems important in explaining economic growth performance in Kenya is the country's geography. It is thought that countries that are geographically isolated from world markets face higher costs for all international activities, and may end up with lower division of labour and lower per capita output. *Landlocked* countries have a clear disadvantage, since they have to use road transport across at least one border in

addition to the sea freight costs. Air transport is an alternative, but only certain goods (high value low volume) can be transported economically in this way. Kenya is not land locked and has several ports, which makes her geography growth enhancing in this respect.

However, another measure of geography, which is important, is *the proportion of the population in tropical climates*. Two channels for a negative relationship: First, tropical countries face a wide variety of parasitic diseases that are much less prevalent in the temperate zones, and disease is one of the sources of low labour productivity. Second. soils tend to be more fragile, rains less reliable, pests and veterinary disease more prevalent, and natural disasters more frequent, all of which impede sustained agricultural growth in the tropics. Kenya has considerable parts of its area in tropical zones and this could affect economic development.

## 1.5 Periodization of Kenya's Economic Growth Performance

Mwega and Ndung'u (2002) have delineated the various episodes of Kenya's economic performance into halfdecadal data to enable for the control of short-term influences. We borrow from them so as to capture different phases of economic growth in Kenya and to be able to control for short-term influences.

#### 1.5.0 Episodes in Economic Performance

In this section, we identify different episodes of economic growth performance. Mwega and Ndung'u (2002) have identified these episodes as; periods of improving economic performance (1960-74); period of poor performance (1975-84); economic recovery (1985-89); and a period of poor performance (1990-99). This study confirms these episodes. In general, Kenya's economic performance has registered mixed performance since 1963 (table 1.1). The period 1963-99 will be divided into four different episodes of economic performance. Key factors, which explain the economic performance in these periods, will be highlighted.

#### 1.5.1 The 1963-69 Period

After independence in 1963, both the Kenyan leadership and development strategy showed remarkable continuity from the colonial government. The strategy was based soundly on agricultural development, particularly of smallholder agriculture. As a result, Kenya's economy exhibited above average growth during 1963-69 with the economy registering an average growth rate of 7 per cent. What accounted for this good performance were a number of factors. We shall concentrate on the key factors, which favoured the good economic performance. The diminishing of the uncertainties surrounding the transition to independence and the release of Sessional Paper Number 10 of 1965 became the benchmark for a new Kenya.

The government increased its expenditure on development while investment on human capital formation by both the public and private sectors were also increased, which yielded educational, and health indicators above the average for Sub-Saharan Africa. Investment in education also increased increasing the primary enrolment by 43.7 per cent and secondary enrolment tripled. During this period, the population growth rate of about 3 per cent was detrimental to economic growth.

The structure of production also changed significantly after independence. The government had distributed to smallholder farmers a considerable amount of the high-potential and medium-potential land that had belonged to large farmers, and had encouraged small scale farmers to cultivate tea, coffee, and hybrid maize and dairy farming.

The expansion in the real sector of the economy lead by agriculture production and broadening of the industrial sector contributed greatly to the good performance. Other key factors were a rapid increase in domestic savings and foreign aid and capital inflows. Also a fall in transaction costs as the government intensified marketing of agricultural produce from the small-scale farmers contributed greatly to economic growth.

#### 1.5.2 The 1970–79 Period

The period 1970-79 is marked by a decline in the economic performance compared to the previous period. The key factors, which are attributed to the slow performance, are the 1973 and 1979 oil shocks. Investment is not as rapid as it was during the 60s with the human capital accumulation surpassing the investment rate. There is some evidence, which shows that the efficiency of capital use worsened over time especially in the public sector activities reducing the growth effects of investment and the various price distortions in the factor and product markets resulted in inefficient allocation of resources (Mwega and Ndung'u, 2002).

Investment rate, human capital accumulation and population growth can be singled out as the other key variables in contributing to the growth performance of the economy. Mwega and Ndung'u, 2002 have shown that, during this period, the dependency ratio, a relative low growth in potential labour force participation and a poor performance in the economies of trading partners also caused the slow performance of the economy. Poor fiscal policy especially inadequate control of expenditures and inability to target expenditures to achieve policy objectives are cited as contributing to the dismal performance of the economy by the study.

#### 1.5.3 The 1980-89 Period

Kenya started the decade of the eighties with many economic features that were remarkably more favourable than those in the Sub-Saharan countries. The structure and dynamism of the economy in the late 1970s reflected the favourable policy environment of the past. But economic management deteriorated in the late 1970s, which witnessed *inter alia* the intensification or emergence of a number of distortions. During the 1980s, progress was significant only in a few areas and the economy's momentum of the first two decades of independence slowed down considerably (Swamy, 1994). This slow economic performance in the early 80s could be attributed to the oil price shock of 1979; the military attempted coup in 1982; and a severe drought in 1983/84. Reduced availability of credit and foreign exchange to the private sector following the coffee boom of 1976/77 and a fall

in public infrastructure reduced private investment in the 1980s. Mwega and Ndung'u, 2002 attributes the high interest rates, which crowded-out the flow of credit to private sector and imposed pressures on balance of payments and the availability of foreign exchange investment, to be the key variable which explains the low investment in the 80s. Also slow human capital accumulation and the turning inward of the economy are cited by the study to be amongst the variables, which explain the slow performance of the economy in this period.

#### 1.5.4 The 1990–99 Period

In the early 1990s, the economic performance became worse with an average growth rate of 2.5 percent. By 1993, the government had completed many of the structural reforms and growth in government expenditures and credit to the government slowed down in this period. The drought of 1991-92, the oil price increase due to the Gulf war of 1991 compounded by the aid embargo by the bilateral and multilateral development partners to the Kenyan government led to an increased budget deficit (Mwega and Ndung u, 2002). To finance the budget deficit during this period, the government resorted to domestic borrowing. The result was a rapid increase in money supply, which led to very high inflation rates, interest rates and a depreciation of the exchange rate. This study argues that the coming of multiparty politics also accelerated the slow economic performance in that the regime in power had to consolidate itself hence the huge printing of money to finance the elections of 1992.

In the last part of the 1990s, economic growth declined further with the economy registering a negative 0.2 per cent growth rate. This was as a result of the aid embargo in 1997-2000,'ethnic clashes' of 1997 and the *El Nino* rains in 1997-98 followed by a major drought leading to power rationing in 2000 (Mwega and Ndung'u, 2002). Easterly and Levine (1997) find that high level of ethnic diversity affects economic growth and are strongly linked to high black market premiums, poor financial development, and low provision of infrastructure and low levels of education, which explains the poor performance of the Kenyan economy.

#### **1.6** Statement of the Problem

The process of economic growth in Kenya recorded a mixed performance since independence (Economic Survey, various issues). In the first decade of independence, the gross domestic product grew at an average of 7% per annum. However, this growth rate was not sustained in the subsequent periods. The good performance in the early years of independence was attributed to good macroeconomic policies. Easterly and Levine et al (1991), Collier and Gunning (1998) O'Connell and Ndulu (2000), and Khan and Villanueva (1991) have shown the macroeconomic attributes, which are important in explaining economic growth. Some of these are; initial conditions and whether a country adopts suitable development policies; lack of openness to international trade; a high-risk environment; policy; institutions; political instability and poor infrastructure. The periods between the late 1970s and the late 1990s were characterized by persistently low growth and limited economic transformation, despite the fact that over that time span, the country maintained a large measure of political stability and pursued a fairly consistent development strategy (Mwega and Ndung'u, 2002). The introduction of multi-party politics in the early 1990s rekindled ethnic tensions, which resulted to some communities being evicted from their farms. This created uncertainty in the country hence the poor performance.

Economic performance in the periods 1973-99 encountered serious crises with the economy registering the lowest growth rate of negative 0.2 per cent in 2000 (Economic Survey 2001). One of the factors that led to the stagnation of the economy in the last decade of Kenya's development was poor governance and lack of political will to work towards economic growth. However, this period saw the government outline some of the key policies meant to initiate economic growth and alleviate poverty. The MTEF and PRSP are two examples of such undertaking to try and bring the economy back on track. In this study, we look at openness of the economy, debt overhang, human capital, investment, financial developments, terms of trade and size of government among other factors in explaining Kenya's growth performance. Our broad statement of the problem for investigation is: *tracking economic growth in Kenya and explaining its performance*.

### 1.7 Objectives of the Study

The objective of this study is to explain Kenya's economic growth performance from 1963, when Kenya attained her independence, to 1999. The paper will use econometric tools to provide guidance on what factors are important in explaining aggregate growth in Kenya over the projected period. The purpose of this study is to analyze and seek to explain the factors that affect the economic growth of Kenya. Our broad objective is to identify and decompose the sources of economic growth and examine the factors behind these sources of growth. This is done at the aggregate level as well as at the main economic sectoral levels.

Specifically we:

- Review trends of economic growth and macroeconomic performance in Kenya.
- Estimate an econometric model that can be used to explain economic growth in Kenya.
- Determine the sources of economic performance in Kenya.
- Provide an explanation of the growth and collapse of the economy on the basis of the findings of the formulated model
- Make policy recommendations on how to improve economic growth on the basis of the findings of the study.
- To give directions for future research aimed at more understanding on what factors explains Kenya's economic growth.

## 1.8 Significance of the Study

Successful economic development requires a thorough understanding of how different macroeconomic variables interact. A study on how determinants of economic growth interact is important not only to researchers but also to people responsible for formulating economic policy. This study will try to explain the mixed economic growth in the period 1963-1999 and highlight the key findings, which will be used for formulating economic policy. Most of the empirical literature, which forms the basis of this study, have concentrated in explaining Africa's economic performance using cross-section data and have assumed that growth processes across countries and over time are similar. To contribute to a better understanding of Kenya's economic performance, our study supplements the cross-country endogenous growth methodology with a time series analysis. The study will also highlight important areas for further research.

## 1.9 Study Limitation

One major limitation of the study is the problem concerning data on the Kenyan economy, which lacks relevance and reliability. Different data sources give different data for the same variable. To maintain consistent, the study relies on data published by the Government Press although data from other sources have been used.

## 1.10 Organization of the rest of the study

Chapter One has been dedicated to background information explaining Kenya's economic growth performance, sectoral performance, macroeconomic variables, periodization of the economy, statement of the research problem, objectives of the study and limitations of the study. The rest of the paper is organised as follows;

Chapter Two provides a review of the literature explaining the slow economic growth in Kenya and Africa in general. We review both theoretical and empirical literature, followed by an overview of the literature.

Chapter Three discusses the conceptual framework of the model, model specification, hypothesis to be tested and data types and sources.

Chapter Four presents the estimation techniques used, and the findings of the study.

Chapter Five concludes the study. Policy recommendations and areas of further research are highlighted in this chapter.

#### **CHAPTER 2**

## LITERATURE REVIEW

To design sound macroeconomic policies and make rational economic decisions, appropriate information is necessary. Much evidence shows that countries that have understood what hinders their developments have succeeded in having sustained rates of economic growth (Collier and Gunning 1998). Implementing proper economic policies also depends on decision-makers having the relevant inputs for their decisions making process. Despite the economic planner's efforts to bring the economy back on track, economic growth has continued to deteriorate. Mokaya (1986) attributes this to lack of knowledge of causal relationships between the determining factors and economic growth or lack of commitment of the policy implementers or giving priorities to wrong variables.

The purpose of this chapter is to review both theoretical and empirical literature that concentrate on explaining economic growth. The first section reviews theoretical literature under models that are based on the neoclassical framework. The second section presents a summary of empirical studies that have been carried out in order to explain economic growth. Studies which have used the following variables; production factors, external orientation of the economy, public sector activity and political economy variables have been explored. An effort has also been made to explaine on any explanatory variable on which there exists inconclusive evidence.

## 2.1 Theoretical literature<sup>3</sup>

The theory of economic growth generally deals with the economy's long-run trends, or potential, growth path. Classical economists, such as Adam Smith (1776), David Ricardo (1817), and Thomas Malthus (1798), and, much later, Frank Ramsey (1928), Allayn Young (1928), Frank Knight (1944), and Joseph Schumpeter (1934), provided many of the basic ingredients that appear in modern theories of economic growth. These ideas include; the basic approaches of competitive behaviour and equilibrium dynamics; the role of

<sup>&</sup>lt;sup>3</sup> For papers cited on this section not in reference list, see Barro and Sala-I-Martin (1995).

diminishing returns and its relation to the accumulation of physical and human capital; the interplay between per capita income and the growth rate of population; the effects of increased technological progress in the forms of increased specialization of labour and discoveries of new goods and methods of production; and the role of the monopoly power as an incentive for technological advance.

Harod (1939) and Domar (1946) attempted to integrate the Keynesian analysis with elements of economic growth without much success. The most important contributions were those of Solow (1956) and Swan (1956). The key aspect of the Solow-Swan model is the neoclassical form of the production function, a specification that assumes constant returns to scale, diminishing returns to each input, and some positive and smooth elasticity of substitution between inputs. This production function is combined with a constant saving-rate rule to generate an extremely simple general-equilibrium model of the economy. One prediction from these models is conditional convergence. The lower the starting level of real per capita GDP, relative to the long-run or steady-state position, the faster is the growth rate. This property derives from the assumption of diminishing returns to capital; economies that have less capital per worker tend to have higher rates of return and higher growth rates. The convergence is conditional because the steady-state levels of capital and output per worker depend, in the Solow-Swan model; on the saving rate, the growth of population, and the position of the production function. Some empirical studies indicate that additional sources of cross-country variations, especially differences in government policies and in initial stocks of human capital, should be included (see for example Kaldor, 1963).

The works of Arrow (1962), Sheshinski (1967), Cass (1965) and Koopmans (1965) completed the basic neoclassical model. Since the mid-1980s, research on economic growth experienced new dimension, beginning with the work of Romer (1986) and Lucas (1988). The motivation for their research was the recollection that determinants of long-run economic growth were crucial. The initial wave of the new research by Romer (1986), Lucas (1988) and Rebelo (1991) were built on the works of Arrow (1962), Sheshinski (1967) and Uzawa (1965).
Another key exogenous parameter in the neoclassical growth model is the growth rate of population. A higher rate of population growth lowers the steady-state level of capital and output per worker and tends to reduce the per capita growth rate for a given initial level of per capita output. The clearest distinction between the growth theory of the 1960s and that of the 1980s and 1990s is that the recent research pays close attention to empirical implications and to the relationship between theory and data. The recent growth research has attracted interest from economists in a wide variety of fields and most of the empirical literature has focused on explaining why some regions have grown slower than others. Most of the studies have focused on Africa, Asia and Latin America. Our study will focus mainly on studies, which have used the neoclassical growth models to explain the slow growth in Africa and we shall emphasize on the Kenyan economy.

#### 2.2 Empirical Literature

Recent empirical literature trying to explain the economic performance of Kenya is that of Mwega and Ndung'u (2002). Most studies have concentrated on the determinants, which influence economic growth without analyzing them for the differences of economic performance. Some of these studies will help in identifying some of the reasons why Kenya's economy has not grown as fast as those of the tigers of East Asia.

The specific literature will cover the empirical literature on the factors that influence economic performance. We will survey the empirical growth literature and develop a set of approaches to locating specific growth experiences that explains Kenya's economic performance. Slow accumulations of capital, slow productivity growth and a delayed demographic transition each contribute importantly to Kenya's relative economic performance. Policy, institutions and political instability have also been cited to contribute to the performance of the economy (O'Connell and Ndulu, 2000). Efficiency in the public service has worsened due to lack of civic social capital. The share of public expenditure in GDP is generally higher than in other developing countries. Whereas other developing regions allocate on average 16.5 percent of GDP to potentially production public expenditures, African governments (Kenya included) allocate over 21 percent of GDP to

this sector. Despite this, the actual delivery of public services has been poor (Collier and Gunning, 1998)

Collier and Gunning (1998) and O'Connell and Ndulu (2000) can be credited for coming up with some characteristics, which have been used to explain economic performances in most African countries. They found the key factors as; lack of openness to international trade, a high risk environment, a low level of social capital, poor infrastructure, slow accumulation of capital, slow productivity growth, and a delayed demographic transition. Others are policy, institutions, and political stability. They attribute these problems to government behaviour. Many studies have followed this approach in trying to explain country-specific economic performance (see for example Mwega and Ndung'u (2002), Chipeta and Mkandawire (2002) and Nkurunzinza et al (2002)).

Levine and Renelt (1992) did a sensitivity study to find out whether there was any confidence in the conclusions of most cross-country regressions searching for empirical linkages between long-run growth rates and a variety of economic policy, political and institutional indicators. They found that most of the results used in the regressions are fragile. They identified a positive and robust correlation between growth and the share of investment in GDP and between the investment share and the ratio of international trade to GDP. In particular, the broad array of fiscal-expenditure variables, monetary policy indicators and political-stability indexes used by the profession were not robustly correlated with growth. The new assortment of variables they constructed to capture exchange rate, trade, tax, and fiscal-expenditure policies were also not robustly correlated with growth. The study notes that finding a robust partial correlation does not imply that the variable of interest causes growth.

lyoha (1999) has done a simulated study on external debt and economic growth in Sub-Saharan African counties using econometric techniques. The study found out that there was a significant debt overhang effect as well as a crowding out effect. That is, the large stocks of external debt and heavy debt service payments have had a depressing effect on investment in SSA. The results obtained in this study confirm that an excessively high stock of external debt depresses investment and lowers the rate of economic growth. The

study suggests that if appropriate domestic macroeconomic policies are adopted and implemented along with debt reduction packages, debt reduction would provide a muchneeded stimulus to investment recovery and growth in Sub-Saharan African countries.

Amin (2002), using econometric techniques has shown that capital and labour are the key factors, which influences economic growth. According to his study, capital input had a more significant impact on economic growth while labour did not have any impact on the growth of the economy. The study notes that labour input is more important on the agricultural sector.

Mwega et al. (1994) have shown that foreign exchange gap is the binding resource constraint to potential economic growth in Kenya. The study suggests that increased foreign exchange availability through exports promotion and more concessionary capital inflows and the associated reduction of import compression would alleviate the saving, fiscal and external gaps that undermine good macroeconomic performance.

Mokaya (1996) used an endogenous growth model to investigate the determinants of longterm economic growth in Kenya in the period 1972 to 1994. The empirical findings showed that secondary school enrolment ratio and the life expectancy at birth, the measures of human capital efficiency promoted long-term economic growth during the period of the study. Other significant factors were exports, investment, government expenditure, financial deepening and foreign debt as a share of GDP. Population, manufacturing as a share of GDP and inflation were found to significantly retard the longterm economic growth while real exchange rate had a weak support for positive effects on growth. Terms of trade, primary school enrolment ratio and agricultural share as a ratio of GDP had weak negative effects on long-term.

Bwire (1993) found saving to be highly significant positive determinant of growth performance in Kenya, which explained over 50 percent of the variations. Further results showed that macroeconomic instability indicators (external debt burden, current and expected inflation rate) and factors 'exogenous' to policy control (droughts and population growth) negatively affected saving, investment and real growth. However, terms of trade

were found to stimulate the economy. The effects of interest rate, credit availability, and broader money supply were generally found to be weak determinants of growth.

Wanjala (2001) in an empirical study showed that real GDP growth rate, taxation policy and the degree of openness of an economy significantly determined Foreign Direct Investment (FDI) in Sub-Saharan Africa. The study found out that while real GDP growth rate encouraged FDI, taxation policy and the degree of openness of an economy were found to deter FDI. In particular, inferences on Kenya showed that the declining net FDI inflows into the country were attributed to the taxation policies and liberalisation policies pursued by the government. The study concludes that sound taxation policies, steady economic growth and control of feedback effects of opening up an economy would increase FDI inflows.

Burnside and Dollar (2000) examined the relationship between foreign aid, economic policies and growth of per capita GDP. They found out that foreign aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies but have little effect in the presence of poor policies. Apart from the institutional and political variables, the study finds the policies, which have considerable weight in explaining economic performance to be: the budget surplus, the inflation rate, and the openness dummy developed by Sachs and Warner (1995). The study concludes that it is the good policies that are important for economic growth and not the foreign aid. The foreign aid itself is a catalyst for growth. This can explain why some countries may not grow with a 'big push'.

Ndegwa (2002) using time series econometric techniques set out to find how macroeconomic performance affects economic growth in Kenya. The study found that among the variables that affect growth negatively are; high inflation, high public investment, and low terms of trade and high lending rates. Positively, growth is affected by capital expenditure, export growth, high level of private investment, exchange rate and labour force growth. The study notes that good infrastructure and a favourable macroeconomic environment can also boost growth.

Masters and McMillan (2000a) have shown that low tax/high investment regimes would be time-inconsistent. For pro-growth policies to become sustainable, they find that commitment mechanisms or new production techniques would be needed. They also find that one factor contributing to the poor African economic performance could be that African policy-makers are trapped in low-growth equilibrium of opportunistic policies and low investment, induced by high levels of sunk costs in the production system. They contend that changes in technology or institutions that enable producers to escape taxation or retaliate against it, as well as changes enabling governments to make credible progrowth commitments are thus likely to have a high payoff in promoting a more favourable policy environment. In another paper, Masters and McMillan (2000b) have found that since 1960, temperate countries have converged towards high levels of income while the tropical nations have converged towards various levels associated with economic scale and the extent of the market. The plausible explanation they give for this is that the temperate regions' growth was assisted by their climate, perhaps historically for their transition out of agriculture into sectors whose productivity converge across countries, while tropical countries' growth is relatively more dependent on gains from specialization and trade.

Ojo and Oshikoya (1995), using the framework of endogenous growth models, analyzed empirically the determinants of long-term growth in selected African countries. The study found that the most important variables which explain long term growth were: initial per capita income; investment; population growth; macroeconomic environment (inflation and exchange rates); external factors (export growth, external debt, and terms of trade); political environment and human capital. Of these variables, investment, external debt, population growth, human capital and proxies for macroeconomic environment were found to have more relative importance in influencing long-term growth.

Dehn (2000) did a study to test the effects of *ex post* shocks and *ex ante* price certainty on economic growth using the Burnside and Dollar (1997) data set for 113 developing countries. The analysis of the data shows that per capita growth rates are significantly reduced by large discrete negative commodity price shocks. The paper finds that the magnitude of the effect of negative shocks on growth is substantial. The negative shocks remain highly significant after controlling for government economic policy and

institutional quality, which indicates that the result is not attributable exclusively to inappropriate policy responses on the part of the governments. The paper also shows that positive shocks have no lasting impact on growth and *ex ante* uncertainty does not affect growth. The paper concludes that what reduces growth is not the prospect of volatile world prices but the actual realization of negative shocks.

Montiel (1995) has done a stimulating study on financial policies and economic growth based on six SSA countries. The study has shown that a well functioning financial system, achieved by removing financial repression through a judicious financial liberalization, can make an important contribution to the stimulation of economic growth. The study suggests that structural adjustment measures are more likely to promote growth under a well functioning financial system, and that a given set of growth enhancing measures is more likely to be successful if accompanied by financial reform.

Gregorio and Guidotti (1995) examined the empirical relationship between financial development and economic growth, by using the ratio of bank credit to private sector to GDP as the indicator of financial development, for a cross-section of countries and find that financial development leads to improved economic growth. They also find that this effect varies across countries and the findings suggest that the main channel of transmission from financial development to growth is the effect on the efficiency of investment, rather than its volume.

### 2.3 Overview of Literature

The cross-country evidence brings out a number of ways in which the government affects an economy's growth rate. Negative influences include the volume of consumption spending and the associated level of taxation, distortions of international trade, and political instability. Positive influences involve the maintenance of institutions that sustain the rule of law, policies that promote the development of financial institutions, and spending on public infrastructure. In most cases, the cross-country empirical work does not provide robust estimates for the effects of a specific government policy on growth, but it does show that the overall package of policies is important. Production factors, external orientation of the economy, public sector activity and political economy variables have been cited in many empirical literatures as the main variables, which influence economic growth.

The cross-country endogenous growth literature has been useful in identifying uniformities across countries and over time and has helped to detect important associations in growth performance of countries (Mwega and Ndung'u, 2002). However, most of these studies have concentrated in explaining Africa's economic performance using crosssection data and have assumed that growth processes across countries and over time are similar. To contribute to a better understanding of Kenya's economic performance, we supplement the cross-country endogenous growth methodology with a time series analysis focusing on the Kenyan economy.

### **CHAPTER 3**

### **METHODOLOGY**

### 3.1 Conceptual Framework

The main objective of this study is to provide an explanation on Kenya's economic growth performance using econometric techniques. In this section we present the proposed framework, which will guide the rest of the study.

Many growth models, which use capital and labour, have been used in explaining economic growth. Harrod – Domar and Solow – Swan (henceforth Solow) models of economic growth have been used in the study of economic growth. Ndulu and O<sup>+</sup>Connell (2000) have used the augmented Solow growth model to explain the factors that account for growth performance in 85 African countries and the looser tradition of Barro (1991) to assess the relations of contributions of initial conditions, structural features, institutional characteristics and the policy environment. Other studies, which have utilized the augmented Solow growth model, include Hoeffler (2000), Mwega and Ndung<sup>+</sup>u (2002), and Nkurunzinza and Ngaruko (2000). The argumented Solow growth model is built on Solow (1957) model, which has constant returns to scale, capital and labour substitutability and diminishing marginal productivity. The augmented Solow growth model fulfils the stylized facts<sup>4</sup> of a good model.

HOND KENYATTA MEMORIAL

<sup>4</sup> See Kaldor (1963)

UNIVERSITY OF NAIROBI EAST AFRICANA COLLECTION The total amount of output is given by the aggregate production function,

Where Y is the output, K is capital, L is labour, A is the effectiveness of labour and t denotes time. The time does not enter the production function directly but through K, L and A. Output changes over time only if the inputs into production change. If the amount of output obtained from given quantities of capital and labour rises over time, then there is technological progress, when the amount of knowledge increases. In this case, A, K and L enters into the production function multiplicatively, hence the technological progress which enters into the function this way is known as Hicks neutral<sup>5</sup>.

The aggregate production function is assumed to have constant returns to scale and the marginal product of each factor of production is also diminishing. The stylised facts outlined above make the Solow growth model ideal for usage in explaining Kenya's economic performance.

The conceptual framework used in this study follows that of Collier and Gunning (1998), Easterly and Levine et al, (1991), Levine and Rennet (1992), O'Connell and Ndulu (2000), Burnside and Dollar (2000) and Mwega and Ndung'u (2002). The model specification is that of Mankiw, Romer and Weil (1992), Barro and Sala-I-Martin (1995), and Hoeffler (2000). Some adjustments have been carried out on the specific models to suit the Kenyan economy. The study identifies key factors that are viewed as able to explain the Kenya's economic performance. The private sector's choices include savings and investment rates, labour supply and demand for education. The government's choices involve spending in various categories (non productive consumption, spending on education and spending on health), tax rates, the extent of distortions of markets and business decisions (for example openness to trade), and maintenance of the rule of law and property rights (social capital).

If knowledge enters in the form y = F(AK, L), technological progress is capital augmenting and if it enters in the form y = F(K, AL), technological progress is labour augmenting.

For the environmental variables, the terms of trade will also prove to be an important determinant of the long run steady state in developing countries. Other geographical environmental variables that are important are easy access to international markets and climatic conditions.

The dependent variable is the growth rate of real per capita GDP. The explanatory variables to be explored are categorized into;

- Openness of the economy captured by the sum of exports and imports as a percentage of GDP<sup>6</sup>.
- Fiscal stance proxied by government expenditure as a percentage of GDP.
- Human Capital measure proxied by the rate of enrolment in primary and secondary schools.
- Production Factors constituting of investment (capital accumulation) and labour force proxied by growth of the population.
- Competitiveness of the economy proxied by Real Exchange rate.
- Financial depth proxied by money supply as a percentage of GDP.
- Size of Government proxied by government expenditure as a percentage of GDP.
- Debt Overhang proxied by the external debt as a percentage of GDP.
- Terms of trade to capture external shocks.
- Weather variable, proxied by a wet index (1995=100), to capture short-term and climatic influences.

<sup>&</sup>lt;sup>6</sup> Sachs and Warner (1999), argues that an economy is open if it satisfies the following axioms: (1) average tariff rates below 40%; (2) average quota and licensing coverage of imports of less than 40%; (3) a black market exchange rate premium of less than 20%; (4) no extreme controls (taxes, quotas, state monopolies) on exports; and (5) not considered a socialist country. They find that this measure of openness is positively related to growth.

# 3.2 Model specification

The inspiration for the output equation used in this study is the augmented Solow growth model, tracing its roots to Solow (1957) who hypothesized that output depended on capital and labour inputs and on disembodied technical change. It also owes much to the modification introduced by other economists e.g. Mankiw, Romer and Weil (1992), Barro and Sala-I-Martin (1995), and Hoeffler (2000). These models have featured in the empirical growth literature hence they form a cornerstone for our approach.

The growth of output may be explained with the use of a neoclassical production function of the form specified in equation 1 above. Schultz (1956) identified economic and noneconomic variables as other determinants of economic growth. Considering the growth of real per capita GDP, the equation becomes:

where  $g_i$  denotes the growth rate of real GDP per capita; *RErate*, denotes the real exchange rate, *InvGDP*, is the private investment as a percentage of GDP, *Hcap*, is the human capital proxied by the enrolment rate in both primary and secondary schools. *DetGDP*, is the external debt as a share of GDP, openness of the economy denoted as *Open*, and *ExpGDP*, denotes the government expenditure as a percentage of GDP. Terms of Trade denoted as *ToT*, money supply as a percentage of GDP denoted as *M2GDP*, and the weather variable denoted as *Wet*, which is proxied by a wet index. *t* denotes points in time t = 1, 2---T and  $\eta_i$  is the error term in period t, which is assumed to be a white noise process. We will estimate equation 2 using econometric techniques.

Most empirical studies are based in more general models, which include a range of other social-economic variables, which this study follows. For the econometric methodology, it does not make any difference whether we use the augmented Solow model or the more general models (Hoeffler, 2000). While it is important to consider quantitative measure of policy variables in explaining growth performance, the aggregate approach ignores the fact that various aspects of political economy may also influence growth. These aspects include major policy developments; policy choices in relation to interest group interactions and the incentives created by patterns of political competition; and the impact of politics on investment (Chipeta and Mkandawire, 2002). But this general model allows the incorporation of any other explanatory variable, which may be important in explaining the dependent variable without being correlated with other variables.

# 3.3 Hypothesis:

The study tests the hypothesis that;

 $H_o$ : Openness of the economy, Fiscal stance, Debt overhang, Human capital. Investment, Financial development, macroeconomic policies, external shocks and short term influences are jointly significant in explaining Kenya's economic performance  $H_1$ : otherwise

# 3.4 Expected Signs

Table 3.1 presents the expected coefficient signs on how the explanatory variable affects the dependent variable.

| Variable | Expected Sign | Notes  |  |  |  |  |  |  |
|----------|---------------|--|--|--|--|--|--|--|
| RErate   | +             | A competitive economy stimulates economic growth                                       |  |  |  |  |  |  |
| InvGDP   | +             | Impact of physical capital accumulation on growth                                      |  |  |  |  |  |  |
| Нсар     | +             | Impact of human capital accumulation on growth   |  |  |  |  |  |  |
| ExpGDP   | -             | Sustainability of macroeconomic policies   |  |  |  |  |  |  |
| DetGDP   | -             | Debt overhang effect   |  |  |  |  |  |  |
| Open     | +             | International trade stimulates economic growth while trade restrictions hinders growth |  |  |  |  |  |  |
| ToT      | +             | External shocks on economic growth   |  |  |  |  |  |  |
| M2GDP    | +             | Financial depth have a positive effect on growth                                       |  |  |  |  |  |  |
| Wet      | + or -        | Short term and climatic influence on economic growth cannot be predicted a prior       |  |  |  |  |  |  |

Table 3.1: Expected signs on the coefficients

### 3.5 Possible data types and sources

Time series data have been chosen for econometric analysis. The study relies on published data from local and international sources while trying to maintain the accuracy and consistency of the data. The following have been central sources of the required data;

- Central Bank of Kenya publications
- Republic of Kenya publications (especially, Central Bureau of Statistics publications)
- World Bank publications e.g. World Development Reports
- World Debt Tables.
- International Financial Statistics (IFS)

#### **CHAPTER 4**

# **RESEARCH ANALYSIS AND FINDINGS**

We discuss our research findings and analysis in this section. We have made use of time series data estimation techniques to carry out the analysis on the factors, which are important in explaining Kenya's economic growth performance.

### 4.1 Estimation Procedures

We start by discussing the tests performed on the data to ascertain whether the data can be used in its raw form for regression or whether the data should be transformed first. The study uses the Ordinary Least Square (OLS) in the regression of the data. The Normality and Stationarity tests have been carried out to ascertain the accuracy of the data before the analysis.

#### 4.2 Normality Tests

We conduct a descriptive analysis of the data. The test has been carried out to determine whether the data exhibits normality. Although OLS estimator does not require the data to be normally distributed, the normality test would increase the accuracy of the OLS results. The normality test takes into consideration the moments of distribution, namely: the mean, standard deviation, skewness, kurtosis, Jarque-Bera statistic and the statistical probability.

Jarque-Bera is a test statistic for testing whether the series is normally distributed. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution.

The statistic is computed as:

$$JB = \frac{N-k}{6} \left[ S^{2} + \frac{1}{4} (K-3)^{2} \right] \qquad \chi^{2} (2)$$

where S is the skewness, K is the kurtosis, and k represents the number of estimated coefficients used to create the series.

Under the null hypothesis of a normal distribution, the Jarque-Bera statistic is distributed as a chi-square with 2 degrees of freedom. The reported Probability is the probability that a Jarque-Bera statistic exceeds, in absolute value, the observed value under the null. A small probability value leads to the rejection of the null hypothesis of a normal distribution.

Table 4.1 shows the distribution of the data. We see that some variables follow a normal distribution while others do not.

|              | g     | DetGDP | ExpGDP | Heappri | Hcapsec | InvGDP | M2GDP | Open  | RErate | ToT    | Wet    |
|--------------|-------|--------|--------|---------|---------|--------|-------|-------|--------|--------|--------|
| Mean         | 0.97  | 37.64  | 37.17  | 80.21   | 18.22   | 13.09  | 37.11 | 48 87 | 19.96  | 93.57  | 89.57  |
| Median       | 1.38  | 32.31  | 38.05  | 88.47   | 21.23   | 13.05  | 35.63 | 45.94 | 8.98   | 94.00  | 85.83  |
| Maximum      | 10.00 | 119.31 | 63.50  | 103.57  | 27.00   | 17.45  | 50.69 | 64 16 | 68.21  | 120.00 | 157.50 |
| Minimum      | -8.62 | 14.41  | 21.38  | 44.54   | 3.87    | 10.00  | 25.89 | 39.00 | 4.21   | 71.00  | 49 52  |
| Std. Dev.    | 3.38  | 21.33  | 9.90   | 19.00   | 6.49    | 1.87   | 6.48  | 7 81  | 20.58  | 9.81   | 21.73  |
| Skewness     | -0.35 | 1.69   | 0.45   | -0.79   | -0.79   | 0.35   | 0.50  | 0 63  | 1 20   | -0.08  | 0.91   |
| Kurtosis     | 4.28  | 6.90   | 3.22   | 1.95    | 2.44    | 2.51   | 2.48  | 2 14  | 2.92   | 3.58   | 4.70   |
| Jarque-Bera  | 3.25  | 41.07  | 1.31   | 5.57    | 4.32    | 1.13   | 1.77  | 3.59  | 8.90   | 0.56   | 9 51   |
| Probability  | 0.20  | 0.00   | 0.52   | 0.06    | 0.12    | 0.57   | 0.41  | 0.17  | 0.01   | 0.76   | 0.01   |
| Observations | 37    | 37     | 37     | 37      | 37      | 37     | 33    | 37    | 37     | 37     | 37     |

### Table 4.1: Normality Test for the variables

g: growth rate of real GDP per capita
DetGDP: external debt as a share of GDP
InvGDP: private investment as a percentage of GDP
M2GDP: money supply as a percentage of GDP
ExpGDP: government expenditure as a percentage of GDP

Open: Openness of the economy ToT: Terms of Trade RErate: real exchange rate, Wet: weather variable

# 4.3 Stationarity Tests

It is important to test for stationarity of the variables involved before attempting any econometric estimates because OLS regression involving non-stationary variables will give biased estimators. We use the ADF test statistics. The Phillips-Perron (1988) is made use of where the ADF test fails. The PP test is well suited for analyzing time series data whose differences may follow mixed ARMA (p, q) process of unknown order in that the test statistic incorporates a non-parametric allowance for serial correlation in testing the regression.

The test will help in identifying the order of integration in each of the variables. Nonstationarity will lead to spurious and inconsistent regression. The problem of spurious regression arises in the case where the regression of non-stationary series, which are known to be unrelated, indicates that the series are correlated. Inconsistent occurs when regression of a stationary series is performed on a non-stationary series.

The stationarity test was performed using the Augmented Dickey-Fuller test (ADF). The ADF test equation is given by,

$$\Delta y_{i} = \alpha_{0} + \alpha_{1} y_{i-1} + \alpha_{2} t + \sum_{r=2}^{p} \gamma_{r} \Delta y_{i-r+1} + \varepsilon_{r}$$

Where;

y : any of the variables to be used in the estimation

 $\alpha_1$ : Coefficient used in the unit root test. The null hypothesis is  $\alpha_1 = 0$  for non-stationarity against the alternative  $\alpha_1 < 0$  for stationarity

t: is a time trend

Before performing the unit root test, the variables were graphed to compare their long run behaviours. Figure 4.1 shows the movement of the variables at levels.





# 4.4 Unit Root Test Results

Unit root tests results for the variables in the analysis are presented in table 4.2a. Several unit root tests have been used due to the fact that we are dealing with high frequency data, which is extremely noisy due to shocks and regime shifts. First, the ADF test statistic was used. We see that the growth rate of real GDP per capita (g), private investment as a percentage of GDP (InvGDP) and Wet are stationary. The rest of the variables are non-stationary processes.

Variables, which failed the ADF test statistic, were subjected to the PP test statistic to confirm the null of a unit root. The PP test statistics indicates that the variables, ToT, Open and ExpGDP are stationary processes while Hcappri, Hcapsec, DetGDP and M2GDP are non-stationary processes. The variables which failed both tests where differenced to attain stationarity. Table 4.2b presents the ADF and PP test statistics results for the differenced variables. It can be seen that all the variables attained stationarity after differencing.

The graph of the variable ExpGDP does not corroborate the result of stationarity. It can be seen from the graph that the variable has a trend. We proceed under the assumption that the series is integrated of order zero but it has a stochastic trend. When you encounter such a time series, do you detrend, do you first-difference, or do nothing (Enders, 1995 pp. 260). Enders (1995) notes that adherents of the Box-Jenkins methodology recommend differencing a non-stationary variable or a variable with a near unit root for the trend is non-essential for very short-term forecasts. However, as the forecast horizon expands, the precise form of the trend becomes increasingly important. Following Enders (1995), we differenced the variable to remove the trend and performed the unit root test to confirm its stationarity (see table 4.2b).

# Table 4.2a: Unit Root Test

| Test Statistic |           | ADF                | PP        |                    |  |  |
|----------------|-----------|--------------------|-----------|--------------------|--|--|
| Variable       | Constant  | Constant and Trend | Constant  | Constant and Trend |  |  |
| g              | -4.058272 | -4.641927          | -4.498864 | -4.780240          |  |  |
| RErate         | 1.518814  | -0.638282          | 1.563739  | -1.187753          |  |  |
| InvGDP         | -3.466814 | -4.175931          | -3.046443 | -3.008275          |  |  |
| Hcappri        | -2.030050 | -1.086166          | -1.895783 | -1.185705          |  |  |
| Hcapsec        | -2.232434 | -1.841775          | -2.338435 | -1.803843          |  |  |
| ExpGDP         | -1.720625 | -0.620357          | -2.093136 | -3.852555          |  |  |
| DetGDP         | -1.453567 | -2.764184          | -1.891945 | -2.947734          |  |  |
| Open           | -2.270062 | -2.384301          | -2.645039 | -2.946850          |  |  |
| ТоТ            | -2.553779 | -2.600253          | -3.652935 | -3.691695          |  |  |
| Wet            | -3.454432 | -0.92257           | -3.746117 | -2.497387          |  |  |
| M2GDP          | -0.676131 | -2.071804          | -1.436609 | -2.378725          |  |  |

The tests were performed at the third lag and the critical values for rejecting the null hypothesis are:

|               | ADF:               | PP:           |                    |
|---------------|--------------------|---------------|--------------------|
| Constant      | Constant and Trend | Constant      | Constant and Trend |
| -3.6422 (1%)  | -4.2605 (1%)       | -3.6228 (1%)  | -4.2324 (1%)       |
| -2.9527 (5%)  | -3.5514 (5%)       | -2.9446 (5%)  | -3.5386 (5%)       |
| -2.6148 (10%) | -3.2081 (10%)      | -2.6105 (10%) | -3.2009 (10%)      |

# Table 4.2b: Unit Root Test for the differenced variables

| <b>Test Statistic</b> |           | ADF                | PP        |                    |  |
|-----------------------|-----------|--------------------|-----------|--------------------|--|
| Variable              | Constant  | Constant and Trend | Constant  | Constant and Trend |  |
| DExpGDP               | -2.965679 | -3.306420          | -10.03883 | -10.52415          |  |
| DDetGDP               | -3.392566 | -3.335902          | -7.858735 | -7.744950          |  |
| DM2GDP                | -2.953046 | -2.935902          | -6.311143 | -6.205863          |  |
| DHcapsec              | -4.020820 | -4.721003          | -6.530566 | -7.02724           |  |
| DHcappri              | -2.898475 | -3.618724          | -6.045248 | -6.289775          |  |

The tests were performed at the third lag and the critical values for rejecting the null hypothesis are:

|               | ADF:               | PP:           |                    |  |  |  |
|---------------|--------------------|---------------|--------------------|--|--|--|
| Constant      | Constant and Trend | Constant      | Constant and Trend |  |  |  |
| -3.6422 (1%)  | -4.2605 (1%)       | -3.6228 (1%)  | -4.2324 (1%)       |  |  |  |
| -2.9527 (5%)  | -3.5514 (5%)       | -2.9446 (5%)  | -3.5386 (5%)       |  |  |  |
| -2.6148 (10%) | -3.2081 (10%)      | -2.6105 (10%) | -3.2009 (10%)      |  |  |  |

Figure 4.2 shows the behaviours of the variables after transformation.





Figure 4.2: Graphs showing movements of the variables used in the regression

Regression results for the general model are shown in Table 4.3. It can be seen that the variables DHcapsec, DM2GDP, Wet, DExpGDP and ToT are insignificant in explaining the model. These variables have been dropped from the regression as shown in Table 4.4-4.7, respectively. Table 4.8 presents the results of the reduced model of the form;

#### $g_1 = \alpha_0 + \alpha_1 DRErate_1 + \alpha_2 DH cappri_1 + \alpha_3 DD etGDP_1 + \alpha_4 Open_1 + \alpha_3 InvGDP_1 + \eta_1 - - - - (3)$

The results for the growth effects of the general model confirms our expected signs of the coefficient of the regression except for DRErate, DHcappri, DHcapsec and Open, which had different coefficient signs. Openness, real exchange rate, private investment and human capital proxied by primary school enrolment are all significant, respectively. Though some of the variables were not significant at either 1 percent or 5 percent, the sign of their coefficients confirm to other empirical studies.

The negative coefficient of the openness variable does not corroborate our earlier predication. The model has shown that openness retards economic growth. Why was this? Openness to trade is thought to encourage greater efficiency in the allocation of the economy's scarce resources, promotes competition and it encourages the importation of technological innovations and improvements. This can only be achieved if capital flows from regions where it is abundant to regions where it is scarce. We have seen in the past where Kenyans have preferred low quality and cheaper imports to high quality Kenyan goods. The case in mind is the sugar importation. In this case, capital flows out of the country instead into the country. This is the main reason why openness has been growth retarding in Kenya.

The results on private investment as a percentage of GDP are significant and the coefficient has the expected positive sign. This shows that private investment can spur economic growth. The level of private investment could be adversely affected by the high interest rates, which have been experienced in the Kenyan economy for a number of years.

The result on human capital proxied by the rate of primary school enrolment has a negative impact on the economy. This is not corroborating other empirical findings and our earlier expectation. The main reason, which can be attributed to this negative impact on the economy, is the poor employment policies in Kenya. In this case, wages were used to reward kin group connection rather than qualifications, skills or experience. As a result, public service delivery became deficient because the right people were not given the right jobs. In particular, the low level of education and the linking of institutions of economic management and contract enforcement to politics greatly hindered economic growth in Kenya.

The exchange rate is an instrument used to enhance the international competitiveness of the economy's exports. This variable is negatively correlated to economic growth in our model. The direction of the movement of the exchange rate, either an appreciation or depreciation, depends on the policy makers' priorities. An appreciation of the exchange rate helps promote price stability but reduces the country's international competitiveness and vice-versa (Ndung'u and Mwega, 1999). A depreciated real exchange rate reduces the relative prices of domestic goods and services, encourages the production of tradables in agriculture, manufacturing and services such as tourism, and discourages the relative prices of domestic goods and services, and discourages the relative prices of domestic goods and services, and discourages the relative prices of domestic goods and services, and discourages the relative prices relative prices of nontradables. On the other hand, an appreciated exchange rate increases the relative prices of domestic goods and services, and discourages the production of tradables while it encourages the production of nontradables. Accordingly, our model find the real exchange rate to impact negatively on economic growth because it was used as a policy instrument to promote price stability instead of promoting international competition.

The most crucial result obtained was that of the debt overhang variable. Much of the poor performance of the Kenyan economy could be attributed to the high foreign debt. The variable showed the expected sign and it was significant at 1 percent in both the general and the reduced models.

### Table 4.3: Regression Results for the General Model

| Modelling | g by OL  | S (using D | ata2.in7) | )    |
|-----------|----------|------------|-----------|------|
| The es    | timation | sample is: | 1968 to   | 1999 |

|                   | Coefficient | Std.Error | t-value           | t-prob | Part.R^2       |
|-------------------|-------------|-----------|-------------------|--------|----------------|
| Constant          | -2.47198    | 6.311     | -0.392            | 0.699  | 0.0073         |
| InvGDP            | 0.478568    | 0.3018    | 1.59              | 0.128  | 0.1070         |
| Open              | -0.130555   | 0.07249   | -1.80             | 0.086  | 0.1338         |
| ToT               | 0.0306222   | 0.05759   | 0.532             | 0.600  | 0.0133         |
| Wet               | 0.00942121  | 0.02230   | 0.423             | 0.677  | 0.0084         |
| DExpGDP           | 0.0325480   | 0.09272   | 0.351             | 0.729  | 0.0058         |
| DDetGDP           | -0.143561   | 0.04037   | -3.56             | 0.002  | 0.3759         |
| DRErate           | -0.176651   | 0.1051    | -1.68             | 0.108  | 0.1185         |
| DHcapsec          | -0.0734471  | 0.2730    | -0.269            | 0.790  | 0.0034         |
| DM2GDP            | 0.0575328   | 0.1943    | -0.296            | 0.770  | 0.0042         |
| DHcappri          | -0.156055   | 0.08652   | -1.80             | 0.086  | 0.1341         |
|                   |             |           |                   |        |                |
| Sigma             | 2.670       | 85        | RSS               |        | 149.802317     |
| R^2               | 0.5779      |           | F(10,21) =        |        | 2.876 [0.020]* |
| log-likelihood -7 |             | 033       | DW                |        | 1.74           |
| no. of observ     | vations 32  |           | no. of parameters |        | 11             |
| mean(g) 0.49      |             | 562       | var(g)            |        | 11.0921        |

# Table 4.4: Results after dropping DHcapsec from the regression

# Modelling g by OLS (using Data2.in7) The estimation sample is: 1968 to 1999

|                | Coeffic | ient   | Std.Error | t-value       | t-prob | 1       | Part.R^2        |
|----------------|---------|--------|-----------|---------------|--------|---------|-----------------|
| Constant       | -2.4987 | '8     | 6.176     | -0.405        | 0.690  |         | J.0074          |
| InvGDP         | 0.4616  | 18     | 0.2888    | 1.60          | 0.124  |         | J.1040          |
| Open           | -0.1298 | 302    | 0.07090   | -1.83         | 0.081  | (       | 0.1322          |
| ToT            | 0.03268 | 851    | 0.05586   | 0.585         | 0.564  | (       | 0.0153          |
| Wet            | 0.00919 | 9068   | 0.02181   | 0.421         | 0.678  | (       | 0.0080          |
| DExnGDP        | 0.0341  | 338    | 0.09056   | 0.377         | 0.710  | (       | 0.0064          |
| DDetGDP        | -0 1446 | 550    | 0.03930   | -3.68         | 0.001  | (       | 0.3811          |
| DEtroto        | 0.1688  | 278    | 0.09888   | -1.71         | 0.102  |         | 0.1170          |
| DM2CDD         | 0.05449 | 007    | 0.1898    | 0.287         | 0.777  |         | 0.0037          |
| DM2GDP         | 0.03440 | 002    | 0.08440   | -1.83         | 0.081  |         | 0.1320          |
| DHcappri       | -0.1545 | 010    | 0.00447   | -1.05         | 010    |         |                 |
| Sigma          |         | 2.6139 | 4         | RSS           |        | 150.318 | 3821<br>0.0101* |
| R^2            |         | 0.5765 | 03        | F(9.22) =     |        | 1.02    | 10101           |
| log-likelihood |         | -70.15 | 84        | DW            |        | 1.85    |                 |
| no. of observa | tions   | 32     |           | no. of parame | ters   | 10      |                 |
| mean(g)        |         | 0.4915 | 62        | var(g)        |        | 11.092  | 1               |

## Table 4.5: Results after dropping DM2GDP from the regression

Modelling g by OLS (using Data2.in7) The estimation sample is: 1968 to 1999

|                        | Coefficient | Std.Error | t-value        | t-prob | Part.R^2        |
|------------------------|-------------|-----------|----------------|--------|-----------------|
| Constant               | -2.38684    | 6.040     | -0.395         | 0.696  | 0.0067          |
| InvGDP                 | 0.450751    | 0.2806    | 1.61           | 0.122  | 0.1009          |
| Open                   | -0.131736   | 0.06915   | -1.91          | 0.069  | 0.1363          |
| ТоТ                    | 0.0354882   | 0.05389   | 0.658          | 0.517  | 0.0185          |
| Wet                    | 0.00826986  | 0.02113   | 0.391          | 0.699  | 0.0066          |
| DExpGDP                | 0.0352330   | 0.08865   | 0.397          | 0.695  | 0.0068          |
| DDetGDP                | -0.143272   | 0.03821   | -3.75          | 0.001  | 0.3793          |
| DRErate                | -0.174109   | 0.09519   | -1.83          | 0.080  | 0.1270          |
| DHcappri               | -0.157939   | 0.08196   | -1.93          | 0.066  | 0.1390          |
|                        |             |           |                |        |                 |
| Sigma                  | 2.5612      | 7         | RSS            |        | 150.881889      |
| R^2                    | 0.5749      | 16        | F(8,23) =      |        | 3.888 [0.005]** |
| log-likelihood         | -70.2182    |           | DW             |        | 1.81            |
| no. of observations 32 |             |           | no. of paramet | ers    | 9               |
| mean(g)                | 0.491562    |           | var(g)         |        | 11.0921         |

# Table 4.6: Results after dropping Wet from the regression

Modelling g by OLS (using Data2.in7) The estimation sample is: 1968 to 1999

|                  | Coeffi | cient         | Std.Error   | t-value          | t-prob  | Part.R^2                      |
|------------------|--------|---------------|-------------|------------------|---------|-------------------------------|
| Constant         | -2.200 | 12            | 5.914       | -0.372           | 0.713   | 0.0057                        |
| InvGDP           | 0.4463 | 50            | 0.2753      | 1.62             | 0.118   | 0.0987                        |
| Open             | -0.125 | 889           | 0.06632     | -1.90            | 0.070   | 0.1305                        |
| ToT              | 0.0388 | 899           | 0.05224     | 0.744            | 0.464   | 0.0226                        |
| DExnGDP          | 0.0327 | 153           | 0.08684     | 0.377            | 0.710   | 0.0059                        |
| DDetGDP          | -0.141 | 951           | 0.03739     | -3.80            | 0.001   | 0.3753                        |
| DRErate          | -0.171 | 552           | 0.09328     | -1.84            | 0.078   | 0.1235                        |
| DHcappri         | -0.157 | 765           | 0.08050     | -1.96            | 0.062   | 0.1380                        |
| Sigma<br>R^2     |        | 2.51<br>0.572 | 567<br>2087 | RSS<br>F(7,24) = |         | 151.886301<br>4.584 [0.002]** |
| log-likelihood - |        | -70.3         | 244         | DW               |         | 1.84                          |
| no. of observ    | ations | 32            |             | no. of para      | meters  | 8                             |
| mean(g) 		 0.491 |        | 1562          | var(g)      |                  | 11.0921 |                               |

## Table 4.7: Results after dropping DExpGDP from the regression

Modelling g by OLS (using Data2.in7) The estimation sample is: 1968 to 1999

|                     | Coeffi | cient | Std.Er | TOT  | t-value       | t-prob     | Part.R^2  |
|---------------------|--------|-------|--------|------|---------------|------------|-----------|
| Constant            | -2.717 | 21    | 5.653  |      | -0.481        | 0.635      | 0.0092    |
| InvGDP              | 0.4687 | '64   | 0.2642 | 2    | 1.77          | 0.088      | 0.1119    |
| Open                | -0.129 | 110   | 0.0640 | 62   | -2.00         | 0.057      | 0.1377    |
| ToT                 | 0.0425 | 178   | 0.0504 | 46   | 0.843         | 0.407      | 0.0276    |
| DDetGDP             | -0.140 | 385   | 0.0365 | 51   | -3.84         | 0.001      | 0.3716    |
| DRErate             | -0.149 | 461   | 0.0712 | 28   | -2.10         | 0.046      | 0.1496    |
| DHcappri            | -0.151 | 637   | 0.0774 | 47   | -1.96         | 0.062      | 0.1329    |
| Sigma               |        | 2.472 | 12     | RSS  | 5             | 15         | 52.784409 |
| R^2                 |        | 0.569 | 556    | F(6, | 25) =         | 5.513 [0.0 | 001]**    |
| log-likelihoo       | d      | -70.4 | 187    | DW   |               | 1.81       |           |
| no. of observations |        | 32    |        | no.  | of parameters | 7          |           |
| mean(g)             |        | 0.491 | 562    | var( | g)            | 11.0921    |           |

# Table 4.8: Regression Results for the Reduced Model

Modelling g by OLS (using Data2.in7) The estimation sample is: 1968 to 1999

| 0  | Coefficient       | Std.Error | t-value                 | t-prob   | Part.R^2<br>0.0000           |
|--|-------------------|-----------|-------------------------|----------|------------------------------|
| Constant                                   | 0.0592012         | 4.307     | 2.02                    | 0.054    | 0.1358                       |
| InvGDP                                     | 0.517925          | 0.2302    | 1.02                    | 0.073    | 0.1185                       |
| Open                                       | -0.117226         | 0.06271   | -1.07                   | 0.000    | 0.3882                       |
| DDetGDP                                    | -0.145454         | 0.05581   | -2.62                   | 0.015    | 0.2085                       |
| DHcappri                                   | -0.172904         | 0.07283   | -2.37                   | 0.025    | 0.1781                       |
| Sigma<br>R^2                               | 2.4583<br>0.55733 |           | RSS<br>F(5,26) =        |          | 157.12408<br>6.547 [0.000]** |
| log-likelihood -70.8668                    |                   |           | DW<br>no. of norometers |          | 6                            |
| no. of observations 32<br>mean(g) 0.491562 |                   |           | var(g)                  | IICICI 5 | 11.0921                      |

### 4.5 Tracking Kenya's Economic Growth performance

Does our model track Kenya's economic growth performance? This is the question that we had set to answer. Figure 4.3 shows how our model tracks the actual real per capita GDP growth rate. Figure 4.3 shows the actual and predicted per capita GDP moving in the same direction.



Figure 4.3: Graphs of actual and predicted per capita growth rates

The performance of the economy as shown by the predicted per capita growth rate was lower than the actual between 1963 and 1970 but it was higher between 1970 and 1973. The predicted real per capita GDP growth rate tracks the actual between 1973 and 1975 but remained lower between 1975 and 1979. Between 1979 and 1989, the predicted was

higher than the actual except for a decline in 1985 and 1988. Generally, the period 1990 to 1999 shows the predicted real per capita GDP growth rate tracking the actual well.

The performance of the economy was stable in the 60s and the 70s as shown in Figure 4.3 except for a decline in 1974. The economy performed poorly in the early 80s but it was stable in the mid 80s. The period 1990-93 recorded the highest economic decline. It can be seen that the economy tried to come back on track in the mid 90s. In general, the Kenyan economy has been on a declining trend since independence. What accounted for this decline?

Figure 4.4 shows the graphs of the variables, which explains Kenya's economic performance. As shown in the Figure, the performance of the economy in the 60s was stable due to the prudent management of the economy. All the variables were stable. The low foreign debt as a percentage of GDP was key to the good economic performance experienced during this period. An increase in the investment rate and a stable exchange rate could be other factors, which enhanced economic growth.

In the 70s, openness of the economy and human capital development could be attributed to the slow growth in the economy. A fluctuating exchange rate also contributed to this slow growth. The oil shocks of 1973 and 1979 and the mismanagement of the coffee boom contributed greatly to this bad state of the economy.

The period 1980-89 shows a slow investment rate and the opening up of the economy to international trade as shown in Figure 4.4. These variables could explain the slow performance of the economy in this period. Others are the oil shock of 1979 and the military coup of 1982.

In the early 1990s, the foreign debt and the depreciation of the exchange rate could be attributed to the slow performance of the economy. The country remained more open during this period. The effect of foreign debt, a fluctuating exchange rate and the openness of the economy had a devastating impact on economic development. In the last part of the 1990s, economic growth declined further as a result of unstable exchange rate and a high

foreign debt. During this period all the variables, which explained economic growth performance, were unstable (see Figure 4.4).





As can be seen from the Figure 4.4, private investment in the country has been low since independence. This has been subdued by the prevailing high interest rates, lack of savings and accessible credit facilities, a risk environment and lack of proper contract enforcement laws. The level of investment has been low since independence, which shows that the country has been doing badly in her investment policy.

The high real GDP per capita growth rate realised in 1969, 1979 and 1989 were due to the adjustment in the population figures as the census enumeration were carried during these years.

Generally the Durbin-Watson statistic, of 1.94, shows that there is no serial correlation between the dependent variable and the residual of the estimated equation. The  $R^2$  of 0.55733, and the F-statistic for the goodness of fit shows that the independent variables can jointly explain Kenya's economic growth performance for the period 1963 to 1999.

### **CHAPTER 5**

# SUMMARY AND CONCLUSIONS

The development economy that Kenya inherited at independence gradually gave way to negative growth and high inflationary rates reaching its peak of 46 per cent in 1993. The growth problem became so critical that the country embarked on the Economic Recovery and Structural Programmes to arrest the imminent disaster. What were the factors, which could be attributed to this decline?

An attempt has been made in this study to econometrically investigate some of the key factors, which explained the growth performance in Kenya. The study has been premised on the concept that the growth process in Kenya transcends the basic neo-classical formulation, which places the onus of economic growth on capital and labour as the key inputs. The variables, which have explained growth in a positive way, include private investment, terms of trade, money supply and wet captured by a wet index. The variables, which have explained growth in a negative way, include real exchange rate, external debt and external orientation of the economy captured by the openness of the economy. Others are government expenditure and human capital.

### 5.1 Policy recommendations

Following the footsteps of the East Asian Tigers will entail more arduous tasks, which transcend just the liberalisation and external orientation of the economy. The positive effects of private investment and the negative effects of external debt and openness on economic performance have been confirmed by the study. However, for an economic growth drive, which will propel Kenya into a high-income country as the politician and policy makers envisage, improvements in debt servicing and investment must constitute the cornerstone of the growth and development strategy.

Though our private investment is rather too low, we can further encourage it by reducing government deficits which will in turn lower long term interest rates and thereby reducing the cost of investment. Moreover, lower government deficits will free savings of the private sector, which will be used to improve productive capacity. Increased shares of government expenditure on areas, which will enhance economic growth especially on infrastructure, would directly spur economic growth.

Lower external debt as a share of GDP is an important factor to sustain high economic growth in Kenya. Lower external debt will lower tax burden and consequently, allow more money in the hands of the private sector. This is likely to lead to efficient use of funds through market forces. In addition, a policy framework on how to use borrowed funds efficiently should be adopted.

Competitive exchange rate helps to diversify export and imports. This variable is negatively related to growth in our model. The policy makers need to address the problem of the exchange rate misalignment. Should the Central Bank of Kenya intervene when the Kenyan shilling is depreciating or appreciating against the major currencies? A cautious macroeconomic policy that will see an adoption of an appropriate real exchange rate should be a critical factor in the management of the economy.

Openness of the economy would facilitate the smooth transfer of technology and developed managerial skills. Why is openness to international trade growth reducing and not growth enhancing in Kenya? We have already seen that the multilateral international organisations have pushed economic liberalisation without taking into consideration the adverse effects on the poorest in developing countries. Our model has shown that Kenya was not yet ripe for competitive international trade. Policies, which will address the effects of liberalization and the reduction of high cost of production, should be implemented. Once this is done, would then openness be meaningful to economic growth. Thus, an important policy area is protectionism, but this could be against the current trend in international trade.

Human capital manages the other factors of production to increase the total factor productivity. We have seen this variable being negatively correlated to growth in our model. We recommend a stringent employment policy, where employment and promotions are on merit and qualification.

### 5.2 Areas for further research

The study has confirmed the fear by many researchers that the choice of the explanatory variables can be a possible factor for diverse results from empirical results. A fully specified growth model would not only take account of all variables relevant to the process of economic growth, but also would separate the endogenous from the exogenous and policy determined variables.

The study has also shown that there is need to slightly adjust the model to include dummy variables to capture political instability, corruption within the government and ethnicity in order to show their accurate effects in explaining the poor performance of the Kenyan economy. Adjusting the model and including all the variables that have been found to be robust in other empirical studies is a fertile ground for further research. A sensitivity analysis of the regression result will help to improve the explanatory power of the model.

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## **Appendix I**

## Data used in the regression

| Years | 9     | DetGDP | ExpGDP | Hcappri | Hcapsec | InvGDP | MZGDP | Open  | RErate | ToT | Wet        |
|-------|-------|--------|--------|---------|---------|--------|-------|-------|--------|-----|------------|
| 1963  | 4.27  | 22.29  | 22.30  | 44.54   | 3.87    | 10.00  | NA    | 40.80 | 4.21   | 97  | 105        |
| 1964  | 4.55  | 23.31  | 21.38  | 49.29   | 4.48    | 10.24  | NA    | 39.45 | 4.33   | 98  | 86         |
| 1965  | 3.49  | 26.31  | 23.69  | 49.21   | 5.82    | 10.32  | NA    | 43.11 | 4.61   | 97  | 68         |
| 1966  | 3.72  | 24.05  | 22.40  | 47,85   | 7.45    | 11.27  | NA    | 46.11 | 4.90   | 98  | 93         |
| 1967  | 4.25  | 21.22  | 23.48  | 50,38   | 10.14   | 13.62  | 25.89 | 41.25 | 4.91   | 96  | 94         |
| 1968  | -0.92 | 21.12  | 23.77  | 52.40   | 11.28   | 13.03  | 26.04 | 40.23 | 5.00   | 96  | 116        |
| 1969  | 4.27  | 21.46  | 25.54  | 50.27   | 10.43   | 13.30  | 28.89 | 39.00 | 5.25   | 94  | 76         |
| 1970  | 1.21  | 18.32  | 30.28  | 54.56   | 11.19   | 16.19  | 33.84 | 42.38 | 5.41   | 99  | 88         |
| 1971  | 0.60  | 18.51  | 31.60  | 56.07   | 11.94   | 16.45  | 32.99 | 45.94 | 5.39   | 93  | <b>8</b> 6 |
| 1972  | 1.14  | 19.06  | 30.35  | 59.58   | 13.28   | 15.74  | 32.37 | 42.11 | 5.38   | 94  | 92         |
| 1973  | 0.47  | 18.06  | 30.49  | 62.41   | 13.86   | 13.66  | 35.47 | 45.58 | 5.53   | 92  | 77         |
| 1974  | -5.28 | 18.61  | 33.48  | 90.65   | 15.14   | 13.05  | 32.32 | 59,90 | 6.06   | 75  | 78         |
| 1975  | 1.36  | 19.29  | 34.29  | 88.86   | 16.15   | 13.45  | 31.40 | 48.60 | 6.77   | 78  | 81         |
| 1976  | 4.98  | 17.43  | 31.19  | 86.68   | 19.38   | 13.08  | 32.44 | 51.18 | 6.40   | 91  | 73         |
| 1977  | 4.52  | 14.41  | 35.06  | 86.48   | 21.49   | 13.51  | 36.93 | 57.56 | 6.32   | 120 | 104        |
| 1978  | 1.57  | 26.78  | 38.05  | 84.53   | 23.56   | 17.45  | 38.94 | 55.27 | 5.74   | 103 | 109        |
| 1979  | 2.63  | 24.61  | 38.43  | 98.84   | 21.55   | 14.63  | 41.04 | 50.80 | 5.77   | 97  | 94         |
| 1980  | -4.75 | 28.03  | 42.29  | 103.57  | 22.13   | 15.06  | 36.54 | 64.16 | 6.39   | 89  | 63         |
| 1981  | 1.68  | 32.31  | 42.20  | 94.38   | 20.38   | 15.27  | 35.63 | 55.26 | 8.98   | 105 | 84         |
| 1982  | -1.35 | 38.29  | 39.05  | 97.55   | 21.44   | 12.05  | 35.16 | 48.17 | 11.55  | 100 | 100        |
| 1983  | -3.25 | 44.10  | 35.77  | 96.50   | 23.12   | 12.47  | 32.87 | 44.85 | 11.51  | 94  | 76         |
| 1984  | 1.99  | 39.80  | 39.26  | 94.25   | 23.07   | 12.15  | 33.25 | 48.35 | 13.15  | 110 | 50         |
| 1985  | 1.50  | 45.91  | 37.26  | 98.17   | 19.15   | 12.11  | 32.10 | 45.38 | 14.35  | 92  | 80         |
| 1986  | 1.47  | 45.80  | 40,71  | 97.24   | 19.32   | 13.07  | 35.42 | 45.45 | 14.26  | 103 | 58         |
| 1987  | 1.38  | 47.64  | 39,35  | 97.74   | 21.28   | 14.36  | 37.17 | 39.32 | 15.43  | 85  | 55         |
| 1988  | 10.00 | 41,30  | 44.42  | 95.98   | 21.23   | 13.63  | 33,05 | 41.93 | 18.67  | 88  | 102        |
| 1989  | 0.45  | 45.88  | 43.17  | 93.67   | 27.00   | 12.71  | 35.74 | 43.73 | 24.29  | 79  | 80         |
| 1990  | -1.04 | 52.94  | 47.77  | 90.35   | 24,71   | 12.21  | 36.50 | 44.99 | 30.29  | 71  | 105        |
| 1991  | -2.91 | 63.09  | 45.07  | 88.62   | 26.54   | 11.51  | 38.35 | 44.12 | 34.81  | 82  | 83         |
| 1992  | -8.62 | 119.31 | 53.19  | 91.56   | 25.76   | 10.30  | 43,54 | 41.19 | 41.82  | 79  | 75         |
| 1993  | -0.04 | 73.34  | 63.50  | 87.81   | 20.65   | 11.08  | 44.00 | 61.58 | 64.55  | 90  | 76         |
| 1994  | 2.15  | 72.78  | 43.79  | 88.47   | 22.89   | 10.93  | 48.13 | 59.37 | 39.77  | 101 | 98         |
| 1995  | 1.68  | 59.61  | 46.62  | 86.85   | 22.22   | 15.82  | 44.92 | 64.13 | 55.97  | 95  | 100        |
| 1996  | 3.09  | 48.51  | 40.87  | 86.41   | 22.64   | 14.42  | 50.69 | 63.76 | 54.73  | 93  | 102        |
| 1997  | -0.70 | 43.08  | 58.77  | 87.67   | 23.18   | 12.68  | 48.78 | 58.02 | 59.40  | 102 | 157        |
| 1998  | -1.66 | 52.27  | 41.00  | 88.78   | 23.17   | 12.16  | 47.94 | 53.75 | 58.24  | 100 | 143        |
| 1999  | -1.89 | 43.67  | 35.39  | 89.77   | 23.17   | 11.24  | 46.24 | 51.48 | 68.21  | 86  | 110        |

Source: Republic of Kenya, Central Bank of Kenya, IFS, World Tables and Author's Own Computation.

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