BUDGET DEFICITS AND MACROECONOMIC PERFORMANCE IN KENYA: AN EMPIRICAL ANALYSIS

By

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DECLARATION

This thesis is my original work and has not been presented for award of a degree in any university.

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DEDICATION

I would like to dedicate this thesis to my cherished wife Rachael and my two daughters, Barbara and Bridgit.

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OPERATIONAL DEFINITION OF TERMS

Aggregate demand: This is the total quantity of final goods and services in the economy at a given time and price that consumers are able and willing to buy.

Action lag: The interval between a policy decision and its implementation.

Amortization: The method of liquidating a public debt on an installment basis.

Budget: This is a government's financial plan outlining the major sources of revenue and how such revenues are to be expended.

Budget deficit: This is when government revenues fall short of government expenditures at a particular period of time.

Capital flight: Occurs when assets and/or money rapidly flow out of a country due to an economic event that disturbs investors and causes them to lower their valuation of the assets in that country or loss of confidence in its economic strength.

Current account: The difference between the inflows and outflows in the merchandise account of the balance of payments.

Causality: This is the ability of past values of one variable to predict another variable.

Crowding out: A fall in either private consumption or investments as a result of a rise in interest rates attributed to increases in government expenditure.

Debt crisis: A situation in which a country, usually a Less Developed Country (LDC), finds itself unable to service its debts.

Economic actors These are decision making units within an economy

Government agencies These are organizations that promote or propagate government ideologies

Macroeconomic performance: This refers to the fundamental conditions in the economy in terms of variables such as economic growth, investments, consumption, employment and inflation.

Exchange rate: The price of a currency in terms of another currency.

Fiscal balance: This represents a zero difference between general government revenue over expenses.

Financial Repression: This is a mechanism by which governments buy foreign bonds in an effort to sterilize currency. The degree to which this process occurs is directly proportional to the liberality of said political economy.

Import substitution: This is a trade and economic policy based on the premise that a country should substitute products which it imports (mostly finished goods) with locally produced ones.

Inflation: A sustained increase in the general price level.

IS curve This is the output interest rate combinations such that planned and actual expenditures on output are equal

Liberalization: This refers to a relaxation of government restrictions, usually in areas of social or economic policy.

LM curve This is the combination of output and interest rate that lead to equilibrium in the money market for a given price level.

Nominal exchange rate: This is the price of a unit of foreign currency in terms of domestic currency.

Primary budget deficit: This is the pure budget deficit which is derived after deducting the interest payments component from the total deficit of any budget. In other words the total of primary budget deficit and interest payments makes the fiscal deficit.

Private consumption: This is the use of goods and services such that they are not available for future use by the non- public sector

Private investments: This is the additions to capital stock less depreciation attributed to the non- public sector in Kenya

Private saving: This is the residual income after deducting taxes from disposable income.

Reserves: The foreign currency which a government is prepared to hold as part of its foreign exchange reserves.

Seigniorage: Printing of money to finance the budget deficit.

Trade balance This is the difference between imports and exports.

Twin deficit: This is when an economy has both the budget deficit and a current account deficit.

Vector autoregressions: Vector Autoregressions (VAR) is a forecasting technique in economics that does not distinguish between endogenous and exogenous variables but is concerned with the path through time of a vector of variables, which are considered of interest to the problem at hand.

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
AIA	Appropriation in Aid
BADEA	Arab Bank for Economic Development of Africa
BPR	Budget Rationalization Programme
BMD	Budget Monitoring Department
BSD	Budget Supplies Department
CBK	Central Bank of Kenya
DDC	District Development Committees
EEC	European Economic Community
ERD	External Resources Department
EIB	European Investment Bank
FMAD	Fiscal and Monetary Affairs Department
FSP	Fiscal Strategy Paper
FY	Fiscal Year
GDP	Gross Domestic Product
IBRD	International Bank for Reconstruction and Development
IPAR	Institute of Policy Analysis and Research
IEA	Institute of Economic Affairs
IDA	International Development Association
IMF	International Monetary Fund
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KRA	Kenya Revenue Authority
LDC	Less Developed Country
MDGs	Millennium Development Goals
MTEF	Medium Term Expenditure Framework
PAC	Public Accounts Committee
PER	Public Expenditure Review
PIC	Public Investment Committee
USD	United States Dollar
VAR	Vector Autoregressions

ABSTRACT

Budget deficits have attracted a great deal of attention over the past two decades. They were blamed for the assortment of ills that beset developing countries. These ills are: high inflation, poor investment and growth performance and over indebtedness. The instability in the government fiscal position is attributed to various factors such as the budgeting process, low level of economic development, growth and instability of government revenues, control of government expenditure, and macroeconomic shocks among others. The method of financing the budget deficit results in some type of imbalance. For instance, domestic borrowing leads to the crowding out of the private investments. This study is underpinned on the Mundel- Fleming model. It applies Vector Autoregressions (VARs) together with annual time series data for the period 1963 to 2007 to evaluate the empirical effects of budget deficits on macroeconomic performance. The selected macroeconomic variables included; current account of the balance of payments, private consumption, private investments, money supply, treasury bill rates, and real GDP.

The study established that the budgeting process had loop holes which perpetrated budget deficits. Also, the sources of budget deficits included: level of economic development, growth of revenues, instability of government revenues, government control over expenditures and the extent of government participation in the economy. The impulse response functions (IRFs) revealed that budget deficits have a significant effect on: private consumption, private investments, money supply (M3), treasury bills rate, current account and real GDP.

CHAPTER ONE

INTRODUCTION

1.1 Budget Deficits

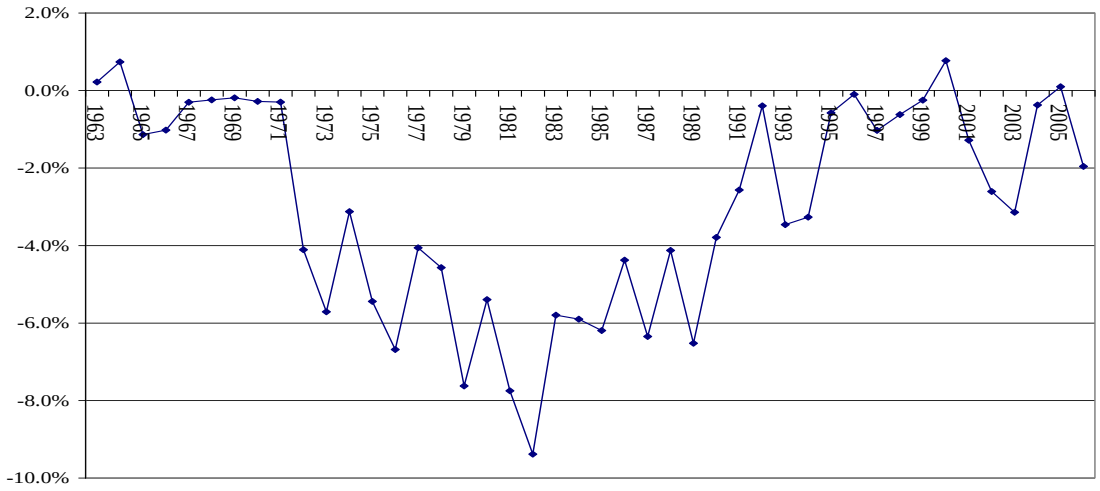
The budget deficit issue has attracted a great deal of attention over the past two decades, as reflected in the substantial debate in both the academic and policy arenas. Budget deficits and their financing have become a major problem facing several countries in the world, Kenya included. For instance, budget deficits were at the forefront of macroeconomic adjustment in the 1980s in both high and low income countries (Easterly, Rodriguez and Schmidt-Hebbel, 1994). They were blamed in large part for the assortment of ills that beset low income countries during that decade; over indebtedness leading to debt crisis that begun in 1982; high inflation; and low investment and growth performance (Easterly and Schmidt-Hebbel, 1993). Four views about the macroeconomic implications of budget deficits can be identified (Amirkhalkhali *et al*, 1996, Rosen and Gayer, 2004, Lerner, 1948). The first view is the traditional Keynesian argument, which asserts that during chronic unemployment, budget deficits would stabilize aggregate demand, increase private saving and foster investment and economic growth. The second view is the neoclassical view, which assumed self-equilibration of the economy. It further stated that deficits crowd out private investment, and are therefore damaging to a country's growth prospects. The third argument sandwiched between the two is the Ricardian Equivalence theorem (RET). This theory argued that increasing budget deficits are matched by an equivalent increase in private saving with no real effects.

Barro (1974) restated the RET according to which individuals are assumed to incorporate the government's intertemporal budget constraint into their own. Accordingly, increasing budget deficits induce an equivalent increase in private savings. If the RET holds, it implies that increasing deficits need not pose a threat to capital formation and growth, since increased government dissaving is matched by a corresponding increase in private saving, and therefore no increase in interest rates occurs. If the RET is not valid, as fronted by neoclassical economists, increased budget deficits will not be matched by compensating increases in private saving, and rising rates of interest will crowd out private investment and weaken economic growth, unless capital is highly mobile internationally. The final view is Learner's overlapping generations' model. It suggested that an internal debt creates no burden for future generations. Members of the future generations simply owe it to each other. When a debt is paid off, there is a transfer of income from one group of citizens to another, that is, those who do not have bonds and bond holders.

The Government of Kenya has been incurring budget deficits every year since independence. The government revenues have been falling short of government expenditures. This shortfall could be attributed to poor budgetary process, and limited budgetary resources brought about by low economic performance (Wawire, 2006). A significant proportion of budgetary resources are internally generated through a myriad of taxes, with a huge proportion financing recurrent expenditures. Development or capital expenditures have over the years been funded by donors.

Trends in budget deficits in Kenya are depicted in Figure 1.1 using empirical data for the period 1963 to 2006.

Figure 1.1 Trends in Budget Deficits as a percentage of Gross Domestic Product



Source of Basic Data**:** *International Financial Statistics*, (various issues) and Republic of Kenya, *Economic Surveys* (various issues).

Figure 1.1 reveals that Kenya has had instability in its fiscal policy with budget deficits dominating the scene. The depicted instability could be attributed to several factors that include internal and external shocks, which sometimes required government intervention through fiscal policy. The 1973/74, 1979/80 and 2002/03 oil price shocks, the world recession in the early 1980s, the serious drought of 1984, and the deteriorating terms of trade for the country's exports, had adverse impacts on the economy (Republic of Kenya, 1975; 1982; 1985; 2005), thereby affecting government revenues. Besides, these adverse conditions required the government to intervene, consequently affecting its expenditures. The international markets for

primary commodities are normally subject to wide fluctuations in terms of supply, demand and prices. This means that export earnings are either low or unstable and this adversely affects government revenue. Budget deficits have contributed to the weak economic performance, by accumulating high public debt and associated high interest rates (Republic of Kenya, 2003b). However, the Government of Kenya begun to lay a solid foundation for a globally competitive economy in the year 2003 with emphasis on fiscal sustainability. Since the beginning of that year, implementation of bold economic and structural reforms as elaborated in the Economic Recovery Strategy paper (ERS) has been ongoing.

The ERS was to cover the period 2003 to 2007, and was anchored on three key pillars, namely: restoration of economic growth within the context of a stable macroeconomic environment; enhanced equity within the context of a stable macroeconomic environment; and improvement of governance to enhance efficiency and effectiveness in the economy (Republic of Kenya, 2003a). Arising from the implementation of sound fiscal and monetary policies supported by strong structural reforms, Kenya's economy has grown from 0.06 percent in 2002 to 6.3 percent in 2007. Given that the period earmarked for ERS has lapsed, the Government of Kenya has introduced the Vision 2030 as its economic management blueprint (Republic of Kenya, 2007).

Vision 2030 aims at building on the successes under ERS with a pursuit of macroeconomic framework that will facilitate low and stable inflation and interest

rates, a sustainable public sector debt position, and competitive real exchange rates to support export led economic growth and help to deliver high and sustainable levels of growth, employment and poverty reduction. Kenya's economy is set to grow by a rate of 10 percent from the current 6.1 percent by the year 2012. The achievement of this growth target requires continued implementation of prudent fiscal, monetary and exchange rate policies, enhanced effort to raise the level of investments and savings, and accelerating structural reforms in order to increase efficiency of both physical and human capital to raise total factor productivity (Republic of Kenya, 2007). Under the fiscal framework, it is noted that a proper fiscal dispensation is necessary for private sector development and growth. The government reiterates its commitment to ensure that the bulk of expenditures are met from tax revenues, and that overall expenditure is controlled to ensure that the overall government deficit is sustainable and does not lead to a crowding out of private sector investments (Republic of Kenya, 2007).

1.2 Overview of Kenya's Economy since Independence

Kenya attained independence in 1963 and promoted rapid economic growth through public investment, encouragement of smallholder agricultural production, and incentives for private; often foreign, industrial investment (Republic of Kenya, 1965). Gross Domestic Product (GDP) grew at an annual average of 6.6 percent from 1963 to 1973 (Republic of Kenya, 1965, 1970, 1975). Agricultural production grew by 4.7 percent annually during the same period, stimulated by redistributing estates, diffusing new crop strains, and opening new areas to cultivation. Between 1974 and 1990, however, Kenya's economic performance declined. Inappropriate agricultural

policies, inadequate credit, and poor international terms of trade contributed to the decline in agriculture. The inward-looking policy of import substitution and rising oil prices reinforced each other and made Kenya's manufacturing sector uncompetitive. The government immensely interfered with the private sector operations through denial of export incentives, tight import controls, and foreign exchange controls which made the domestic environment for investment even less attractive.

In the years 1991 to 1993, Kenya had its worst economic performance since independence. Bilateral and multilateral donors suspended programme aid to Kenya in 1991 due to macroeconomic mismanagement (Njeru, 1993). Growth in GDP stagnated, and agricultural production shrank to an annual rate of 3.9 percent (Republic of Kenya, 1995). Inflation reached a record 100 percent in August 1993, and the government's budget deficit was over 7 percent of GDP (Republic of Kenya, 1995). In 1993, the government of Kenya began a major programme of economic reform and liberalization with the assistance of the World Bank and the International Monetary Fund (IMF) (Mwega and Ndungu, 2002). As part of this programme, the government eliminated price controls and import licensing, removed foreign exchange controls, privatized a range of publicly owned companies, reduced the number of civil servants, and introduced conservative fiscal and monetary policies. From 1994 to 1996, Kenya's real GDP growth rate averaged just over 4 percent a year (Republic of Kenya, 1997).

In 1997, however, the economy entered a period of slowing or stagnant growth, due in part to adverse weather conditions and reduced economic activity prior to general elections in December that year (Republic of Kenya, 1998). In July 1997, the Government of Kenya refused to meet commitments made earlier to the IMF on governance reforms. As a result, the IMF suspended lending for three years, and the World Bank also put a $90-million structural adjustment credit on hold. Although many economic reforms put in place in 1993 to 1994 remained, Kenya needed further reforms, particularly in governance, in order to increase GDP growth and combat the poverty that afflicted more than 57 percent of its population at that time (Republic of Kenya, 2003b).

The government took some positive steps on reform, including the 1999 establishment of the Kenyan Anti-Corruption Authority, and measures to improve the transparency of government procurements and reduce the government payroll. In July 2000, the IMF signed a $150 million Poverty Reduction and Growth Facility (PRGF), and the World Bank followed suit shortly after with a $157 million Economic and Public Sector Reform credit. The Kenya Anti-Corruption Authority was declared unconstitutional in December 2000, and other parts of the reform effort faltered in 2001. Due to the unfolding events, the IMF and World Bank again suspended their programmes (CIA, 2008). In 2000, GDP growth was negative, but improved slightly in 2001 as rainfall returned closer to normal levels. Economic growth continued to improve slightly in 2002, reaching 1.4 percent in 2003.

Various efforts to restart the programme through mid-2002, were unsuccessful. The Government of Kenya began an ambitious economic reform programme in 2002 and resumed its cooperation with the World Bank and the IMF. The new government that came to power in 2003 after the general elections of 2002 enacted the Anti-Corruption and Economic Crimes Act, and Public Officers Ethics Act in May 2003, aimed at fighting graft in public offices. Other reforms especially in the judiciary and public procurement, have led to the unlocking of donor aid and a renewed hope at economic revival. In November 2003, following the adoption of key anti-corruption laws and other reforms by the new government, donors re- engaged as the IMF approved a three-year $250 million Poverty Reduction and Growth Facility, and donors committed $4.2 billion in support over a four year period. The renewal of donor involvement has provided a much-needed boost to investor confidence to date.

Under the guidance of the Economic Recovery Strategy paper, the economy recovered and resumed the path to rapid growth. The economy grew by 6.1 per cent in 2007 from 0.6 per cent in 2002 (Republic of Kenya, 2007). The growth was witnessed in all economic and social sectors, resulting in the reduction in poverty levels from 56 per cent in 2002 to 46 per cent in 2006 (Republic of Kenya, 2007).

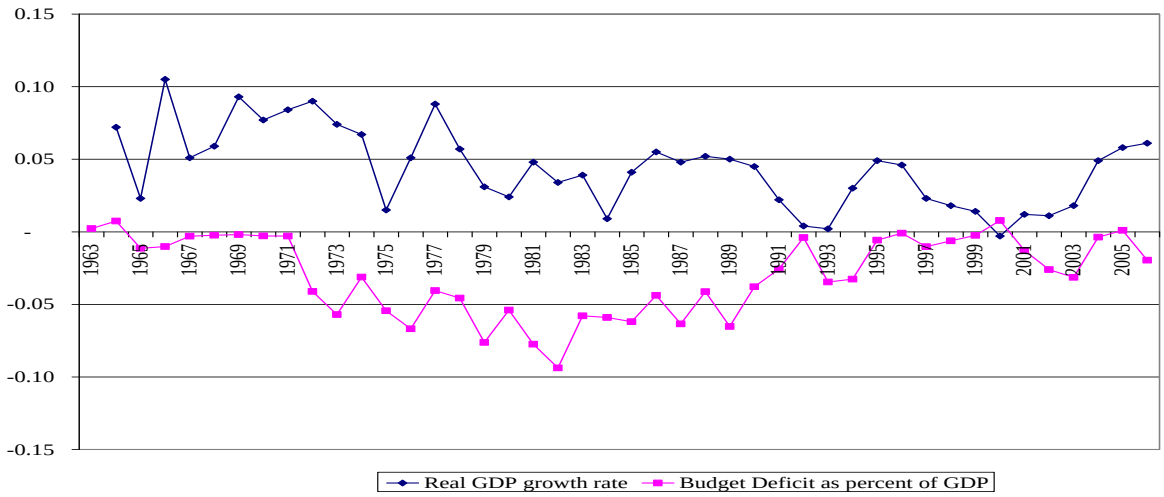
The future of Kenya's economy lies in the Vision 2030, which is a long-term development blueprint for the country. It is motivated by collective aspiration for a much better society than the present by the year 2030. The aim of the Vision is "the globally competitive and prosperous country with a high quality of life by 2030"

(Republic of Kenya, 2007). It aspires to transform Kenya into "a newly-industrializing, middle income country providing a high quality of life to all its citizens in a clean and secure environment" (Republic of Kenya, 2007). In other words, the Vision seeks to meet the Millennium Development Goals for Kenya.

1.3 Budget Deficits and Macroeconomic Performance

Macroeconomic performance can be measured using an index of macroeconomic health (or stability) or GDP growth. This index contains inflation, real exchange rate, foreign debt to GDP ratio, and the percentage of black market premium over the official exchange rate (Schmidt- Hebbel, 1995). The relationship between budget deficits as a percentage of GDP and GDP growth rate for Kenya is presented in figure 1.2.

Figure 1.2 Trends in Budget Deficits as a percentage of GDP and GDP Growth rate, Kenya, 1963 to 2006



Source of Basic Data**:** *International Financial Statistics*, (various issues) and Republic of Kenya, *Economic Survey* (various issues).

Figure 1.2 shows that there could be some relationship between budget deficits and economic growth. For instance, periods of large budget deficits such as the year 1982 are characterized by low growth rates. The vice versa can be observed in the year 2000. However, the reverse may also be true for particular years such as 1992 when the budget deficit was low and economic growth was also very low. This shows that the relationship between these two variables remain unclear going by the data presented in this figure. The budget deficit constitutes a major fiscal indicator as it has important ramifications on a country's macroeconomic position. When a government incurs a budget deficit for example, the public debt increases. This is because debt will grow continuously as a share of GDP, if a budget surplus is not maintained (Kufa, *et al;* 2003). The growing debt puts upward pressure on interest rates, leading to financial crowding out (Feltenstein, 1986).

This makes credit more expensive to the private sector, thereby depressing private investment. The rising interest rate also prompts appreciation of the nominal exchange rate, as more foreign currency would be available because of foreigners' demand for domestic assets. The appreciation of the exchange rate makes exports expensive and imports cheap, thereby worsening the current account position. This translates to a reduction in the national income. In addition, budget deficits may prompt inflationary tendencies in developing countries because of the lack of sufficiently developed domestic capital markets that can absorb newly issued government debt (Agenor and Montiel, 1996).

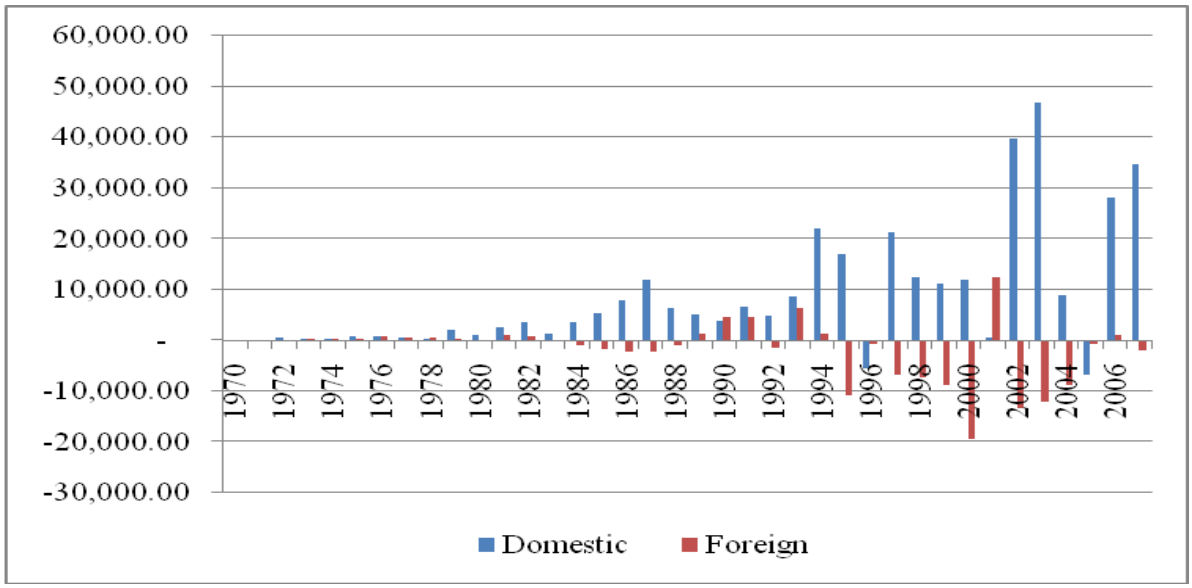
The relationship between budget deficits and macroeconomic variables such as treasury bills rates, inflation, private investments, private consumption and current account of the balance of payments is blurred. The relationship between budget deficits and inflation for example, is muddied by factors such as unstable money demand, inflationary exchange rate depreciations, widespread indexation practices, and sticky expectations (Dornbusch and Fischer, 1991).

The relationship between budget deficits and interest rates is blurred by factors such as financial repression and the high degree of substitutability between public debt and other assets held by the private sector. More systematic evidence linking public deficits with external deficits and real exchange rate depreciation is still lacking (Easterly and Schmidt-Hebbel, 1993; Funke and Nickel, 2006). However, the impact and transmission mechanisms differ significantly when the government chooses to finance the deficit through the monetary sector.

There are four ways of financing a deficit through the monetary sector, namely: use of foreign exchange reserves; borrowing from the domestic banking sector by selling treasury bills or bonds; borrowing from abroad by way of loans and grants and seigniorage. Exclusive use of reserves is rare in African countries, because they hardly have sufficient foreign exchange reserves. Furthermore, although bond financing is a popular method of financing deficits in developed economies, it is not a major source in developing countries such as Kenya. This is due to low personal

incomes and low creditworthiness in external bond markets (Easterly, *et.al*, 1994). Each major type of financing corresponds to a macroeconomic imbalance, if used excessively. The figure that follows shows trends in budget deficits financing in Kenya from 1970 to 2006.

Figure 1.3 Trends in Budget Deficits Financing (Millions Kenya Shillings), 1970 to 2006



Source of Basic Data**:** *International Financial Statistics Database,* (http://www.imf.org/data viewed on 11th July 2008)

Figure 1.3 reveals that over the years, Kenya has substituted foreign financing with domestic financing. The foreign and domestic financing that appear in the negative segment of the graph depict repayments. The poor donor relations highlighted in the previous section may have contributed to the swap experienced above. Domestic borrowing is considered to be a non-monetary way of financing the budget deficit only if borrowings from the banking system are not financed by the central bank

rediscounts. If they are financed by central bank rediscounts they may put upward pressure on domestic interest rates thereby crowding out private sector borrowing. If the economy is well integrated with international capital markets, government domestic borrowing tends to push the private sector into borrowing more from abroad. In this case the composition of public borrowing between foreign and domestic sources does not have much macroeconomic effects. The link between budget and external deficits is also close when the capital account is open (Romer, 1996). This is because large budget deficits tend to increase interest rates, which in turn increases capital inflows thereby aggravating the external balance.

Printing money to finance the budget deficit exerts upward pressure on inflation. By printing money, the government collects seigniorage revenue, which exists in two components; pure seigniorage and inflation tax. The pure seigniorage component is the change in real cash balances. It comes about because of real growth of the economy or a favourable shift in the demand for money. The inflation tax component is equal to the inflation rate that acts as the 'tax rate' times the stock of real cash balances held by the public. In the absence of inflation, the inflation tax will obviously be zero but seigniorage will still be collected, unless there is no growth in real cash balances.

For an economy that is not growing and faces a positive real rate of interest, running a positive primary deficit implies an ever-growing stock of public debt in relation to GDP. Budget deficits run by the government have had undesirable effects on the

domestic prices, interest rates, balance of payment, and the value of the domestic currency against other currencies together with slow growth of the economy (Rodriguez, 1994). Despite the recent efforts to lower budget deficit ratios in Kenya, there is still a persistent high ratio of total government expenditures to GDP and a high share of debt service in total government expenditures. The residual fiscal pressure from spending has restricted the benefits that should have accrued to the economy from moderation of budget deficits (Wagacha, 1999). In total, investment, capital accumulation and debt growth, have been undermined by the size of government consumption and debt servicing. Given that Kenya interacts with other countries more than before, the capital account is more open. This being the case, heightened political fears and uncertainty may lead to capital flight, and thus to depreciation of the shilling. Inflation has tracked interest rate movements and is closely related to exchange rate changes. This co-movement over time suggests that these variables are driven by the same forces (Ndung'u and Levin, 1995).

The connection between budget deficit and current account deficit is strong, if running down foreign exchange reserves and foreign borrowing are used to finance the budget deficit. However, excessive use of foreign reserves leads to a crisis in the balance of international payments in an economy with a fixed exchange rate regime. If a country uses foreign exchange reserves to finance the budget deficit, appreciation of the exchange rate will occur. This option leads to capital flight and balance of payment crisis may follow, since exhaustion of reserves is associated with currency devaluation in case of fixed exchange rate regime.

External borrowing contributes to a current account deficit and real exchange rate appreciation and sometimes to a balance of payment crisis, if foreign reserves are run down or an external debt crisis occurs (Easterly, Schmidt-Hebbel, 1993). Deficits may directly lower private consumption if consumers anticipate future taxes and save accordingly. Some public investments displace private investments while others raise private profitability and thus, investment (Easterly, Rodriguez, Schmidt-Hebbel, 1994). Therefore, from the above discussion, there seems to be some relationship between budget deficits, the budgeting process, current account balance, private consumption, private investments, money supply, treasury bills rates and GDP growth rates. These are indicators of macroeconomic performance of an economy.

1.4 The Statement of the Research Problem

Budget deficits reveal an imbalance in the fiscal position of a government. Perpetual budget deficits normally imply that the government will always increase its stock of debt. Financing of these deficits and debts result in various macroeconomic imbalances. Several empirical studies have been done on the effects of budget deficits on macroeconomic performance in various countries (Funke and Nickel, 2006; Easterly, *et.al*, 1994; Koori, 1992; Islam and Wetzel, 1994; Drakos, 2001; Kosimbei, 2002; Wagacha, 1999 and Catao and Terrones, 2003). The interest to study budget deficits was sparked by the fact that they have always appeared on Kenya's fiscal scene since independence in 1963. Moreover, the link between budget deficits and macroeconomic performance has been of interest to academicians and policy makers

because there has never been an agreement on the effects of budget deficits on macroeconomic performance. For instance, studying these literatures reveals conflicting and inconclusive evidence that raises doubts about the precise relationship. These maybe as a result of methodological variations that is evident in these studies (Easterly, *et.al*, 1994; Koori, 1992; Islam and Wetzel, 1994; Drakos, 2001; Kosimbei, 2002; Wagacha, 1999 and Catao and Terrones, 2003).

The Kenyan economy has been experiencing budget deficits over the years, which seem to go hand in hand with declining GDP growth rates as evidenced by figure 1.2. Moreover, low growth rates worsen the poverty situation and thus reduce the welfare of households and firms. In the Kenyan case, little is known about the precise quantitative nature of the relationship between budget deficits and treasury bills rates, current account of the balance of payments, private consumption, private investments, money supply and real GDP. Understanding the precise nature of these relationships would aid policy makers with information that is vital for planning purposes, strategy formulation and proper economic management. This is important because budget deficits and their effects on macroeconomic performance would be understood in detail. This will improve the budgeting process and the overall fiscal policy formulation that is badly required for the attainment of the Vision 2030 (Republic of Kenya, 2007).

The issues the study deals with include whether budget deficits have been the reason for dismal macroeconomic performance, and the causes of budget deficits in Kenya.

The study therefore tests the empirical validity of the relationship between budget deficits and macroeconomic performance as captured by the variables: current account balance; private consumption; private investment; money supply; treasury bills rate and GDP growth rate. The budgetary process is also studied to see whether it could be one of the sources of budget deficits. Of interest in the study was the role of the methods used to finance the budget deficit. Could these methods have had an adverse effect on macroeconomic performance?

In view of the shortcomings in the previous studies on Kenya, the following research questions were addressed.

1.5 Research Questions

(i) How is the budgeting process carried out in Kenya?

(ii) What are the sources of budget deficits in Kenya?

(iii) What are the methods that have been used to finance budget deficits in Kenya?

(iv) What have been the effects of budget deficits on various macroeconomic variables?

(v) What is the nature of the relationships between budget deficits and various macroeconomic variables?

(vi) What are the implications of this study to fiscal policy in Kenya?

1.6 Objectives of the Study

The overall objective of the study was to investigate the relationship between Kenya's budget deficits and macroeconomic performance. The specific objectives of the study were to:

(i) Describe the budgeting process in Kenya.

(ii) Explain the sources of budget deficits in Kenya.

(iii) Investigate the various methods used by the Government of Kenya to finance budget deficits.

(iv) Analyze the effects of budget deficits on selected macroeconomic variables.

(v) Establish the types of relationships that exist between budget deficits and selected macro variables.

(vi) Suggest policy recommendations in relation to the study findings.

1.7 Rationale and significance of the study

Fiscal policy has remained the most critical tool of macroeconomic management in Kenya. This study was motivated by the fact that a relatively smaller number of empirical studies have been conducted on the impact of budget deficits on macroeconomic performance (Funke and Nickel, 2006; Easterly, Rodriguez and Schmidt-Hebbel 1994; Koori, 1992; Islam and Wetzel, 1994; Drakos 2001; Kosimbei, 2002; Wagacha, 1999 and Catao and Terrones, 2003). A large proportion of these studies were not done on the Kenyan economy, hence it is difficult to generalize results and apply them to Kenya. This is mainly due to differences in economic behaviour from country to country.

This study is important in that it sheds light on the effects of government's fiscal position on macroeconomic performance. It contributes to the debate on rationalization of fiscal policy as presented in Kenya's Vision 2030, by establishing the precise quantitative nature of the impact of budget deficits on current account balance, private consumption and private investments, money supply, interest rates and economic growth rate. Empirical evidence of relationships between these variables and budget deficits is very important because it enables economists and policy makers to better understand whether there is a causal relationship or merely a correlation between the variables, hence be able to formulate solid fiscal policies.

1.8 Scope and Organization of the Study

The study was limited to the period 1963 to 2006 for several reasons. First, this period was long enough to capture the relationship between budget deficits and indicators of macroeconomic performance. Secondly, time series data is available for this period of time.

This study is organized in five chapters. The foregoing chapter introduced the study and its objectives. Chapter two is devoted to review of relevant literature and ends by presenting the theoretical framework. Chapter three highlights the research design and methodology. Empirical results are presented and discussed in chapter four, while chapter five concludes the study. Bibliography and appendices are presented after chapter five.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, theoretical and empirical literature on the effects of budget deficits on macroeconomic performance are reviewed and a critique is presented.

2.2 Theoretical Literature

In this section, a review of the major theoretical arguments regarding the linkages between budget deficits and macroeconomic variables is done.

2.2.1 Budget deficits, crowding in and out effects

When analyzing the effects of budget deficits on private investments, four schools of thought providing different paradigms are considered. These are: Neoclassical, Keynesian, Ricardian Equivalence (Bernhein, 1989), and Learner's overlapping generations' model developed in 1948. The Neoclassical school considers individuals planning their consumption over their entire life cycle. By shifting taxes to the future generations, budget deficits increase current consumption. By assuming full employment of resources, the Neoclassical school argues that increased consumption implies a decrease in savings. This causes interest rates to increase in the capital markets in order for equilibrium to be achieved. The higher interest rates, in turn, result in a decline in private investments. This crowding out effect reduces the

ability of the government to influence economic activity through fiscal measures (Bailey, 1971; Buiter, 1977).

In standard neoclassical macroeconomic models, the method of deficit financing affects the level of consumption, investment and net exports (Yellen, 1989). Taking into consideration a situation of full employment of resources, higher current consumption implies an equal and offsetting reduction in other forms of expenditures. The weakness of this preposition is that very few economies including Kenya have attained the level of full employment of resources. For instance, labour unemployment is estimated to be 30 percent in Kenya. This clearly shows that the standard Neoclassical macroeconomic model cannot explain macroeconomic performance in Kenya.

The Keynesians provided a counter argument to the crowding out effect by making reference to the expansionary effects of budget deficits (Eisner, 1989). It was suggested that increased budget deficits results in an increase in domestic production, which makes private investors more optimistic about the future course of the economy, hence resulting to more investments. Furthermore, budget deficits would have the implication that the government is investing in infrastructure, which could lead to a reduction in the cost of doing business in future. The Keynesian view is different from the Neoclassical view in two distinct ways. First, it permits the possibility that some economic resources are unemployed and second, it presupposes the existence of a large number of liquidity constrained individuals (Saleh, 2004).

The Ricardian Equivalence approach advanced by Barro (1989) argued that an increase in budget deficits must be paid for either now or later, with the total present value of receipts fixed by the total present value of spending. Therefore, a reduction in current taxes must be matched by an increase in future taxes, leaving interest rates and consequently private investments unchanged. However, the applicability of this preposition in a developing country setting is limited because the planning horizon of households is not long enough due to several factors. For instance, the fundamental macroeconomic variables such as inflation, unemployment and income are subject to wide fluctuations, which may reduce the predictive power of households. Furthermore, the fluctuations mean that households are not able to plan for the long term due to the economic uncertainties that exist in these economies.

According to the overlapping generation's model developed by Learner (1948), an internal debt creates no burden for the future generation. Members of the future generation simply owe it to each other (Rosen and Gayer, 2008). When the debt is paid off, there is a transfer of income from one group of citizens (those who do not hold bonds) to another (bondholders). However, the future generation as a whole is no worse off in the sense that its consumption level is the same as it would have been. In the learner's model, a generation consists of everyone who is alive at a given time.

2.2.2 Performance, Programme and Zero Based Budgeting

Performance budgets are financial plans that use statements of missions, goals and objectives to explain why money is being spent (Philip and Susan, 2000; Young, 2003). It is a way to allocate resources to achieve specific objectives based on programme goals and measured results. The key to understanding performance-based budgeting lies beneath the word "result". In this method, the entire planning and budgeting framework is result oriented. There are objectives and activities to achieve these objectives and these form the foundation of the overall evaluation. Performance budgeting comprises three elements: result (final outcome), strategy (different ways to achieve the final outcome), and activity/outputs (what is actually done to achieve the final outcome). Programme budgeting is the budgeting system that, contrary to conventional budgeting, describes and gives the detailed costs of every activity or programme that is to be carried out in a budget (Lienert, 2007). It gives the budget as a detailed itemization of all the activities or programmes included in the programme.

Results oriented or performance- based budgeting has been gradually adopted as a key public sector reform in developing and developed countries including Kenya (Shah, 2005). The reform is adopted so as to transform public budgeting systems from an input and output orientation to an output and outcome orientation, including a new results oriented accountability into public organizations. This mode of budgeting constitutes an improvement from the line- item budget in that it allows the broad identification of how governments spend their money over the medium term. This has

been shown to work in South Africa, where the large programmes in the budget have sub programmes, which provide the necessary details for any scrutiny (Shah, 2005).

Zero-based budgeting is a technique of planning and decision-making which reverses the working process of traditional budgeting. In traditional incremental budgeting, departmental managers justify only increases over the previous year budget and what has been already spent is automatically sanctioned. No reference is made to the previous level of expenditure (Robinson, 2007). By contrast, in zero-based budgeting, every department function is reviewed comprehensively and all expenditures approved. Zero-based budgeting requires the budget request to be justified in complete detail by each division manager starting from the zero-base. The zero-base is indifferent to whether the total budget is increasing or decreasing.

2.2.3 Effects of Budget Deficits on Wealth and Spending

There exists several ways in which the government's choice of fiscal tools may influence a country's net wealth and the current account balance. The most obvious is the use of government expenditure (Saleh, 2004). As long as the growth rate of the economy exceeds the rate of interest, public debt is definitely net wealth, because future taxes are not necessary to service the debt (Barth, *et.al*, 1986). In addition, government spending may affect employment, output, consumption and investment, by altering the wealth or by directly affecting the marginal productivity of labour and private capital. More specifically, the negative wealth effects associated with the

temporary rise in government purchases induces the agent to decrease consumption and increase labour supply (Aschauer, 1985).

In the long run, an economy's output is determined by its productive capacity, which in turn is partly determined by its stock of capital. When deficits increase interest rates consequently reducing investments, the capital stock grows more slowly than it otherwise would. In a few years, this crowding out of investments has a negligible effect on the capital stock. However, if budget deficits persist for a decade or more, they can substantially reduce the economy's capacity to produce goods and services (Ball and Mankiw, 1995). If budget deficits crowd out capital, national income falls because less output is produced. If budget deficits lead to trade deficits, just as much output is produced but less of the income from production accrues to domestic residents.

2.2.4 Budget Deficits and Balance of Payments

The Keynesian view was that there is a positive relationship between the budget deficit and the deficit in the balance of payments. That is, causality goes from budget deficits to balance of payments deficits. The proposition known as the twin deficit hypothesis was based on the idea that if the public sector negatively saves, the aggregate national savings will fall. A falling national saving would lead to an increase in interest rates, and consequently, to an appreciating exchange rate. The exchange rate would appreciate because foreign investors would flock the domestic economy, since the increase in interest rate implies better returns on their

investments. This relationship might not hold, especially for developing countries because foreign investors are not only driven by high interest rates, but also by other factors such as economic and political stability. It is a fact that most developing countries are politically unstable, and this translates to economic instability that causes wide fluctuations in interest rates. In this case, the twin deficit hypothesis may only hold in developed economies and not developing economies such as Kenya.

Feldstein and Horioka (1980) found that savings and investments are highly correlated, causing budget deficits and current account deficits to move together. A falling national saving would lead to increasing interest rates and then to appreciating exchange rates, which would make exports less attractive and imports more attractive. Consequently, budget deficits would lead to deterioration in the balance of payments, and accordingly, to a declining current account balance because the former is a major part of the latter. However, an alternative view suggests that there may exist other factors that make the relationship between budget deficits and the current account doubtful or nonexistent, such as the stability of savings and investments over time (Khalid *et.al*, 1999).

The Neoclassical paradigm was based on far-sighted consumers who plan consumption over their entire life cycle. It was argued that an increase in government budget deficit shift tax liabilities onto future generations, and therefore raised the lifetime consumption of individuals of the current generation. In a closed economy with full employment, the boost to aggregate demand produced higher interest rates

and crowded out investment. By contrast, in an open economy, the widened budget deficit would lead to an appreciation of the exchange rates hence worsening net exports. While in a small economy that takes the world's interest rates as given, all the adjustment was borne by net exports. This paradigm cannot be applicable to Kenya because of the high poverty levels and the fluctuations in the fundamental macroeconomic variables such as inflation and unemployment. These conditions make it difficult for consumers to be far sighted, hence hindering their ability to plan consumption over their entire life cycle.

In summary, economic theory suggests that there is a link between budget deficits and current account deficits in open economies. Increased budget deficits lead to an increase in the interest rate, which appreciates the exchange rate. As a result, exports become relatively expensive and imports cheaper, thus generating a trade deficit.

2.2.5 Fiscal Approach to the Balance of Payments

This section presents the fiscal approaches to the balance of payments to solve imbalances in the foreign sector. It also looks at the effects of budget deficits on macroeconomic performance through the fiscal approaches to balance of payments.

(a) The Absorption Approach to the Balance of Payments

This is the Keynesian current account model of the open economy. It describes the balance of payments as the difference between aggregate income and absorption. If income is greater than absorption there would be a trade surplus and vice versa. This

approach can be represented using the following model (Murshed, 1997). The goods market equilibrium relationship for the home country is represented as follows:

$$Y = PA(Y, r) + PG + PX(E) - EP^{*}X^{*}(Y, E) \quad \text{……..……2.1}$$

Where:

Y is domestic income

A is total domestic expenditure inclusive of investments and imports

P is the domestic price level

P* is the foreign price level

X is exports

X^{*} is imports

r is domestic interest rate

E is nominal exchange rate

G is government expenditure.

Multiplying imports by the exchange rate converts it from foreign currency units to domestic currency. If A_Y is the marginal propensity to consume, then $A_Y > 0$, and total domestic expenditure will rise with increase in income. If A_r is the increase in income, when interest rates increase by a unit, then $A_r < 0$ and total domestic expenditure falls as the interest rate rises. If X_E is the marginal propensity to export, then $X_E > 0$, and exports increase as the nominal exchange rate rises. If X^{*}_Y is the marginal propensity to import, then $X^{*}_Y > 0$, and imports rise as income increases. If $X^{*}_E < 0$, then imports decline as the nominal exchange rate (E) depreciates.

The domestic money market relationship is given as:

$$\frac{H}{P} = H(Y, r) \quad \text{.....2.2}$$

Where:

H is the supply of money

H(Y,r) is the demand for money

P is the domestic price level

Supply for money (H) is equated to its demand at equilibrium. The demand for money is positively related to income (Y), and negatively related to the interest rate (r). A reduced form of this relationship may be obtained by linking the interest rate to income and the money supply for fixed price (P):

$$r = r(Y, H) \quad \text{.....2.3}$$

If r_y is the slope of the money demand function with respect to income and r_H is the slope of the money demand function with respect to interest rates, then theory requires that $r_y > 0$ and $r_H < 0$. The real exchange rate, S is given by:

$$S = EP^* / P \quad \text{.....2.4}$$

Where:

S is the real exchange rate,

E is the nominal exchange rate

P^* is the foreign price level

P is the domestic price level.

The real exchange rate (S) rises as the nominal exchange rate (E) increases together with the foreign price level (P^*) and a falling domestic price level (P). A rise in the real exchange rate (S) represents an improvement in the international competitiveness of the home country. For fixed domestic price (P) and foreign price (P^*), changes in the nominal exchange rate (E) are equivalent to changes in the real exchange rate (S). This allows for the substitution of real exchange rate (S) for nominal exchange rate (E) in the equation for the goods market (2.1). Furthermore, substituting equation (2.3) into (2.1) and normalizing by domestic price level (P) the following equation is obtained:

$$Y = A(Y, r(Y, H)) + G + X(S) - SX^*(Y, S) \quad \text{.....2.5}$$

Where all the signs of the partial derivatives are unchanged.

Trade balance (T) involves the following:

$$T = X(S) - SX^*(Y, S) \quad \text{.....2.6}$$

Full external balance implies that the trade balance is zero. With fully flexible exchange rates, nominal exchange rate (E) adjusts to always balance trade (T = 0). Nominal exchange rate depreciates if there is a deficit and vice versa.

Fiscal policy involves an expansion of autonomous government expenditure, (G), in equation (2.5) and leads to a rise in output. Although this expenditure is autonomous it would be expansionary if it was financed by an increase in taxation via the balanced budget multiplier. This increase in income raises imports, causing a trade deficit that is corrected by a depreciation of the real exchange rate. The depreciation in exchange rate provides the stimulus for rising output through a boost in exports.

The Absorption approach is applicable to the Kenyan case, because it predicts the way the government expenditure affects the trade balance. It is rich in terms of the twin deficits effects because it clearly postulates the transmission mechanism from the budget deficits to trade deficits through the nominal and real exchange rates adjustments.

(b) The Dornbusch Model to Balance of Payments

The Dornbusch (1976) model is outlined in semi- log linear form. All the variables except the interest rate are written in logarithms. The goods market relations are given by the following expression:

$$y = \alpha_1(e - p) - \alpha_2 r + g \quad \text{.....2.7}$$

Where:

y is the aggregate supply

e is the exchange rate

r is the nominal interest rates

p is the price level

g is the government spending

At equilibrium, aggregate supply is always equal to aggregate demand. Aggregate demand is negatively related to the nominal interest rate because it reduces investments. Aggregate demand rises as the real exchange rate (e-p) depreciates. This is because exchange rate depreciation induces greater export demand. If the foreign

price level is equal to one, p*=1, then the real exchange rate becomes E/P in levels or e-p in logarithms. Aggregate demand also rises with government spending (g). The α's denote parameters, which are equivalent to elasticities in the semi log-linear model.

The equilibrium in the money markets that is the LM relation is presented as:

$$h - \beta p - (1-\beta)e = \phi_1 y - \phi_2 r \quad \text{.....2.8}$$

Where;

h is money balances

p is price level

e is exchange rate

r is interest rates

On the right hand side, the constituents of money demand that depend positively on income, and negatively on interest rates are presented. ϕ_1 and ϕ_2 are income and interest rate elasticities of money demand respectively. Real money supply is defined on the left hand side of equation 2.8. Nominal money balances are deflated, not just by the domestic price level, but also by the exchange rate.

The dynamic relations of the model have it that a connection must exist between financial markets and the goods markets. The covered interest parity relation in the financial markets is given as:

$$r = r^* + \dot{e} \quad \text{.....2.9}$$

Where:

r is domestic interest rate

r* is foreign interest rate

$\dot{e}$ is the forward exchange premium or discount.

The above can be rewritten as:

$$\dot{e} = r - r^* \quad \text{.....2.10}$$

At equilibrium, the forward exchange premium or discount ($\dot{e}$) is equal to zero, and the domestic and foreign interest rates are equal. If the domestic currency is expected to depreciate then domestic rate of interest is greater than the international rate of interest and vice versa.

The other dynamic relation is in the goods markets. The equation postulated is similar to the Phillips curve or the equation determining inflation in the economy (Murshed, 1997). This is expressed as:

$$\dot{p} = \gamma(y - y^n) \quad \text{.....2.11}$$

Where:

y^n is the potential full employment level of output.

y is the actual level of output prevailing in the economy.

$\dot{p}$ is the inflation rate.

γ is the speed of adjustment.

In equilibrium, inflation rate is equal to zero and the full employment level of income is equal to actual level of output prevailing in the economy. More importantly, potential full employment is the level of output that does not trigger inflation and maybe called the natural rate of output. If the actual level of output or aggregate demand in the economy (y) is greater than the potential full employment level of output (y^n), inflation is positive as governed by the speed of adjustment (γ). It should be noted that goods markets do not respond as rapidly as financial markets. Prices and quantities can only be altered at discrete intervals and not instantaneously like in the financial markets. In the long- run, equilibrium output is always equal to its natural rate and the domestic interest rate equals the foreign interest rate.

The model described above can be re-written in reduced form equations in two dynamic equations of the exchange rate (e) and the price level (p). This is done by substituting equation (2.9) into (2.7) and inserting the resultant expression for y in equation (2.8). This yields:

$$h - \beta p - (1-\beta)e = \phi_1\alpha_1(e-p) - \phi_1\alpha_2(r^* + \dot{e}) + \phi_1 g - \phi_2(r^* + \dot{e}) \quad \text{.....2.12}$$

Rearranging the above expression results in:

$$\dot{e} = \frac{\beta p + (1-\beta)e - h + \phi_1\alpha_1(e-p) + \phi_1 g - \Gamma r^*}{\Gamma} \quad \text{..... 2.13}$$

Where

$$\Gamma = \phi_1\alpha_2 + \phi_2 > 0 \quad \text{.....2.14}$$

Thus equation (2.13) is the dynamic equation describing the movement of the exchange rate.

Substituting (2.9) into (2.7) and putting that expression into (2.11), the following is obtained:

$$\dot{p} = \gamma\alpha_1(e-p) - \gamma\alpha_2 r^* - \gamma\alpha_2\dot{e} + \gamma g - \gamma y^n$$

Substituting (2.12) into the equation above, the following is obtained:

$$\dot{p} = \gamma\alpha_1(e-p) - \gamma\alpha_2 r^* + \gamma g - \gamma y^n - \frac{\gamma\alpha_2[\beta p + (1-\beta)e - h + \phi_1\gamma\alpha_1(e-p) + \phi_1 g - \Gamma r^*]}{\Gamma}$$

……2.15

This equation (2.15) describes the movement of prices (inflation).

An expansionary fiscal policy would lead to an appreciation of the nominal exchange rate and a rise in the domestic price level. The net result is a real exchange appreciation. This result is similar to the conventional Mundell-Fleming model (Murshed, 1997). The Dornbusch model is applicable to the Kenyan economy because it can trace the transmission mechanism from the fiscal policy to the exchange rate. However, this model is silent on the impact of fiscal policy on the current account and assumes this to be obvious.

(c) The Mundell – Fleming Model

This model is attributed to Mundell (1968) and Fleming (1962) and is commonly referred to as the Mundell – Fleming model. It presupposes a small open economy with full international capital mobility. The main assumption is that capital flows move faster than trade flows because international investors arbitrage differences in interest rates across countries to take advantage of unrealized profit opportunities. Thus, differences in interest rates between two countries generate massive flows of capital that tend to reduce or eliminate the differences. In contrast, trade flows respond much more slowly to changes in underlying economic conditions. So, the key assumption of Mundell – Fleming model is that interest rate is the same in the world economy, except in cases where capital controls exist (Romer, 2001).

The demand for real money balances is a decreasing function of the nominal interest rate and an increasing function of output. The equilibrium condition for the money market requires that the supply and demand of real balances be equal at a given price level. That is,

$$\frac{M}{P} = L(i,Y) \qquad L_i < 0, L_Y > 0 \quad \text{.....2.16}$$

Where M is money stock, P is general price level, i is interest rate, Y is GDP and M/P is real money supply. L_i is the slope of the money demand curve with respect to interest rate, whereas L_y is the slope of the money demand curve with respect to income. Since $L(\bullet)$ is decreasing in i and increasing in Y, the set of combinations of i and Y that satisfy (2.16) is upward sloping.

Planned real expenditure of an open economy is the sum of domestic residents' planned expenditure and net exports (Mushed, 1997). That is,

$$E = E(Y, i - \pi^e, G, T) + NX(Y, Y^*, \varepsilon P^*/P) \qquad 0 < E_Y < 1, E_{I-\pi^E} < 0, E_G > 0, E_T < 0 \quad \ldots\ldots 2.17$$

Where:

π^e is expected inflation

G is government purchases

T is taxes

Y* is foreign income

ε is nominal exchange rate

P* denote the price level abroad

P is domestic price

$\varepsilon P^*/P$ is the real exchange rate.

E_y is the change in expenditure brought about by a unit change in income.

$E_{I-\pi^E}$ is the change in expenditure brought about by a unit change in real interest rate.

E_G is the change in expenditure brought about by a unit change in government expenditure.

E_T is the change in expenditure brought about by a unit change in tax.

The component $i - \pi^e$ is real interest rate. Planned real expenditure, E, is expressed in terms of its components and strong assumptions are made about how the determinants of the planned expenditure enter the equation. A standard formulation is:

$$E = C(Y - T) + I(i - \pi^e) + G + NX \quad \text{.....2.18}$$

Where $C(\bullet)$ is private consumption, $I(\bullet)$ is private investment and NX is net exports. Thus equilibrium requires that

$$E = Y \quad \text{.....2.19}$$

Substituting (2.17) into (2.19) yields

$$Y = E^D(Y, i - \pi^e, G, T) + NX(Y, \varepsilon P^* / P) \quad \text{.....2.20}$$

A higher real exchange rate implies that foreign goods have become more expensive relative to domestic goods (Romer, 1996). Both domestic residents and foreigners are therefore likely to increase their purchase of domestic goods relative to foreign ones. Thus planned expenditure rises. Therefore, equation (2.20) becomes,

$$Y = E(Y, i - \pi^e, G, T, \varepsilon P^* / P) \quad \text{.....2.21}$$

With $E(\bullet)$ increasing in $\varepsilon P^* / P$. Money demand is likely to be largely unaffected by the exchange rate. Thus, the LM curve is the same as before.

Perfect capital mobility implies that if there were any differences in the expected rate of return between domestic and foreign assets, investors would put all their wealth into the asset with the highest yield. Investors do not expect the exchange rate to change. The expected rate of return on foreign assets in terms of the domestic currency is the foreign interest rate plus expected increase in the price of foreign currency. Hence the expected change in the price of foreign currency is zero. Thus, the requirement that the expected rates of return are equal is simply given as;

$$i = i^* \quad \text{.....2.22}$$

where i* is the foreign interest rate and is taken as given.

It is necessary to distinguish between floating and fixed exchange rates. With a floating exchange rate, aggregate demand is described by the three-equations (2.16), (2.21) and (2.22) in the three unknowns: investments, income and nominal exchange rate. Since domestic interest rate is determined trivially by the requirement that it equals foreign interest rate, the system immediately reduces to two equations in income and nominal exchange rate:

$$\frac{M}{P} = L(i^*, Y,) \text{ \{Money market\}} \ldots\ldots 2.23$$

$$Y = E(Y, i^* - \pi^e, G, T, \varepsilon P^*/P) \text{ \{Product market\}} \ldots\ldots 2.24$$

A fixed exchange rate requires two changes to the model. First, that the exchange rate is pegged at some level $\bar{\varepsilon}$:

$$\varepsilon = \bar{\varepsilon} \quad \ldots\ldots 2.25$$

Second, that the money supply becomes endogenous rather than exogenous. For the government to fix the exchange rate, it should stand ready to buy or sell domestic currency in exchange for foreign currency at the rate $\bar{\varepsilon}$. Therefore, it cannot independently set money stock, but should let it adjust to ensure that the exchange rate remains at $\bar{\varepsilon}$.

The assumption of no barriers to capital movements between countries and that investors are risk neutral are too strong considering transactions cost and the desire to diversify. Assume capital flows depend on the difference between domestic and foreign interest rates. Specifically, define the capital flow, CF, as foreigner's

purchases of domestic assets minus domestic residents' purchases of foreign assets. That is;

$$CF = CF(i - i^*), \quad CF'(\bullet) > 0 \quad \text{.....2.26}$$

The capital flow, CF, and net exports, NX, should sum to zero. If net exports are negative, the country should therefore be paying for the excess by selling assets to foreigners. That is, capital flow should be equal and opposite to net exports. Thus

$$CF(i - i^*) + NX(Y, i - \pi^e, G, T, \varepsilon P^*/P) = 0 \quad \text{.....2.27}$$

The aggregate demand side of the model now consists of the IS equation (2.21), the LM equation (2.16), and the balance of payment equation (2.27). If net exports are the only component of planned expenditure that is affected by the exchange rate, the model can be analyzed graphically. With this assumption, the planned expenditure as the sum of domestic resident's planned expenditure on both domestic and foreign goods, and net exports can be rewritten as:

$$Y = E^D(Y, i - \pi^e, G, T) + NX(Y, i - \pi^e, G, T, \varepsilon P^*/P) \quad \text{.....2.28}$$

Where $E^D(\bullet)$ is domestic residents' planned expenditure. It is assumed to satisfy the following restrictions, $0 < E_Y^D < 1, E_{i=\pi^e}^D < 0, E_G^D > 0,$ *and* $E_T^D < 0.$ Equation (2.27) is then used to substitute for net exports, and thereby eliminate the exchange rate from the model: $Y = E^D(Y, i - \pi^e, G, T) - CF(i - i^*)$ 2.29

Equation 2.29 links GDP to variables such as domestic residents planned expenditure and capital flows. The former depends on GDP, real interest rates, government

expenditure and taxation. The latter variable depends on interest rate differentials between the domestic and international interest rates (Murshed, 1997).

The Mundell-Fleming model is best suited for the Kenyan economy because it captures the transmission mechanism of effects of government expenditures to variables such as the current account and national income. This provides an underpinning for the empirical evaluation of the effects of budget deficits on macroeconomic performance, since it links budget variables to national income.

2.3 Empirical Literature

Several empirical studies have investigated the impact and the relationship between budget deficits and macroeconomic performance. Morgan (1979) studied twelve oil-exporting countries in order to investigate the impact of fiscal policy on the domestic economy. The study employed regression analysis and established that after the oil shock of 1973/74, oil-exporting countries adopted highly expansionary fiscal and monetary policies from increased oil revenue because they thought it would be long term. In the late 1975 and 1976, they shifted from these policies towards those that restrained their activities in order to combat sharply accelerating inflationary pressures, and in some cases, to contain emerging current account and overall balance of payment deficits. The author stressed that in an oil exporting country with a limited production base, there was likely to be a close relationship between overall fiscal and balance of payment developments. Government oil revenues were the principle source of foreign exchange, and a large proportion of government expenditures

consisted of payments for imports and for other external transactions. Furthermore, government injection of oil revenues into the domestic income stream via its domestic expenditures reflected in private sector imports given a limited domestic production base and a reasonably open economy.

The findings of Morgan's study were important and general. First, it is true that an expansionary fiscal policy with a limited domestic production would lead to a balance of payments deficit. However, the study needed to evaluate the actual impact of the expansionary fiscal policy on the economy by using variables such as interest rates, private investments and consumption, and not balance of payments alone. This study can be applied to the Kenyan case by examining the fiscal expansion due to the coffee boom of 1976 and 1977. The increase in the international price of coffee led to an increase in government revenues, and a consequent increase in its expenditures. Expansion in government expenditure grew by 44.1 percent in 1977/78 compared to 9.8 percent in 1976/77. This was attributed to high tax revenues from the coffee boom, which led to less control over government expenditures (Mburu, 1995). The government had however not foreseen that the coffee boom would be a short term event, hence leading to large budget deficits.

Feldstein and Horioka (1980) examined the relationship between the saving and investment rates of a sample of industrialized countries using Ordinary Least Squares (OLS) method. The study found low capital mobility, in that almost all incremental saving within a country translated into domestic investment. From the Neoclassical

point of view, this finding suggested that policies that impact favourably on saving would stimulate growth, and deficits would lead to a crowding out of investment. Other arguments aimed at providing alternative explanations were provided.

Tobin (1983) argued that if the government adjusts its policy instruments to offset current account imbalances, a strong positive correlation between saving and investment would result. This argument reflected the policy response and not low capital mobility. Support for this argument was found in Summers (1988) study, where the model assumed that the budget deficit was endogenously determined by the private saving- investment gap. In this event, the strong positive relationship between budget deficits and the private saving- investment gap reflected crowding out behaviour.

Feldstein and Horioka (1980) did not however conduct causality tests, which would have added more information on the direction of causality. In addition, Feldstein and Horioka (1980) estimated the relationship between savings and investments directly which was not backed by any economic theory linking the two variables. In this case, the use of ordinary least squares (OLS) is discouraged because of insufficient theory.

Evidence in favour of the twin deficit hypotheses was put forward by Roubini (1988). The study estimated reduced form equations for the current account of eighteen countries in an effort to address the puzzle of Feldstein and Horioka (1980), which had argued that domestic saving – investment correlations were too high, occasioned

by high international capital mobility. Roubini pointed out the significance of taking into account fiscal balance, since in the absence of Ricardian equivalence, this would affect private saving independently of the path of domestic investment. The study established that for eleven of the eighteen countries studied, both the budget deficit and the level of domestic investment significantly influenced the current account. The study did not conduct causality tests of the variables to infer on the direction of causality. For instance, the major finding was that both the budget deficit and the level of domestic investment significantly influenced the current account but nothing was mentioned about the direction of causality.

Koori (1992) study objective was to develop an empirical model linking the budget deficit to the price level, current account balance and income in Kenya. Simultaneous equations were estimated with variables being, price level, income and the current account. The econometric model was estimated using Two Stage Least Squares (2SLS) method. The study revealed that budget deficit worsened the current account and raised the price level.

The study by Koori (1992) did not however bring out clearly the relationship between budget deficits, price level, income and the current account, mainly due to problems of data inconsistency. This was manifested due to the use of data from various sources. This is addressed in the present study by using consistent data from several sources. Furthermore, Koori (1992) did not employ causality analysis that would have generated more information on the relationship between the variables together with

cointegration between the variables which would have provided more information about the long run relationship between budget deficit, price level, current account balance and income.

Poloz (1992) examined the twin deficit hypothesis for the economies of the seven major industrial countries (G7 countries). The study estimated the Vector Auto Regressions (VARs) for each of the G7 countries, and the statistical significance of the budget deficits in determining current account deficits was assessed. The variables in the VARs included output (GDP), prices, a short-term money market interest rate, the IMF trade weighted nominal exchange rate, the current account balance, and the fiscal balance. Both restricted and unrestricted VARs were estimated. The revelations were that a substantially weaker linkage existed between the fiscal balance and the current account balance.

The major weakness of the study was its omission of the money supply and the long term rate of interest such as the treasury bills rate, which are important, especially under the Mundel-Flemming model. Furthermore, budget deficits impacts are normally long term and the focus of this study needed to be the long run. The strength of the present study is that it adopts VAR methodology which sidesteps the need to have economic theory in order to be able to link variables.

In Cote d'Ivoire, Kouassy and Bohoun (1993) conducted a study to illustrate the fiscal profile and the determinants of fiscal deficits using Ordinary Least Squares

(OLS) method. The main source of financing of fiscal operations during the 1970s was export earnings and external loans, which dried up by the early 1980s. This coupled with the narrowness of the domestic financial markets and the rules of the West African Monetary Union (UMOA), did not allow a shift towards domestic financing. Given the constraints, the means left for fiscal adjustment was a reduction of the budget deficit. The recommendation of fiscal contractionary policies was based on the theoretical consideration. This was because the expansionary fiscal policy was seen as fuelling the external imbalances. The major weakness of the study was that it did not envisage the implications of fiscal consolidation. In Kenya, fiscal consolidation cannot be achieved because of the huge financing required.

Egwaikhide *et.al.* (1994) examined the quantitative effects of exchange rate depreciation on budget deficit and inflation in Nigeria, and the equation was estimated using Ordinary Least Squares (OLS). The study employed stationarity tests and cointegration analysis. The study revealed that growth in money supply and real output were statistically significant. Lagged rate of inflation used as a proxy for expected inflation had a negative sign, which was inconsistent with theory. The coefficient of lagged exchange rate was highly significant, an indication that depreciation of the exchange rate exerted upward pressure on inflation. There was a long run relationship between inflation and money supply. Evidence from the study suggested that total government revenue was not an important determinant of government expenditures. Instead, it responded significantly to the growth of the economy proxied by growth in real GDP. In Kenya, total government revenue is an

important determinant of government expenditure because of the primacy placed on revenues generated by the Kenya Revenue Authority. Because of the importance of fiscal consolidation, the government is keen on revenues (Republic of Kenya, 2007). This is motivated by the fact that a reduction in primary deficit is achieved when revenues increase more compared to increases in expenditure.

Rodriguez (1994) explored fiscal disequilibria leading to hyperinflation in Argentina. The study employed two stage least squares (2SLS). The variables included in the model were inflation tax, consolidated non financial public sector deficit, inflation, interest rate, trade balance, private consumption, government expenditure, government revenue, and private investment. The study established a significant relationship between the public sector deficit, interest rate, inflation rate, trade balance, private consumption, and private investment. The study did not, however reveal information on the long run relationship between the variables because it did not employ cointegration analysis.

Islam and Wetzel (1994) investigated the role of budget deficits in Ghana's economic decline and renewal. The study employed Ordinary Least Squares (OLS) with the following variables; budget deficit, external finance, domestic credit to the government from the Central Bank and government borrowing from the banking system. The study concluded that high powered money financed budget deficits, in conjunction with direct controls imposed on the economy, caused severe macroeconomic imbalances and reduced growth rate up to the year 1983. Lower

budget deficits, liberalization of the economy, and access to foreign financing, led to improved economic performance after 1983. The study employed OLS, which does not produce good estimates in the case of insufficient theory linking the variables.

Schmidt-Hebbel (1995) examined fiscal adjustment and macroeconomic performance in 93 countries over the period 1960 to 1990. The study employed correlation, causality and linear regression methods to test for the specific effects of budget deficits on macroeconomic variables. The study established that inflation, exchange rate, interest rate, growth rate, and budget deficits influenced each other in both directions. It further found that deficits were very sensitive to short term domestic and foreign macroeconomic shocks, but concluded that policy makers were to blame for persistent deficits. Long-run cross-country results showed that a prudent fiscal stance and central bank independence were significant determinants of macroeconomic stability across the world. On the contribution of fiscal adjustment to growth, lower public deficits did not contribute to higher growth through the provision of more resources for domestic investments. Fiscal adjustment also did not make a significant positive and indirect contribution to growth through reduction in macroeconomic instability. The study was important because it brought out variables that traced the transmission mechanism of the impact of budget deficits on macroeconomic performance. However, the study did not include variables such as private consumption, which is included in the present study.

Amirkhalkhali and Amirkhalkhali (1996) investigated the interrelationships between fiscal deficits and important macroeconomic aggregates in Canada. The study employed Vector Auto Regressions with the following variables: private saving, fiscal deficits, investments, and current account balance, all expressed as relative to GDP. Other variables that were included were bank rate that measured short term interest rate, government long term bond yield that measured long term interest rate and the rate of growth of real GDP. Causality results indicated no significant bivariate causal relations between private saving, fiscal deficits and investments. The bivariate results pointed to the significance of the bank rate as the granger cause of fiscal deficits as well as of the long term interest rate. The long term interest rate appeared as the granger cause of private saving as well as the rate of economic growth. Cointegration results indicated a long run positive co-movement of private saving with fiscal deficits, although in both cases the relationships were substantially less than one for one. Causality tests within the framework of error correction models suggested that private saving responded to the long-term as well as the short- term interest rates, while investment rates were not only granger- caused by the rate of economic growth but also responded to fiscal deficits. The study also found out that economic growth was the most important predictor of investment in the economy and it was statistically significant. This study by Amirkhalkhali and Amirkhalkhali (1996) has several strengths that have important implications for the present study. The use of VAR methodology enabled the study to meet its objectives, despite insufficient economic theory to link the variables in the study. The use of VAR was justified because of the possibility to simulate the response over time of any variable in a set to

either an own disturbance or a disturbance to any other variable in a system of equations.

Egwaikhide (1997) examined the effects of budget deficits on the current account balance in Nigeria. The study employed an econometric model that captured in principle the interactions between budgetary developments, money supply, price level, domestic absorption, and current account balance. The variables used were the general price level, money supply, national income, expected rate of inflation, parallel market exchange rate, import duties, real imports, oil revenue, government expenditures, total government revenue, non oil exports, output of agriculture, investments, private consumption, disposable income, and a dummy variable that captured the period when government introduced quantitative import restrictions. The behavioural equations were estimated using Ordinary Least Squares estimation method. The results of the study showed that there was a strong correlation between the budget deficit and the current account balance. The study suggested that financing of the deficit through external borrowing should be supported by appropriate macroeconomic policies if the goal of the government was to raise domestic output and maintain external balance. The major drawback of this study is that it did not test for causality of budget deficits and current account balance, which could have strengthened the findings. The study also did not tests for cointegration between the variables, information which could have enabled one to comment on the nature of the relationships.

Osoro (1997) aimed at determining the relationship between public spending and public revenues and the relationship between deficits and spending. The study estimated a regression equation to ascertain if there was cause and effect between the aforementioned variables. The study established that the budgeting process contributed to budget deficits in three ways: incremental nature of inertial character of government spending, non enforcement of spending limits that resulted in mini budgets, and a large element of foreign grants on the income side that are not disbursed as budgeted. The study further revealed that the rapid rise in government expenditures contributed to larger budget deficits.

Kilindo (1997) aimed at presenting policy options for government budgetary operations that did not affect monetary growth and was to also curb inflationary developments in Tanzania. The study employed a structural model with five equations. They included; the price equation, government expenditure equation, government revenue equation, the supply of money equation, and a definitional equation explaining the formation of expectations. The study established a strong relationship between fiscal operations, money supply and inflation. The policies recommended included the need for the adoption of a restrictive monetary policy in which the supply of money would be constrained to grow steadily at the rate of growth of real output. The study had several weaknesses which arose because of the model that was adopted. The use of a structural model borrowed from Aghevli and Khan (1978) implied that structural equations were estimated without sufficient economic theory linking the macroeconomic variables. In such a case, the VAR

approach could have been more appropriate. Furthermore, unit roots tests and cointegration analysis were not conducted to determine the order of integration of the variables, and their long – run relationships.

Alkswani (2000) conducted a study in Saudi Arabia where the objective was to analyze the relationship between the budget deficit and trade deficits in an open petroleum economy. The econometric methodology employed included an error correction model. Other standard tests such as unit root tests, granger causality tests, and Johansen cointegration were used. The study confirmed the existence of a long-run equilibrium relationship between the two deficits, and affirmed the direction of causality from trade deficits to budget deficit. The study could have generated more information had it included other variables such as interest rates, private consumption and investments.

Drakos (2001) explored the long-run relationship between government domestic borrowing and private savings for Greece. The study employed cointegration analysis and took into account the dynamic properties of the variables, and explored the issue in an intertemporal framework. The testing procedure controlled for changes in the political environment by introducing dummy variables identifying changes in regimes. The study used Vector Autoregression (VAR) and Vector Error Correction Model (VECM). The empirical findings were consistent with the Ricardian Equivalence theorem prediction that government borrowing leads to an increase in domestic savings.

Kosimbei (2002) examined the relationship between budget deficits and the current account balance of the balance of payments in Kenya. The study objective was to examine causality between the budget and the trade deficits in order to ascertain whether the twin deficits or the Ricardian equivalence hypotheses hold. The study employed autoregressive distributed lag models, together with the granger causality tests. The results revealed that Ricardian equivalence hypothesis holds for Kenya. The study findings suggested that Kenyans were Ricardian, that is, they had a long planning horizon such that when the government incurred a budget deficit, they would tend to save more because taxes would be increased in future to pay for the huge budget deficit. The Ricardian Equivalence Hypothesis had earlier been refuted by Wagacha (1999) who argued that empirical evidence on the hypothesis was inconclusive in developing countries, due to the structure of the financial markets. The current study is different from Kosimbei (2002) in several ways. First, it included more variables. Second, it sought to establish the sources of budget deficits and examined the budgeting process in Kenya. Finally, the study employed vector autoregressions to establish empirically the integration between the budget deficits and the current account of the balance of payments, private consumption and investments, money supply, interest rates and GDP growth rate.

Mansouri (2002) carried out a study in Morocco to determine the effects of fiscal policy on external deficits. The study employed vector autoregressions to establish empirically the interaction and causality direction between the fiscal and current

account balance. The study found out that there was a positive relationship between the fiscal balance and the current account balance, with a bi-directional causality. The model was re-estimated using the same variables but as proportions to GDP. The model revealed that the relationship between fiscal and external variables was positive and statistically significant. The major weakness of this study was that it explained directly the relationship between budget balance and the current account balance without a proper theoretical exposition. The two variables do not relate to each other directly hence estimation of the model does not adhere to economic methodology.

Catao and Terrones (2003) examined the relationship between fiscal deficits and inflation in one hundred and seven countries over the period 1960 to 2001. The study modeled inflation as having a non-linear relationship with fiscal deficits through the inflation tax base. It estimated this relationship as intrinsically dynamic using panel techniques that explicitly distinguished between short- run and long-run effects of budget deficits. The results showed a strong positive association between deficits and inflation among high-inflation and developing country groups, but not among low-inflation advanced economies. In the study, inflation and fiscal deficits were linked together directly in a non linear relationship. Since there is insufficient theory to model this relationship directly and given that the study went ahead and estimated the relationship, this is a major weakness of the study.

Nachega (2005) examined fiscal dominance hypothesis in the Democratic Republic of the Congo (DRC) during the period 1981 to 2003. The study used multivariate cointegration analysis and vector error correction modeling. Empirical results revealed that there was a strong and statistically significant long - run relationship between budget deficits and seigniorage, and between money creation and inflation. The long - run inflationary impact of budget deficits was robust to the inclusion of output growth or velocity in the inflation and monetary growth equations.

Funke and Nickel (2006) analyzed the empirical relationship between fiscal policy and the trade account, while taking into consideration the components of private and public demand in the import demand equation, which exhibited different elasticities. The study used pooled mean group estimation for annual panel data of the G-7 countries for the period 1970 to 2002. The results revealed that the composition of overall demand, that is, the distribution among public demand, private demand and export demand had an impact on the magnitude of the trade account deficit.

Duttagupta and Tolosa (2006) assessed the nature of fiscal discipline under alternative exchange rate regimes in fifteen Caribbean countries during the period 1983 to 2004. The study showed that fiscal stances in countries with fixed pegs and currency union regime demonstrated greater free- riding behaviour than countries with more flexible regimes.

Hauner and Kumar (2006) explored the determinants of long- term government bond yields in the Group of Seven (G-7) economies. The study analyzed the impact of deteriorating fiscal position in these economies. The study further enquired into the factors that could have offset their impact on long- term interest rates, and how sustainable they were likely to be. The results suggested a high likelihood of a substantial impact of the weaker budgetary positions in the G-7 on global interest rates when the offsetting unprecedented capital flows slow down.

Botman and Kumar (2006) explored the underlying determinants of the macroeconomic effects of fiscal policy, tax and social security reform using the Global Fiscal Model (GFM). The GFM incorporated sufficient degree of non-Ricardianness to allow for an analysis of the effects of fiscal policy and of interdependence. The model features overlapping generations in the spirit of Blanchard- Weil. The use of overlapping generations allows the assumption of Ricardian equivalence to be relaxed, implying that the government debt is perceived as net wealth. The study established the following determinants of the macroeconomic effects of fiscal policy and tax and social security reform; planning horizon of consumers, access to financial markets, elasticity of labour supply, the characteristics of utility function on the characteristics of production function and the degree of competition.

Combes and Saadi-Sedik (2006) analyzed the effects of trade openness on budget balances by distinguishing the effects of natural openness from those of trade policy

induced openness. The study employed General Methods of Moments (GMM) system estimator focusing on sixty six developing countries in the period 1974 to 1998. Results revealed that trade openness increases a country's exposure to external shocks regardless of its underlying causes. This reinforced the adverse effects of terms of trade instability on budget balances. Specifically, openness deteriorated the budget balances whereas trade- policy induced openness improved it. The study also suggested that trade openness influenced budget balances through other channels such as corruption and income inequalities. In Kenya, trade openness has an implication on budget balances because domestic production cannot satisfy the aggregate demand. When most products are imported, the local economy does not produce as much output. Therefore, because the GDP is low, tax revenues are lower leading to large budget deficits. Hence, the study by Combes and Saadi-Sedik (2006) has important implications for the Kenyan economy.

2.4 Overview of the literature

There are some aspects of the existing literature that deserve scrutiny. Most of these studies use econometric tools that are inadequate in accounting for the complexity of relationships between macroeconomic variables. This is due to the insufficiency of economic theory in the determination of the right specification. Majority of macroeconomic variables for instance do not have a direct theoretical relationship, hence estimation of structural equations may not have been plausible as it was done in the studies by Alkswani 2000 and Mansouri (2002).

Most of the reviewed studies (Kilindo, 1997; Drakos, 2001; Catao and Terrones, 2003; and Funke and Nickel, 2006) were not comprehensive in their approach, since they focused on one aspect of budget deficits that was budget deficits and inflation. However, the present study is more comprehensive in terms of approach. It focused on all the aspects of the budget, such as the budgeting process, sources and financing of budget deficits, the effects of budget deficits on current account of the balance of payments, private consumption, private investments, money supply, treasury bills rates and GDP growth rate.

This study employs more elaborate econometric techniques that account for the complexity of the relationships between the specified variables, as opposed to what was done in most of the studies reviewed. The time series data used in this study for instance, was tested for the presence of unit roots to ensure that the regressions generated were not spurious. Further, cointegration tests were performed from which inference on the long - term relationships between the variables were derived. The vector autoregressions (VARs) were used to generate the impulse response functions that accounted for the effects of budget deficits on selected macroeconomic variables. VAR methodology was adopted because of the weak theoretical link between the variables. The methodology is usually used where data is left to speak for itself rather than introducing apriori expectations on the relationship between macroeconomic variables.

There are several advantages and disadvantages of performance, programme and zero based budgeting. These methods are advantageous because they inject efficiency in

the allocation of resources as it is based on needs and benefits. This further drives the managers to find cost effective ways to improve operations and detect inflated budgets. These budgeting systems also increases staff motivation by providing greater initiative and responsibility in decision-making coupled with increased communication and coordination within the organization.

On the other hand there are several disadvantages associated with these budgeting methods. To begin with, it may be difficult to define decision units and decision packages, as it is time-consuming and exhaustive. These methods also have to be well understood by managers at various levels to be successfully implemented. Finally, it is difficult to administer and communicate the budgeting because more managers are involved in the process.

2.5 The Theoretical Framework

The theoretical model adopted in this study was the Mundell (1963) and Fleming (1962) Model, which has been reviewed in section 2.2.6 of the literature. The model was chosen among others reviewed, because it provided a better framework for analyzing the effects of budget deficits on macroeconomic performance of a small open economy. The Mundell- Fleming model extends the IS – LM apparatus to incorporate balance of payments considerations, which has proved quite useful in analyzing international macroeconomic policy (Romer, 2001).

As demonstrated in section 2.2.4c of the literature review, the following three equilibrium equations are key to the Mundell – Fleming model:

(i) Goods market equilibrium:

$$Y = E(Y, i - \pi^e, G, T, \varepsilon P^*/P) \quad \text{.....2.30}$$

($E_y > 0$, $E_{i-\pi^e} < 0$, $E_G > 0$, $E_T < 0$, $E_{\varepsilon P^*/P} > 0$)

(ii) The money market equilibrium:

$$\frac{M}{P} = L(i, Y,) \ \{\text{Money market}\} \text{.....2.31}$$

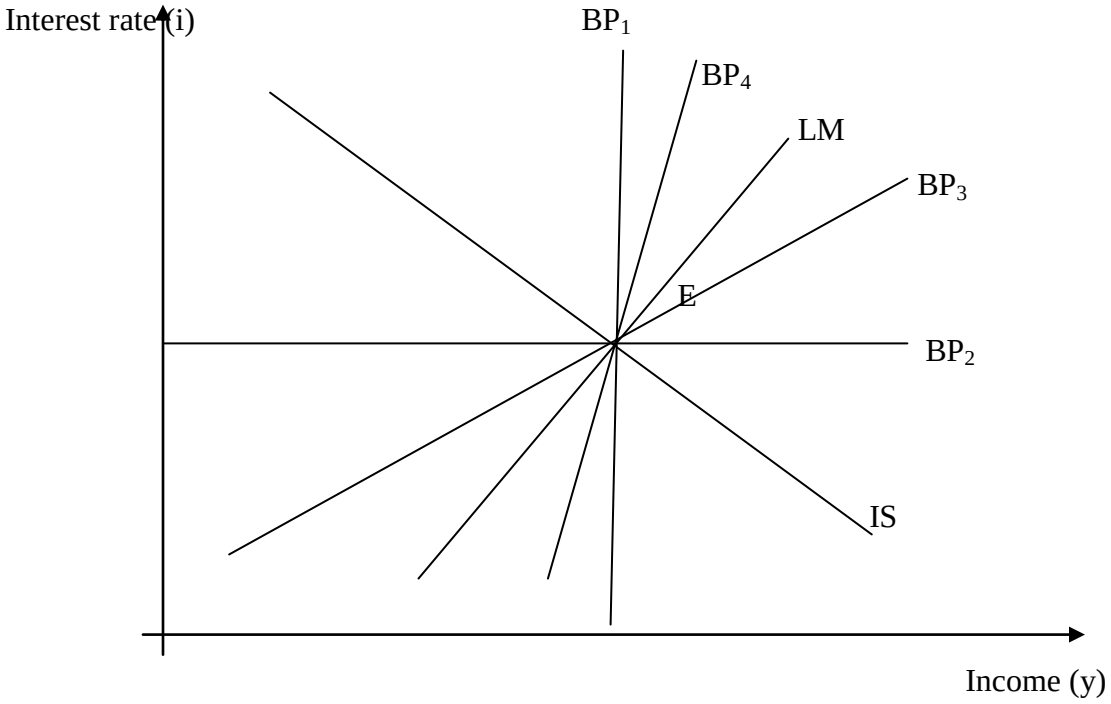
($L_i < 0$, $L_Y > 0$) where $L_i = \frac{\partial L}{\partial i}$ *and* $L_y = \frac{\partial L}{\partial Y} L(i, Y,)$

(iii)Balance of payment equilibrium:

$$CF(i - i^*) + NX(Y, i - \pi^e, G, T, \varepsilon P^*/P) = 0 \quad \text{.....2.32}$$

The locus of points combining income and interest rates that yields equilibrium in the goods market is the IS curve and is downward sloping. The LM curve is the locus of points showing the combinations of income and interest rates that yield equilibrium in the money market and is upward sloping. Finally, the equilibrium in the balance of payment (BP) is represented by the BP curve. The slope of the BP curve depends on the degree of capital mobility, as is shown in figure 2.1

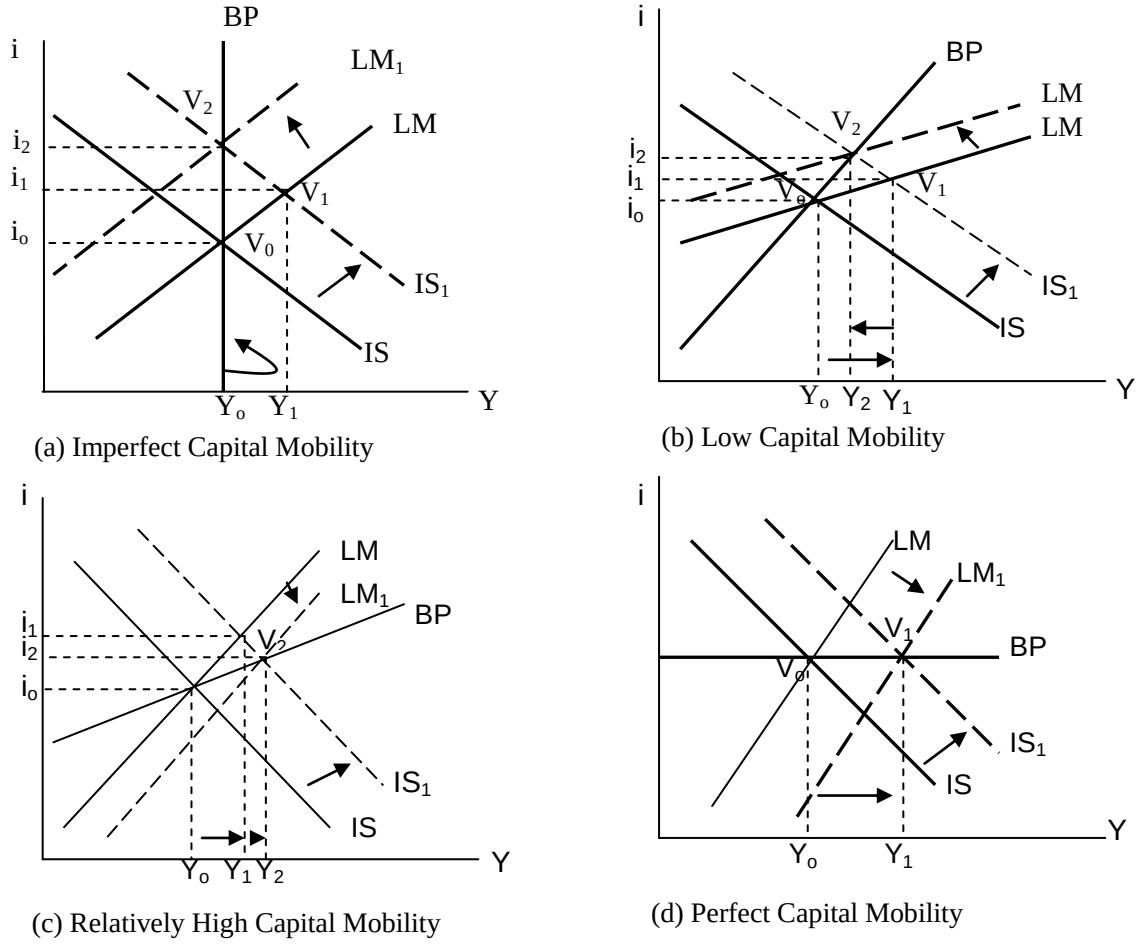
Figure 2.1: Internal and external equilibrium of the economy



Both internal and external equilibrium of the economy is achieved at point E where the IS, LM and BP curves intersect. A vertically sloped BP curve (BP_1), represents perfect capital immobility. A big change in interest rate has no effect on capital flows and income level of the economy. The perfectly elastic BP curve (BP_2) represents perfect capital mobility. The domestic rate of interest equals to the international rate of interest. A small variation in the interest rate will lead to huge capital flow, leading to the domestic interest rate to adjust back to the level of international interest rate. BP_3 represents relatively high but not perfect capital mobility, and BP_4 represents relatively low capital mobility.

The impact of expansionary fiscal policy depends on the degree of capital mobility and the exchange rate regimes in a country. Figure 2.2 presents the impacts of expansionary fiscal policy under different capital mobility assumptions with fixed exchange rates.

Figure 2.2: Mundell-Fleming IS-LM- BP with fixed exchange rates



To simplify the information presented in figure 2.2, discussions are done for the four panels a, b, c, and d. However, for easier understanding of the panels, it is convenient to start with panel b.

Panel b: Case of Low Capital Mobility

In Panel b capital mobility is fairly low. International capital inflows are fairly unresponsive to changes in the interest rate so that BP curve is steeper than the LM curve. Expansionary fiscal policy (increase in government spending or a decrease in taxes) shifts the IS curve to the right, putting upward pressure on domestic income and interest rates. The new domestic equilibrium is represented by the intersection of LM with the new IS_1, at point V_1. At V_1, the rate of interest generated, i_1 is lower than the interest rate that is required at Y_1 for BP to be in equilibrium.

There is capital outflow and increased imports (owing to increase in income). Observe that the new equilibrium, $V_{1,}$ is below the BP curve, which implies that BOP is in deficit. With the exchange rate fixed, the pressure on the domestic currency to depreciate is offset by reducing the foreign reserves (provide the necessary foreign exchange to meet the deficit) to maintain the value of domestic currency (Murshed, 1997). When this happens, the money supply declines and the LM curve shifts to the left until the levels of income and the interest rate are reached that are consistent with BOP equilibrium. The new equilibrium is represented by point V_2 (Y_2, i_2).

Fiscal policy is somewhat effective in expanding income and employment in this case, although some of the expansionary effect has been offset by crowding out of domestic investment because of the new higher equilibrium interest rate (i_2).

Panel a: Imperfect Capital Mobility

The same adjustments would be observed as in the low capital mobility case presented earlier. The only difference is the fact that the rise of domestic interest rate decreases the domestic investment, completely offsetting the increase in government spending. Thus, the only impact of increased government spending under conditions of perfectly immobile capital is a crowding out of an equivalent amount of domestic investment, leaving income and employment at the initial levels (Murshed, 1997). In summary, the less mobile capital is (and hence the steeper the BP curve), the less effective fiscal policy is [see figure 2.2(panel b) and 2.1(panel a)].

Panel c: Case of Relatively High Capital Mobility

In this case, note that the BP curve is less steep than the LM curve. The BOP is more responsive to changes in the interest rate than is the domestic money market. An expansionary fiscal policy shifts the IS to the right to IS_1, resulting to a new domestic equilibrium at V_1 (Y_1, i_1). Since the new point lies above the BP curve, it produces a surplus in the BOP. This comes about because the increase in the inflow of short-term capital more than offsets the increase in imports at the higher levels of Y and i. With BOP surplus, the Central Bank is forced to purchase the surplus foreign exchange to maintain the exchange rate, which causes the money supply to expand and the LM curve to shift to the right to LM_1. The expanding money supply causes a further expansion of the economy to Y_2 and i_2 (point V_2).

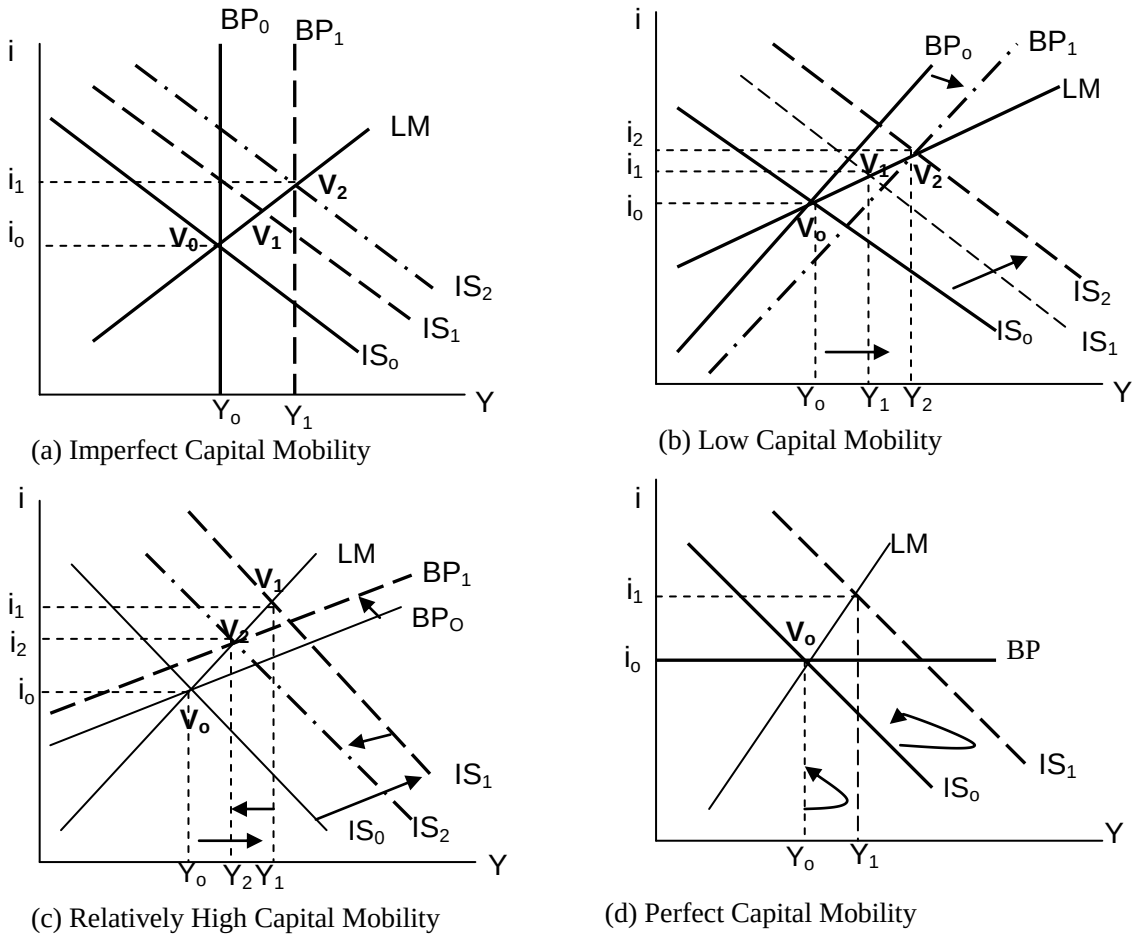
Panel d: Case of Perfect Capital Mobility.

This case is very similar to the previous case (panel c) except for the fact that there is no crowding out of domestic investment since the interest rate remains fixed at the international level (Murshed, 1997). This results from the fact that short-term capital movements respond in large-scale fashion to the slightest movement of the interest rate on either side of the international rate. With an increase in net government spending, there is an upward pressure on the domestic interest rate, which stimulates an inflow of short-term capital and a surplus in the BOP. To keep exchange rate fixed, the Central Bank purchases the surplus foreign currency in exchange for domestic currency, thereby expanding the money supply. This shifts the LM curve outwards until it intersects the new IS at a point on the horizontal BP curve.

Expansionary fiscal policy is thus totally effective in the case of perfectly mobile capital, in that the economy suffers no offsetting crowding out effects through increases in the interest rate (Murshed, 1997). In summary, the greater the mobility of capital, the greater the effectiveness of fiscal policy.

Figure 2.3 shows the impact of expansionary fiscal policy in the case of flexible exchange rate regime, under different capital mobility assumptions.

Figure 2.3: Mundell-Fleming IS-LM with flexible exchange rates



Starting at equilibrium Y_o and i_o, an expansionary fiscal policy shifts the IS curve to the right to IS_1. This causes income and imports to rise, leading to an incipient deficit when capital is perfectly immobile [panel (a)] or relatively immobile [panel (b)], and hence a depreciation of the currency.

Currency depreciation increases exports and decreases imports, shifting the BP curve to the right (BP_1), and generates an additional upward shift in the IS curve to IS_2. A higher equilibrium Y_1 and i_1 result. However, when capital is relatively mobile [panel (c)] or perfectly mobile [panel (d)], the effectiveness of fiscal policy is reduced. In these cases, expansionary fiscal policy shifts IS upward to IS_1, producing an incipient surplus and hence currency appreciation. The BP curve thus shifts up and the IS curve shifts left as imports increase and exports decrease. The trade adjustment thus offsets some of the expansionary effect of the fiscal policy and the expansionary effect on income is reduced, not enhanced as it was when capital was immobile (Murshed, 1997).

Finally, note that in panel (d) the fiscal expansion sets in motion a currency appreciation that continues until the current account effect ($- \Delta X, + \Delta M$) completely offsets the initial fiscal policy, leaving income at Y_o. An overview of the effect of fiscal policy under flexible rates indicates that the effectiveness of fiscal policy is enhanced when capital is completely or relatively immobile.

In a nutshell, the Mundell-Fleming model captures the general objective of the present study, which was to empirically analyze the effects of budget deficits on selected macroeconomic variables. The significance of the model is that it enables this study to trace the transmission in the economy of the possible effects of budget deficits. When the government incurs a budget deficit, the economy may behave differently according to the four views explained in chapter four. The Keynesian view suggests that there will be an increase in GDP (income) leading to increased private

consumption. However, interest rates would increase because the treasury bills rates will have also increased leading to a reduction in private investment. The increase in treasury bills rate would prompt capital inflows which would make exchange rate to appreciate, making exports relatively expensive and imports relatively cheaper. This would worsen the current account of the balance of payments. Chapter three describes the research design and the empirical model.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the research design and presents the empirical model adopted for the study. The variables used in the study are defined. The data, the data sources, and the methods used in data analysis are explained.

3.2 Research Design

This study aimed at establishing the empirical effects of budget deficits on macroeconomic performance in Kenya. Both quantitative and qualitative data were used in the study to answer the research questions posed in chapter one. The study used data for the period 1963 to 2007 for the following variables: budget deficit, private investment, private consumption, current account of the balance of payments, treasury bill rates (TBrates), money supply and GDP. In order to meet the objectives of this study, data were collected from various sources that included government documents such as economic surveys, Sessional papers, Statistical Abstracts, and Policy documents.

Data were collated using a data abstraction tool which included a matrix of ten columns for the variables and forty five rows for the annual data covering the period of study (Appendix I). The collected data were analyzed using Vector Autoregression (VAR) method, after undergoing time series property tests.

3.3 Model Specification and Estimation

The model specified was developed from the theoretical framework presented in the previous chapter with variables identified from the reviewed literature. Modification of equations (2.30), (2.31), and (2.32) from chapter two yielded the representation in equation (3.1) expressed in functional form as:

$$rGDP = f(Bd, PI, PC, CA, TBrates, Ms, dcoffeeboom, dexchregime, d2001) \quad \ldots\ldots\ldots 3.1$$

Where Bd is budget deficit, PI is private investment, PC is private consumption, CA is current account of the balance of payments, TBrates is treasury bill rates, Ms is money supply, and rGDP is real GDP. Three dummy variables were included in the model. The first one, Dcoffeeboom, was used to capture the effects of the coffee boom of 1976/77 on the budget deficits. The second one, dexchregime was used to capture the changes that occurred with the liberalization of the foreign exchange market. The third one, d2001 captured the effects of the oil price shock and power rationing on budget deficits that occurred in year 2001.

Due to insufficient macroeconomic theories linking the above variables, the real GDP (rGDP) was not functionally explained by the explanatory variables on the right hand side of the equation 3.1. Hence it was not possible to directly estimate this equation using the Ordinary Least Squares (OLS) technique. This prompted the use of Vector Autoregressions (VARs) method. This was because VAR model is a theory-free method used for the estimation of economic relationships (Sims, 1980). This methodology was based on a reaction against the traditional econometric approach to

tackling multi- equation simultaneous models (Thomas, 1997). Thus it is an alternative to the incredible identification restrictions in structural models.

Vector Autoregression (VAR) captured the evolution and the interdependencies between multiple time series, generalizing the univariate Auto Regressive (AR) models (Stock and Watson, 2001). All the variables in a VAR were treated symmetrically by including an equation explaining evolution of each variable based on its own lags and the lags of all the other variables in the model. In other words, VAR econometrics analysis involved the estimation of regression equations in which the current value of each variable was expressed as a function of lagged values of itself and each of the selected variables (Sims, 1980). No variable was assumed to be exogenous a priori and no variable was excluded from the autoregressive equation for any of the variables in the system.

The use of structural VAR was justified because of the possibility to simulate the response over time of any variable in a set to either an own disturbance or a disturbance to any other variable in a system of equations (Stock and Watson, 2001). A structural VAR was used to examine the interrelationships among a set of economic variables, and analyze the dynamic impact of random disturbances on the system of variables in this study. In the framework each variable, whether measured at levels or first differences, was treated symmetrically hence all variables in the system contained the same set of regressors (McCoy, 1997). There were no exogenous variables and no identifying restrictions. The only role for economic

theory was in specifying the variables to be included. The structural VAR estimated the structural coefficients by imposing contemporaneous structural restrictions based on economic theory.

Three different types of VAR models exist: the reduced form VAR, the recursive VAR, and the structural VAR. The recursive and structural VAR had the same form at the level of matrix equations. They allowed for explicit contemporaneous interactions among the variables of the system. Thus they allowed the contemporaneous variables to be simultaneously determined (Stock and Watson, 2001).

The reduced form VAR sidestepped the need for structural modeling, by modeling every endogenous variable in the system as a function of the lagged values of itself and of all the endogenous variables in the system (Engel and Granger, 1987). The reduced form and the recursive VAR models were statistical models that utilized no economic structure beyond the choice of variables. The compact form of a VAR model is represented as:

$$X_t = A_0 + A_1 X_{t-1} + A_2 X_{t-2} + ... + A_p X_{t-p} + e_t \quad \text{..... (3.2)}$$

Where A_0 is a n x 1 vector of constant terms, A_1, A_2,……, A_p are n x n matrices of coefficients, X_t is a n x 1 vector of the endogenous variables and e is a vector of serially uncorrelated error terms that have a mean of zero and a covariance of matrix ϕ.

From equation (3.1), a system of reduced form structural VAR to test for the impact of budget deficit on private investment, private consumption, current account of the balance of payments, treasury bills rates, money supply and real GDP was estimated. In this type of VAR model, each variable was regressed on a constant variable C_{ij}, p lags of itself, p lags of each of the other variables and the disturbance term e_t. The choice of the lag length (p) was determined using the Akaike (AIC) and the Schwarz information criterion (SIC). There was a preference for longer lag lengths because they captured the dynamics of the system being modeled. However, they reduced the degrees of freedom and increased data requirements. This called for a tradeoff between having sufficient number of lags and a sufficient number of parameters to estimate.

The estimated coefficients of the VAR were meaningless because they lacked the theoretical underpinning (Enders, 1995). However, the coefficients were used in the derivation of impulse responses and forecast error decomposition. Impulse response analysis linked the current value of the error term to the future values of the variables included in the VAR (X_t) or equivalently, the current and the past values of the error term to the current values of the variables included in the VAR (X_t). The forecast error decomposition measured how important the error in the j^{th} equation was for explaining unexpected movements in the i^{th} variable (Enders, 1995).

3.4 Definition and measurement of variables

The following variables that were used in this study are defined.

Budget Deficits (BD) is the value of Kenya's Central government revenues net of its expenditures in one year. It was measured in millions of Kenya shillings.

Current Account of Balance of Payments (CA) is the value of Kenya's net exports of goods and services in one year. It was measured in millions of Kenya shillings.

Private Investment (PI) is the additions to capital stock less depreciation attributed to the non- public sector in Kenya. It was measured in millions of Kenya shillings.

Private Consumption (PC) is the use of goods and services such that they are not available for future use by the non-public sector in Kenya. It was measured in millions of Kenya shillings.

Lending Rates (LR) is the rate of interest offered by banks on loans advanced to borrowers. This was the annual average. It was measured in percentage per annum.

Treasury Bill Rates (TBrates) is the coupon rate of interest on short term government securities (both 91 days and 182 days). This was the annual average. It was measured as a percentage per annum.

Money Supply (M3) comprised of M2 plus foreign currency deposits held by residents with banking institutions. It was measured in millions of Kenya shillings.

Money Supply (M2) comprises of M1 plus time and demand deposits. It was measured in millions of Kenya shillings.

Money Supply (M1) includes currency plus demand deposits. It was measured in millions of Kenya shillings.

Nominal Exchange Rate (NER) is the price of a US dollar in terms of Kenya shillings. It is given by the annual average. It was measured as Kenya Shillings per US Dollar.

Real Gross Domestic Product (rGDP) is the real value of GDP since the effects of inflation have been netted out. It was measured in millions of Kenya shillings. It was obtained by deflation of the nominal GDP using the GDP deflator.

Dcoffee boom is a dummy variable capturing the effects of the coffee boom of 1976/77.

Dexchange rate is a dummy variable capturing the effect of the change in the determination of the exchange rate from fixed to flexible exchange rate regime.

DOil shock and power rationing (Doilshock) is a dummy variable capturing the effects of the oil price shock and power rationing that occurred in 2001 on the budget deficits.

3.5 Time Series Properties

3.5.1 Stationarity of Data

The first step involved testing for stationarity of the data series. This was a standard procedure performed to ensure that the series had a constant mean and variance, so that the resultant regression results would be meaningful. Otherwise, if stationarity of the series was present and not checked, the presence of trend in the data series would have meant that the regression results were spurious.

Two main methods for testing for stationarity or the presence of unit roots were the Augmented Dickey Fuller (ADF) and Phillips Perron (PP) tests. The ADF procedure attempted to retain the validity of the tests based on white- noise errors in the regression model by ensuring that the errors were indeed white- noise. On the other hand, the Phillips- Perron (PP) procedure corrected for serial correlation through a non parametric correction to the standard statistic (Oduor, 2008). PP acted to modify the statistics after the estimation in order to take into account the effect that autocorrelated errors had on the results. Therefore, PP test was desirable because it did not require estimation of additional parameters that would have required additional data and also did not exhaust degrees of freedom.

The basic equation used in the PP test remains the same as the one used in the ADF test. The ADF tests the null hypothesis that $|\rho| = 0$ against an alternative that $|\rho| < 0$ in the autoregressive equations:

(i) ADF without intercept and trend

$$\Delta y_t = \rho y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta y_{t-1} + u_t \quad \text{…….……} \quad (3.3)$$

(ii) ADF with an intercept but no trend

$$\Delta y_t = \alpha + \rho y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta y_{t-1} + u_t \quad \text{……....} \quad (3.4)$$

(iii) ADF with both the intercept and trend

$$\Delta y_t = \alpha + \beta_t + \rho y_{t-1} + \sum_{i=1}^{k} \delta_i \Delta y_{t-1} + u_t \quad \text{……..…..} \quad (3.5)$$

In this study, both Augmented Dickey Fuller (ADF) and Phillips Perron (PP) techniques were used to test for the presence of unit roots. The null hypothesis of presence of unit roots was rejected when the theoretical value was less than the computed ADF and PP respectively and the alternative hypothesis of absence of unit roots accepted.

3.5.2 Cointegration Analysis

Cointegration refers to a long-run equilibrium relationship between variables. The notion of long-run equilibrium implies that two or more variables may wonder away from each other in the short-run but move together in the long- run (Enders, 1995). When variables wander away from each other, the process is known as a random walk. In the long-run however, it may be possible that these variables move in the same direction that is, have a long run relationship. In this case, there may be a linear combination of these random walk processes that is white noise (stationary) and the variables are said to be cointegrated (Enders, 1995).

There are two main tests for cointegration namely Johansen Cointegration test and the Granger two step methods. Johansen's methodology was used to test for cointegration in this study and its starting point in the vector autoregression (VAR) of order p given by;

$$y_t = \mu + A_1 y_{t-1} + ... + A_p y_{t-p} + \varepsilon_t \quad \text{.....} \quad (3.6)$$

Where y_t is an nx1 vector of innovations. This VAR can be re- written as

$$\Delta y_t = \mu + \prod y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-1} + \varepsilon_t \quad \text{..... (3.7)}$$

Where

$$\prod = \sum A_i - I \ \ and \ \Gamma_i = -\sum_{j=i+1}^{p} A_j \quad \text{..... (3.8)}$$

If the coefficient matrix $\prod$ reduced rank r <n, then there existed nxr matrices α and β each with rank r such that $\prod = \alpha\beta'$ and $\beta' y_t$ was stationary. r was the number of cointegrating relationships, the elements of α are known as the adjustment parameters in the vector error correction model and each column of β was a cointegrating vector. It was be shown that for a given r, the maximum likelihood estimator of β defined the combination of y_{t-1} that yielded the r largest canonical correlations of Δy_t with y_{t-1} after correcting for lagged differences and deterministic variables (Johansen, 1995). Johansen proposed two different likelihood ratio tests of the significance of these canonical correlations and thereby the reduced rank of the $\prod$ matrix. The trace test and maximum eigen value test are shown in equations (3.9) and (3.10) respectively.

$$J_{trace} = -T \sum_{i=r+1}^{n} \ln(1 - \hat{\lambda}_i) \quad \text{..... (3.9)}$$

$$J_{\max} = -T \ln(1 - \hat{\lambda}_{r+1}) \quad \text{..... (3.10)}$$

Where T was the sample size and $\hat{\lambda}_i$ was the i^{th} largest canonical correlation. The trace test tested the null hypothesis of r cointegrating vectors against the alternative hypothesis of n cointegrating vectors. The maximum eigen value test, on the other hand, tested the null hypothesis of r cointegrating vectors against the alternative

hypothesis of r+1 cointegrating vectors. Neither of these test statistics followed a chi square distribution in general.

The residual based cointegration test introduced by Engle and Granger (1969) by analogy of equation (3.11) involves testing the significance of the coefficient in the Ordinary Least Squares (OLS) regression of:

$\Delta u = \rho u_t + \varepsilon_t$ ..... (3.11)

Where u_t is the residual. The test postulates that if the residuals from the OLS estimation of the non- stationary variables are stationary, then the series are cointegrated. Otherwise, if the residuals of the series are not stationary, it implies that they are not cointegrated. If the residuals exhibited a stationary trend, it implies that the error correction model could not be run. Instead, estimation could be done on the variables at their first difference, but this means that the long run characteristics of the data be lost.

This study used the Johansen cointegration method to test for the long run relationship between the variables. This is because the error correction model was not applied due to the aforementioned limitation.

3.6 Data and Analysis Techniques

To achieve the objectives of this study, annual time series data for the period 1963 to 2007 was collated. Data used for the budget process were collected from Republic of

Kenya and desk reviews on the role of parliament and Ministry of Finance in the budget process.

Qualitative data was used to describe the budget process, establish the sources of budget deficits and examine the methods of financing budget deficits. Quantitative data was used to evaluate the impact of budget deficits on macroeconomic performance and testing for the nature of the relationship between budget deficits and selected macroeconomic variables.

The quantitative data collected were summarized and analyzed using E-Views and Intercooled STATA econometric software. The results were subjected to various diagnostic tests to test for econometric problems in the data, such as the presence of unit roots. The data series were found to be non stationary prompting the use of growths of all the variables except treasury bills rates.

In the next chapter, the empirical findings are presented and discussed.

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This chapter presents the findings of the study. It explains the budgeting process in Kenya, sources of budget deficits, methods of financing, and the effects of budget deficits on; current account of the balance of payments, private consumption, private investments, money supply, treasury bill rates, and real GDP growth rate. Finally, the chapter presents results and their interpretations.

4.2 The Budget Institutions

The first objective of this study was to examine the budgeting process in Kenya with a view of identifying weaknesses that could be contributing to the budget deficits. To attain this objective, it was important that an examination of the role of budget institutions is done. The following is a recap of each institutional role in the budgeting process.

(a) Parliament

The credibility of the budget is only achieved when it is capable of providing effective and politically anchored mechanisms to mobilize resources. Constitutionally, Parliament is empowered to safeguard expenditures by the exchequer. Hence the executive cannot raise or spend funds without the approval of Parliament (Oyugi, 2005). This obligation gives Parliament a prominent and potentially highly effective role to ensure that available resources are used in ways

that maximize benefits for all Kenyans. Parliament is therefore, expected to ensure accountability and to provide assurance to Kenyans that the systems employed by the executive to mobilize, allocate and utilize resources are effective and that the executive is not being compromised by any other agents, for instance the ruling party or donors.

Parliament also acts as the citizens representatives, therefore ensuring that the Executive operates according to the principle of "no taxation without representation" as well as the principle of separation of powers. Under the Constitution, Parliament is the sole authority on taxation, borrowing and spending of public funds. The Minister for Finance, on behalf of the Executive, presents the budget before parliament in June, every year. Under the Standing Orders, Parliament allocates time to discuss the government's budgetary proposals as a matter of priority. In this regard, Parliament retains the power to approve or reject revenue and expenditure proposals filed by the Minister. To deal with the budget, Parliament has three key standing committees; the Fiscal Analysis and Appropriations Committee (FACC), the Public Accounts Committee (PAC) and the Public Investment Committee (PIC). The FACC was established in 2006 with the responsibility of scrutinizing policies that drive the budget, tax proposals, resource allocations and budget execution (Masya and Njiraini, 2004).

Both PAC and PIC are long established institutions that deal with overall budget outcomes. That is, whether budgeted expenditures are utilized according to

parliamentary authority and approval and whether they are compliant with the law and procedures. In addition, there are currently eight Departmental Committees of Parliament, which play complementary roles by scrutinizing the budgets of specific ministries and sectors that fall within their mandates (Oyugi, 2005). All these Committees are required to report to Parliament and make specific recommendations on their mandates.

There are several challenges associated with the relationship between elected Members of Parliament and voters. The elected members extract taxes from voters for them to be able to provide public goods. However, they use some of the funds provided by the voters to pursue other interests, including the use of public funds for outright corrupt purposes or for goods benefiting only their individual interests (such as their salaries or constituencies), or may simply waste funds out of negligence and ignorance. Furthermore, poor and partisan politics may lead to subjective voting in Parliament, where passing of the budget estimates may be based on subjective positions rather than well thought out objective positions. For instance, Members of Parliament (MPs) refused to be taxed hence denying the government of Kenya the much needed tax revenues. Moreover, MPs have on certain accounts held the Executive at ransom demanding that certain clauses be deleted from the Finance bill before they could pass the budget, thereby causing unnecessary delays in the implementation of fiscal policies.

(b) The Executive

The Executive arm of the government implements public policies and proposals as approved by Parliament. The role of the Executive in the budgeting process is therefore to propose fiscal policy, define the budgetary policy in line with the broad national socio-political and economic objectives, priorities and propose implementation measures for Parliament to decide upon.

The Treasury refers to the institution that is identified by the Constitution as having delegated powers to propose measures to raise and allocate resources. Besides being the lead player in the budgeting process, Treasury is the finance manager for public funds and is responsible for overseeing budget formulation and execution. It is also a collector, custodian of revenues and a manager for government expenditure. It evaluates budget proposals by government agencies before drafting and presenting the Budget to Parliament. On its part, the Ministry of Finance provides support to the Treasury function and is responsible for implementing policies, programmes and projects which support all ministries and other government agencies.

The Kenya Revenue Authority (KRA) is the government body charged with the responsibity of collecting the major taxes and most of the other fiscal charges mandated by Parliament. It is actually a parastatal under the Ministry of Finance. At present, KRA faces the challenge of netting taxes from the economy's informal sector. A large proportion of agents in the informal sector do not pay taxes such as income tax because it is difficult to establish their income (Manda, et.al, 2007). The

CBK is the government banker and advisor on monetary matters. It is also the custodian of all government revenues (Oyugi, 2005). The CBK is not so much a fiscal agent but a monetary agent because its main role is monetary policy.

The executive as an institution lacks commitment to accountability and provides insufficient information about allocations presented in the budget. For instance, who decides the amount of money that is given to District Hospitals in a particular fiscal year? The methodology on allocation of funds needs to be presented for possible scrutiny. Moreover, budget deficits are perpetrated by the executive's unsound fiscal policies formulated on the basis of corruption, ethnicity, nepotism, reluctance to cut expenditures and mismanagement among others.

(b) Non-State Players

Among the key players in the budget process are the major economic actors who are well organized and informed. They include associations like the Kenya Associations of Manufacturers (KAM), Kenya Private Sector Alliance (KEPSA), Institute of Certified Public Accountants of Kenya (ICPAK), Farmers Association and a host of NGO's among others (Oyugi, 2005). All these bodies actively lobby the Government and Parliament for more enabling fiscal policies. They make submissions to the Finance Minister on various fiscal issues, and more so on issues that are pertinent to them. However, apart from championing their own interests, they normally have no assurance that their fiscal proposals will be incorporated. Hence there is need to fully incorporate their views in the budgeting process.

(c) The Citizens

Citizens pay taxes and are the ultimate beneficiaries, or the reason for the budget. Notwithstanding their representation in parliament by their elected representatives, citizens have a direct duty to ensure (oversee) that all the other players in the budget process act in their best interest. More importantly, they should ensure budget implementation is monitored for their benefits. In addition, they should monitor the implementation of the budget through development funds such as constituency development funds (CDF), education bursaries and HIV/AIDS funds, District Roads Fund and many others.

The main problem of the citizens, from a political perspective, is that they remain rationally ignorant rather than invest their time and other resources in obtaining and sorting out information about public issues in order to make more informed voting decisions (Mburu, 2005). This explains why during the campaign periods, citizens are compromised to vote for politicians whose agenda is to advance their own personal interests rather than the common interest of the citizens.

(e) Development Partners and Aid Agencies.

Development partners do have a significant influence on the budget process. This is particularly true of the IMF and World Bank. Given their influence, these two multilateral bodies have become major stakeholders in national budgets and affect, the structure, content and sometimes the timing of the budget activities. Some of the major reforms such as those associated with structural adjustments (SAPs), cost

sharing and liberalization, originated from these two institutions. They had disastrous effects especially in the social sectors (education and health), though the magnitude of the effects could have been higher had the policies not been introduced. However, development partners have their own interests, hence fund particular programmes only. They are normally not so much involved in the budgeting process, which they should, because they fund a large proportion of development projects as the government concentrates on the recurrent budget.

4.3 The Budget Process

The budget process reform in Kenya started in 2000 with the introduction of the Medium Term Expenditure Framework (MTEF) approach, which aimed at linking policy objectives and resource planning and allocation. This was in response to a review of the public expenditure in 1997, which concluded that public expenditure trends in Kenya were not consistent with the objectives of achieving sustained economic growth and poverty reduction. Consequently, and as a reform measure, the MTEF approach was adopted to achieve the following specific objectives: link policy making to planning and budgeting; maintain fiscal discipline by establishing solid budget constraints; facilitate expenditure prioritization across policies, programmes and projects and encourage better use of resources to achieve desired outcomes at lowest cost.

In 2003-2004, three years into its implementation, the MTEF process was reviewed and was found to be less effective in addressing the mismatch between policy objectives and resource planning and allocation, and therefore did not meet the

expectations of the policy makers. Additional recommendations were made to enhance its effectiveness, one being the introduction of budget ceilings. The key features of the MTEF budget process are described as follows:

(a) Budget Outlook Papers (BOPA)

The MTEF budget process starts in October with the preparation of the Budget Outlook

Paper (BOPA). The main objective of the BOPA is to provide an overall medium–term fiscal framework for the MTEF budget. At this point, the MTEF is based on a consistent and sustainable macro-economic framework, which is used to determine the overall resource envelope, comprising revenue, external resources and domestic borrowing. On the basis of this resource envelope, the BOPA provides medium term sectoral ceilings, in line with the strategic objectives (Republic of Kenya, 2008). Currently, the Medium Term Plan 2008 is used because the ERS lapsed in 2007. These ceilings are then used by Sector Working Groups (SWGs) in allocating resources within the sector in the medium term.

The BOPA is prepared by the Macro-economic Working Group (MWG), comprising of the following: Central Bank (CBK), the Ministry of Finance (MoF), the Ministry of Planning and National Development (MPND), the Kenya Revenue Authority (KRA) and the Kenya Institute for Public Policy Research and Analysis (KIPPRA).

The main challenge posed by BOPA is the exclusion of stakeholders in the budgeting process that may have a different opinion on the macroeconomic framework. For

instance, all the institutions involved in the preparation of BOPA are quasi government. Other institutions that could add value and have equally competent analysts are commercial banks, universities and private economic research institutes. These institutions need to be incorporated fully in the BOPA preparation.

(b) Ministerial Public Expenditure Report (MPER)

Each ministry is required to start the MTEF process by preparing the Ministerial Public Expenditure Report (MPER) by December of each year. The MPER is basically an evaluation of the performance of the previous year's budget and provides a regular analysis of ministerial expenditures, commenting on the composition, efficiency and effectiveness of spending in meeting service delivery targets and other performance indicators. The MPER also shows the costing and resource requirements of the ministry, based on the programmes and priority activities during the medium term. Expenditure analysis enables policy makers to ask the right questions, while making decisions on public spending, and at the same time providing the ministries' input to the preparation of the medium term Budget Strategy Paper (BSP). The MPER also promotes broader participation in the policy-making process by opening up the budget system to public scrutiny by publishing information on budget, budget execution and public accounts.

The major setback with the MPER is when officials of a particular ministry replicate the previous year's estimates and do only cosmetic adjustments without any solid basis. This happens in several ministries in Kenya.

(c) District inputs

Departments at the district level are expected to submit their input to the budget process to their respective headquarters by December of each year. The treasury circular issued by the Permanent Secretary to guide ministries/departments on the MTEF budget process requires that accounting officers ensure that the District departmental heads are involved at every stage of the budget process. This is achieved through the following: formation of District Budget Committees (DBCs); a thorough review of District level activities and their performance in terms of allocations, status of project and disbursement of funds; prioritization of activities and linkages to the district plans and other policy documents; and costing of district level activities for the medium term.

There are several bottlenecks associated with District inputs. The competence of the members of the district budget committees determines the kind of proposals they forward. In many instances there may be motivation to replicate figures which are available. There is also an absence of cost monitoring and evaluation staff at the district levels hence a thorough costing and review of district level activities may not be done.

(d) Budget Strategy Paper (BSP)

The BSP provides an update of the available resources and sets firm ministerial ceilings. Based on the decision reached by the Sector Working Groups (SWGs) using the sector ceilings provided in the BOPA, the BSP elaborates a strategy for restructuring the government spending pattern over the medium term with a view to achieving the government's medium-term strategy objectives. The BSP therefore provides specific and detailed guidance for ministries on aligning public spending patterns within the stated national priorities, which improves the efficiency of public spending in the forthcoming budget and over the following two years. However, the BSP does not appear practical since availability of resources is dynamic and the ceilings aspect is not adhered to because of the supplementary budget.

(e) Public Sector Hearings

One major improvement in the MTEF process is the introduction of public sector hearings, which are held soon after the preparation of the BSP. The purpose of the public sector hearings is to provide a forum where all stakeholders engage in a debate of the BSP and propose amendments they deem necessary before it is presented to the cabinet for approval. The BSP is disseminated to stakeholders and civil society in February each year through public sector hearings organized by the Ministry of Finance (Masya and Njiraini, 2004).

The public hearings are advertised in the daily newspapers ten days to two weeks in advance, so that all stakeholders can attend. During the public hearings, the SWGs present their budgets and comments are invited from the participants. The suggestions

are then used to improve the budget. After the public hearings, views are consolidated, and the BSP is printed and submitted to the Cabinet for discussion and approval. Based on the approved BSP, the Permanent Secretary, Ministry of Finance issues the Treasury Circular to ministries/departments to prepare detailed and itemised budgets based on the ceilings set in the BSP. However, the public sector hearings are normally marred by poor attendance and their comments are in most cases not taken on board.

(f) Ministerial budgets

The process for preparing ministerial budgets is iterative, as can be noticed in appendix II (Figure A.2). It starts in October to December each year, when ministries are engaged in the preparation of the MPER. Between December and February, Ministries/Departments are involved in consultations with the SWGs. The Treasury and other stakeholders are involved in negotiations that lead to a level of resource requirements that satisfy the BSP ceilings. In March, the Treasury Circular, together with the BSP and ceilings, are issued to all ministries, which are in turn expected to prepare detailed annual and medium term estimates consistent with the BSP and submit the itemized budgets to the Treasury by mid-April (Masya and Njiraini, 2004).

The responsibility for preparing the ministerial budget lies with the Ministerial MTEF Budget Committee. The ministry receives the budget circular from the Treasury, which sets the budget ceiling for each sector and ministry, and the calendar for preparing the budget. Based on the ceilings, the ministerial budgets are prepared by

departments and consolidated by the Ministerial Budget Committee, approved by the Permanent Secretary before being submitted to the Treasury.

(g) Final estimates

The Treasury receives detailed ministerial budgets, consolidates them in April and submits the national budget to the Cabinet for approval in May each year. The annual estimates are then printed and presented to Parliament for debate in mid-June. Once the Minister of Finance has presented the budget to Parliament, it becomes Parliament business. The debate on the budget starts one week later and continues for the next six months. During this period, ministers table their respective ministries' budgets before the house for debate. Members of Parliament may question any issue they want clarified. If Parliament passes the budget, the ministry proceeds to implement it. There are no reported cases where Parliament has made significant amendments to budgets presented to it. However, there are several shortcomings at this level including delays in debates due to Parliament's recess, political bickering, sabotage due to personal interests and party positions (such as delay debate for salaries of Members of Parliament to be increased).

(h) Supplementary estimates

Government financial regulations and procedures on the budgetary process provide for presentation of supplementary estimates by ministries to Parliament for approval at a date to be notified to all accounting officers. Supplementary estimates allow ministries to obtain additional funds, for a new service, to cover under-provisions or to apply any realised savings on other services within the mandate of a particular

ministry. In practice, the supplementary estimates are usually tabled in Parliament during the month of May and Parliament usually approves them.

The challenges that accost the supplementary budget are that at times it may be difficult to obtain resources and also to get approval from Parliament. Supplementary budgets may also be prone to abuse since they may lead to payment for items that were not given the scrutiny accorded to the other items in the original budget.

4.4 An overview of the budget process

The MTEF has improved the budgeting process, especially in making the process more participatory, accountable and transparent. Firstly, the MTEF process engages all organs of government, parliament, the private sector, civil society and development partners in the formulation of the priorities for the following year's budget early in the budget cycle. Secondly, districts do participate in the budgeting process. The district heads provide their inputs to the headquarters for inclusion in the Ministry's overall budget. Therefore, the grass root stakeholders are not left out in the budgeting process. Thirdly, there is an improvement in involving stakeholders in the budgeting exercise, although stakeholders' views are solicited towards the end of the process. The coordination in participation of the civil society and NGOs in the budgeting process is done by the council for the civil society. However, the civil society is less effective due to lack of capacity to engage in technical issues. The budget is abstract and it requires the skilled stakeholders to perform the scrutinization. Moreover, Ministry of Finance does not give the civil society

adequate time for consultations and there is no evidence that their comments are incorporated.

Besides, the effectiveness of the MTEF approach is reduced by the fact that the process is a top-down approach, whereas the aim is to encourage a bottom-up approach to budgeting. Furthermore, there is still inadequate linkage to government policies and plans. There is limited flexibility in government expenditure, given the high amounts reserved for debt servicing both domestic and external, pensions, wages, and transfers to parastatal organisations, most of which is used to pay wages and salaries.

4.5 Sources of budget deficits

The second objective of the study was to establish the sources of budget deficits in Kenya. Two sets of causes lead to budget deficits. The first set consists of structural factors determined by the type of economy and its relationship with the external economies. The second set of causes stems from the implementation of government expansionary policies that lead to sharp increases in expenditures (Howard, 2001). The Government might lack the necessary fiscal discipline to control public expenditures or might be forced to increase spending to maintain levels of income and employment when the private sector experiences recession (Howard, 2001).

There are several sources that have been identified as being responsible for aggravating budget deficits in Kenya. They include: level of economic development;

growth of government revenues; instability of government revenues; government control over expenditure and extent of government participation in the economy (Mburu, 1995, Howard, 2001). The following is a brief discussion of each of them.

(a) Level of economic development

This is one of the structural factors among the sources of budget deficits. Kenya has experienced low level of economic development because of the low levels of investments in infrastructure and low expenditures for the social sectors (Mburu,1995) together with low standards of living. The relatively low levels of development have made the government unable to control its budget due to increasing "spending pressures" on education, health and infrastructure. The ministries of Education, Health and Roads receive 70 percent of the total allocations in the national budgets (Republic of Kenya, 2008). This is due to running of programmes such as free primary education, highly subsidized healthcare and construction of several major roads.

Furthermore, the existence of low private savings and low tax revenues has led to a situation where the government is justified in increasing public spending to satisfy public expectations (Howard, 2001). This argument is supported by Morrison (1982) who hypothesized that the political pressure to spend outweighs the perceived inflationary costs of deficit financing. Most political parties win elections and form governments on the basis of the pre- election pledges presented in their manifestos. To finance such pledges requires substantial revenues, which are often not generated

by the government because of low rates of economic growth and large informal sectors that cannot be taxed.

In Kenya, revenues often do not keep pace with rising prices because of the low income elasticities of the tax system and long lags in tax collection (Wawire, 2000; Wawire, 2006). The situation is made worse when inflation is high because the real value of revenue falls thereby worsening the budget deficit. Spending pressures, low private savings and low tax revenues are the three main factors that contribute to the budget deficits.

The need for modern education, communication and the impact of international migration, are major factors that lead to spending pressures in Kenya. These contribute to the demonstration effect that leads to pressures on the government to provide basic infrastructure and public services that exist in more wealthy countries regardless of their levels of economic development and ability to respond to the resulting spending pressures (Mburu, 1995).

Private savings ratios are positively correlated to levels of economic development. Hence, the Kenya government is forced to supplement private savings to respond to public expectations by increasing public borrowing. The government is usually compelled to respond to inadequacy of private savings and tax revenues to satisfy the ever increasing expenditure needs by resorting to deficit financing.

(b) Growth of government revenues

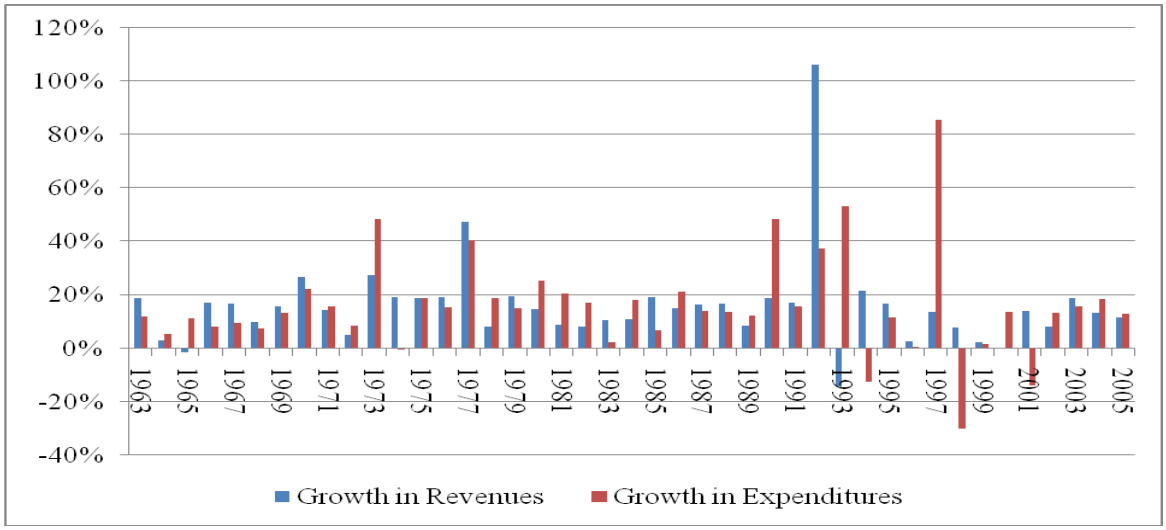
This is also a structural factor. In Kenya, a large proportion of government revenue is derived from taxes. Indirect taxes account for the larger proportion of taxes as compared to direct taxes (Wawire, 2006). The proportion of the population that pays income taxes is low. This is because the informal sector which is the major employer does not attract taxation (Manda, *et-al*, 2007). Efforts made to increase tax revenues as a proportion of income are often met by drawbacks. Most employees in the informal sector for example fall outside the tax bracket. On the other hand, tax rates cannot be increased because they are already high (Wawire, 2006). As a result of such difficulties, the government resorts to borrowing to finance the budget deficit. This is consistent with the finding by Osoro (1997), which revealed that the government of Tanzania's revenues grew slowly during the period of study.

(c) Instability of government revenues

Instability of revenues is associated with the openness of the Kenyan economy. If export and imports fluctuate, tax revenues from these sources will also fluctuate. Taxes on international trade cannot therefore be relied upon to finance government expenditures (Wawire, 2000). This is also considered a structural factor.

The figure below shows growth in government revenues and expenditures.

Figure 4.1 Growths in Government Revenues and Expenditure, Kenya



Source of Basic Data**:** *International Financial Statistics Database,* (http://www.imf.org/data_11_July_2008)

Figure 4.1 shows the volatile growth of government revenues, which suggests that government revenues are unstable. If they were stable, the growth in revenues could not fluctuate as shown in the figure.

Kenya relies heavily on tourism and exports of primary products whose prices are volatile in the world market. An increase in world prices of these products leads to increases in export revenues. This was experienced during the coffee boom of 1976/77. The reverse leads to decline in revenues. For tourism, events such as post election violence, which deterred tourists from visiting the country led to a reduction

in revenues. The instability of government revenues is therefore an important structural source of budget deficits.

(d) Government control over expenditures

Inadequate expenditure control is cited as being one of the major sources of budget deficits in Kenya (Killick and Mwega, 1993) and is also a structural factor. A general lack of discipline in expenditure allocation and execution results in repeated violation of the budget ceilings set by the Treasury (Gurushri, 1994). Moreover, due to factors such as price fluctuations and industrial unrests, budget estimates sometimes fall short of actual expenditures, calling for supplementary budgets. Besides, the budgeting process in Kenya involves many departments, which has makes expenditure tracking difficult because of inadequate coordination. This source of budget deficit was also identified by Osoro (1997) for Tanzania. The study revealed that the government of Tanzania's expenditures grew rapidly over the period of study.

(e) The extent of government participation in the economy

The government of Kenya participates in the economy both directly and indirectly. This is an expansionary policy because it directly provides defense and social infrastructure among other public goods. Therefore, it has created state owned enterprise (SOEs) that produce industrial and agricultural goods and services. Furthermore, the government influences production and allocation of privately produced goods through subsidies, taxes, and a wide range of regulatory tools (Mburu, 1995).

A large government requires more resources for it to be effective in service delivery (Wawire, 2006). At the same time, governments' heavy intervention in the economy increases the pressure on its budgetary system to provide subsidies and transfers to public enterprises. The larger the government, the larger the resources required to finance its operations. This may imply higher tax rates to be levied in that economy. The administrative costs of government controls on prices and interest rates would be quite high.

The sources of budget deficits include: level of economic development; growth of government revenues; instability of government revenues; government control over expenditures and the extent of government participation in the economy. All of these sources are significant for the Kenyan economy and they require attention from policy makers. This study is therefore vital in that it sheds light on these sources and recommends on what needs to be done to reduce the budget deficits and at the same time improve GDP growth.

4.6 Methods of Financing of Budget Deficits in Kenya

The third objective of the study was to investigate the methods of financing budget deficits. Existing data on fiscal policy in Kenya reveal the existence of budget deficits. However, of interest is how the deficits have been financed in the past and the effects of such methods on the macroeconomic performance. Budget deficits are financed either through domestic or foreign means, or a mixture of the two methods.

The choice between domestic and foreign financing methods depends on the cost and risk for each. The cost involves the interest that is repaid together with the borrowed principle and depends on the rate of interest agreed between the lender and the borrower. On the other hand, the risk depends on default. On whether to use foreign or domestic financing the government normally pursues various objectives such as: low inflation, stable exchange rate; low interest rates and favourable yield curves; an adequate foreign reserve cover; and active domestic capital markets (Beaugrand *et.al,* 2002). The following is an explanation of each of the methods of deficit financing.

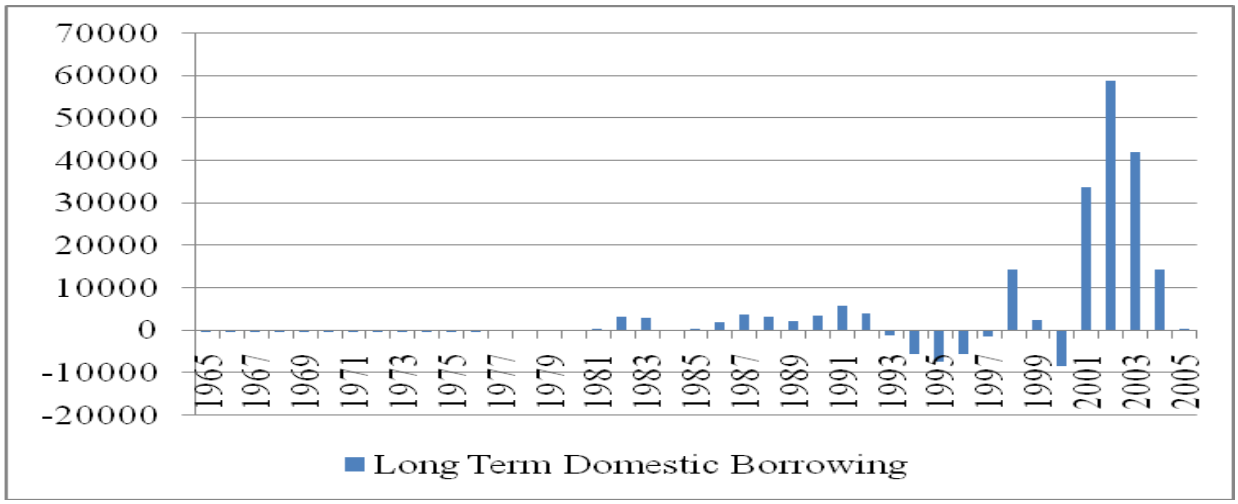
(a) Domestic financing

This involves raising resources from the economy through either treasury bills or bonds and issuance of money. There are several methods that have been used to domestically finance the budget deficit. They include: borrowing from the Central Bank; borrowing from the domestic commercial banking system; borrowing from the private sector; and privatization.

Borrowing from the Central Bank to finance the budget deficit is through issuing of money or by increased credit to the banking system. The direct cost is minimal but the macroeconomic risks are substantial. The government resorted to this policy in order to finance the budget for fiscal year 1992/93. This excessive monetary financing resulted in excess aggregate demand, which translated to high inflation and increased pressure on the balance of payments (Beaugrand *et.al,* 2002).

Domestic borrowing from the commercial banking system and the private sector has been taking place in Kenya over the years. This has been made possible by Kenya possessing a fairly well- developed financial intermediation system, which reduces inflationary pressures and the risk of debt crisis. However, it tends to have a crowding out effect on private investments and thus retards economic growth. Figure 4.2 presents a bar graph on domestic borrowing in Kenya.

Figure 4.2 Domestic Borrowing in Kenya (Millions Kenya Shillings)



Source of data: Republic of Kenya *Economic Surveys* (Various issues)

The figure shows long term domestic borrowing over the years. The government resorted to long term borrowing from the domestic economy between 1981 to 1992 by selling treasury bonds. This was followed by repayment period from 1993 to 1997. From 1998, the government borrowed heavily from the domestic economy, up to 60 billion Kenya shillings was borrowed in 2002. However, there has been a decline in long term borrowing witnessed after 2003 due to a remarkable improvement in tax revenue collections (Wawire, 2006).

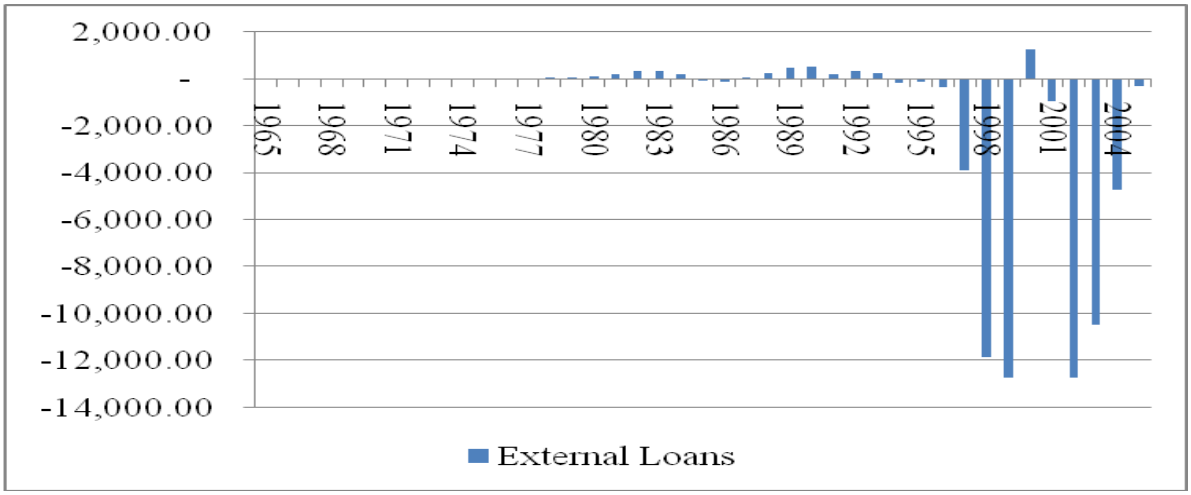
The government has used privatization proceeds as a method of financing the budget deficits. The government has designated 33 out of 240 public enterprises as strategic and intends to retain its ownership and active board participation. The remaining 207 public enterprises have been classified as non- strategic and constitute the Government's privatization programme (Muindi, 1993). Offloading of government shareholding from such enterprises gives the organization more autonomy in decision making and may even improve their profitability, and dividends. It also generates revenue to finance government budget. The Kenya Electricity Generating Company (KENGEN) and Safaricom Initial Public Offerings of 2006 and 2008 respectively for instance generated revenue that was used to finance the government budget deficit.

(b) Foreign Financing

Foreign financing involves raising resources from other economies excluding Kenya. This includes external borrowing and receipt of aid and grants. Data on external loans or financing has shown that the government has not been borrowing substantially from external sources (IMF, 2008).

Figure 4.3 presents external loans to the Kenyan government.

Figure 4.3 External Loans to the Government of Kenya (in Millions Kenya Shillings)



Source of data: Republic of Kenya, *Economic Surveys* (Various issues)

Figure 4.3 reveals that the government focused on repaying the external loan from 1997 onwards (IMF, 2008). The repayments were between ten and fourteen billion shillings a year.

External borrowing often appears attractive because of lesser crowding- out effects on private investment and reduced risk of inflationary pressures (Beaugrand *et.al*, 2002). Moreover, resorting to external financing can induce greater fiscal and monetary discipline because it eliminates any incentive the government might have to generate inflation in order to reduce the real debt burden. Although government external borrowing does not directly affect domestic interest rates and the supply of loanable funds, it may crowd out private investments through its impact on prices or the nominal exchange rates. When the budget deficit stems from expenditure on locally

produced goods, external borrowing brings about an appreciation of the real effective exchange rate that has a crowding out effect on certain local producers thereby reducing economic growth (Gray and Woo, 2000).

4.7 Effects of Budget Deficits on Macroeconomic Variables

The fourth objective of the study was to establish the effects of budget deficits on selected macroeconomic variables. This was done by the estimation of the Vector Autoregression model and the subsequent use of Impulse Responses and Variance Decomposition Analysis. The following section presents results and their interpretation.

4.7.1 Estimation Results for the Vector Autoregression Model and Impulse Responses

Before the effects were identified using impulse response functions and variance decomposition analysis, the data series had to be tested for stationarity. The Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests results are presented in A.3 in Appendix I. The results of unit roots tests showed that growths in budget deficits, current account, gross fixed capital formation, private consumption, private investments, money supply (M1), and GDP were stationary and integrated of order I(0). The non- stationary variables included growths in money supply (M3), lending rates, and treasury bill rates. The stationary series were included in the analysis, whereas the non stationery series were differenced before their inclusion so as to avoid the problem of spurious regression results.

The VAR results presented in Table A.4 (Appendix I) were not interpreted like ordinary regression equations because they were not derived from structural equations (Enders, 1995). They were used for the generation of both the impulse response functions for conducting the variance decomposition analysis (VDA), which depicted the effect of budget deficits on macroeconomic performance.

The impulse response analysis traced the effects of a one standard deviation shock to the innovation on current and future values of all the endogenous variables of the system. A shock to the j^{th} variable affected directly the same variable and was also transmitted to all other endogenous variables in the system through the dynamic structure of the VAR (Enders, 1995).

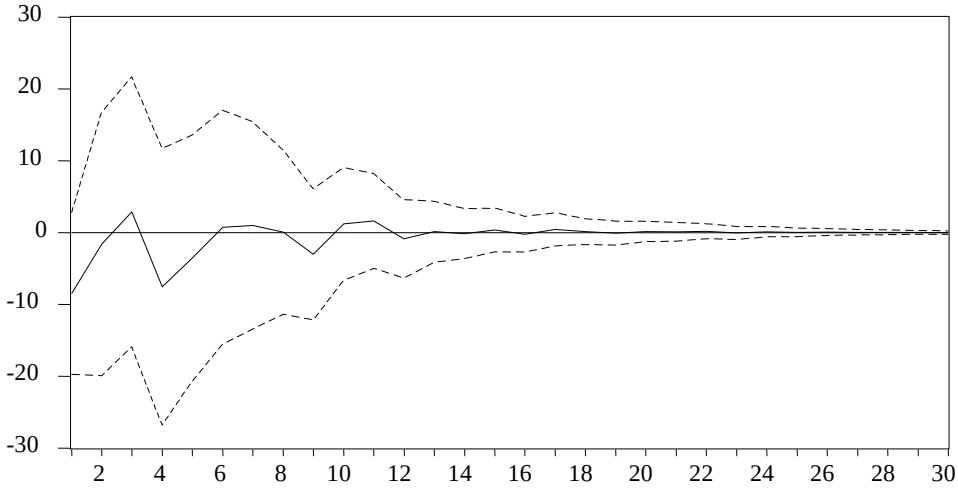
The ordering of variables used in this study was based on the relationship presented in equation 3.1 in chapter three. This order was also consistent with the variance decomposition analysis postulation that the variation to two shocks were more pronounced in the initial periods of the shock and the influence reduced with the lags as the percentage variation of the other variables in the model increased. The impulse response of each growth variable to a one standard deviation positive shock was generated over a ten year period with ordering as: budget deficits; treasury bills rates; money supply (M3); private investments; private consumption; current account; real GDP; coffee boom, exchange rate regime, and dummy variable for year 2001. The reason why a dummy for year 2001 is included in the analysis is because during this

year, there was a mild oil shock and power rationing, and this appeared as a spike in the residuals of the model.

The plots and impulse responses that follow summarize the results of the shock evaluation, indicating the responses of each variable over the ten years horizon to the initial one standard deviation positive shock to each of the seven variables and three dummies in the VAR equation.

Figure 4.4 presents the impact of budget deficits on treasury bills rate.

Figure 4.4 The impact of budget deficits on treasury bills rate

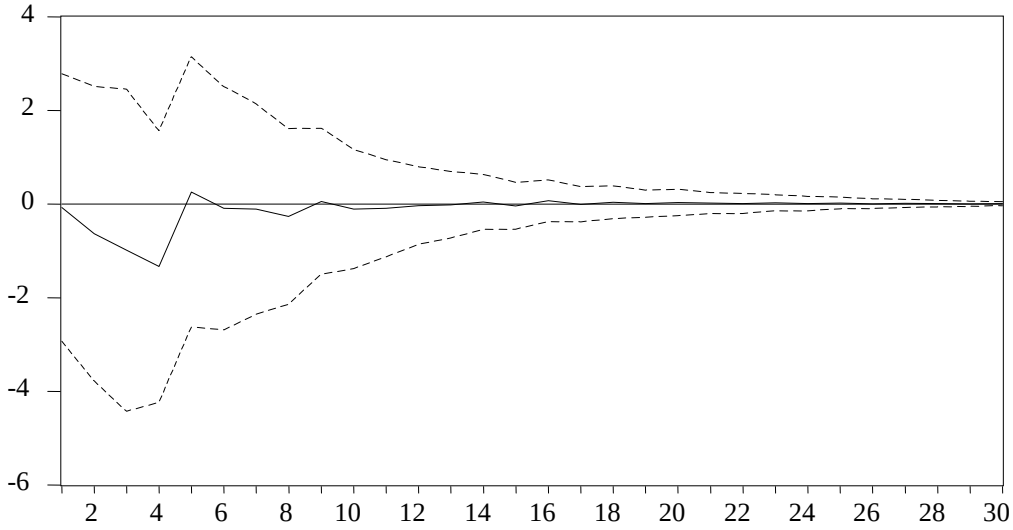


Source: Derived from Data

The response to one standard deviation innovation to budget deficits resulted in a stable time path which declined to zero with respect to treasury bills rate as shown in figure 4.4 above. The results show that a one standard deviation shock on budget deficits would have an effect on treasury bills rates that would last for twelve years. This is consistent with the findings of Amirkhalkhali and Amirkhalkhali (1996).

The next figure presents the impulse response graph for budget deficits on money supply.

Figure 4.5 The impact of budget deficits on money supply (M3)

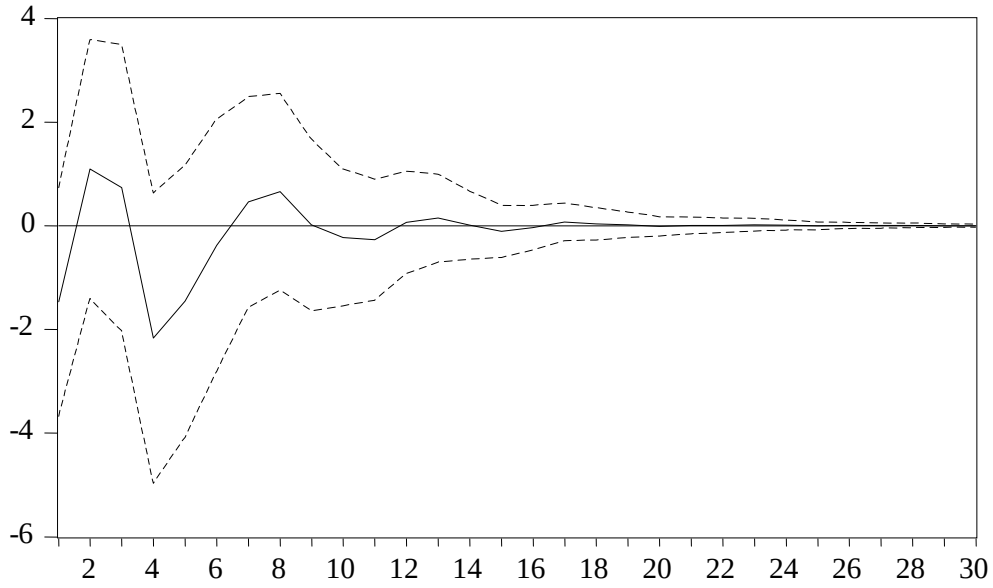


Source: Derived from Data

As shown in figure 4.5 above, it would take nine years for the effect on money supply due to a one standard deviation shock on budget deficits to fizzle out. The effect was initially negative for a period of five years then moved to positive afterwards.

The next figure presents the impulse response graph for budget deficits on private investments.

Figure 4.6 The impact of budget deficits on private investment

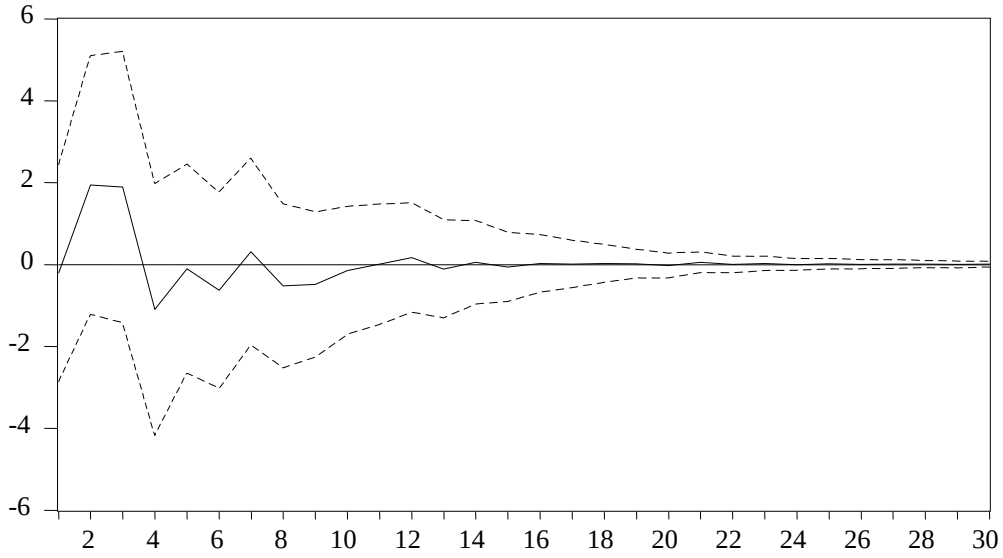


Source: Derived from Data

The response to one standard deviation innovation to growth in budget deficits results in a stable time path which declines to zero with respect to private investment as shown in figure 4.6. The effect of a one standard deviation shock on budget deficits on private investment would last for fifteen years, after which it reduces to zero. The effect was initially negative for a period of one year then moved to positive territory and then back to negative. This suggests that budget deficits affect private investments negatively because the magnitude of the effect lasts six years in the negative territory.

The next figure presents the impulse response graph for budget deficits on private consumption.

Figure 4.7 The impact of budget deficits on private consumption

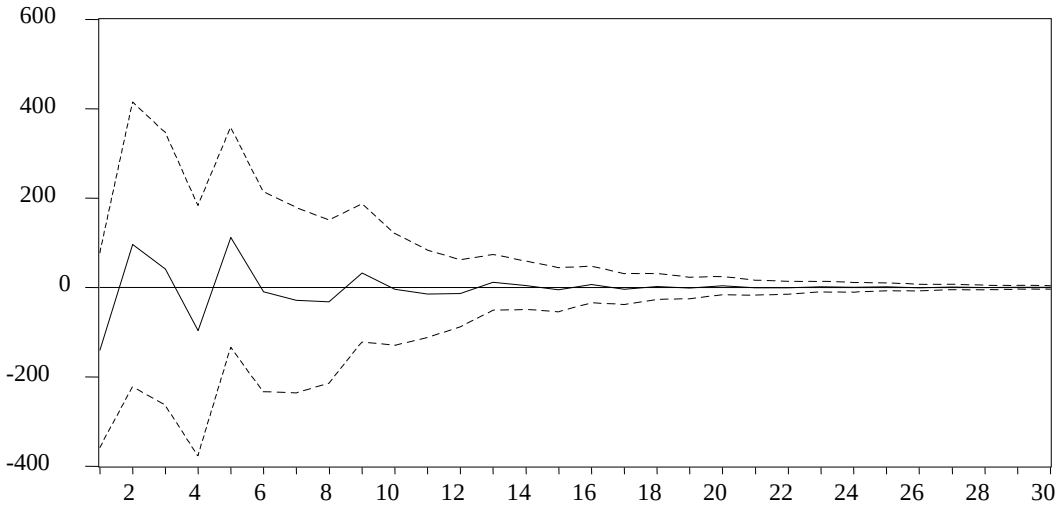


Source: Derived from Data

The response to one standard deviation innovation to budget deficits resulted in a stable time path which declined to zero with respect to private consumption as shown in figure 4.7 above. The effect of a one standard deviation shock on budget deficits on private consumption would last for thirteen years, after which it fizzles out. The effect was initially positive for a period of three years then moved to negative territory. This suggests that budget deficits affect private consumption positively because the effect takes longer in the positive territory.

The following figure presents results for the impact of budget deficits on current account balance.

Figure 4.8 The impact of Budget Deficits on Current Account of the Balance of Payments

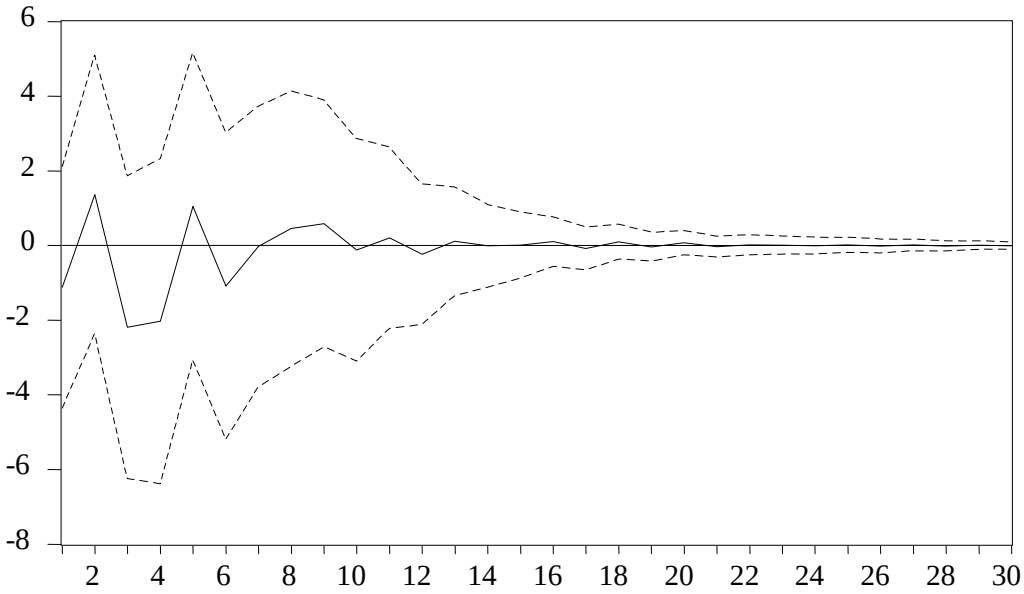


Source: Derived from Data

The response to one standard deviation innovation to budget deficits resulted in a stable time path which declines to zero with respect to the current account of the balance of payment as shown in figure 4.8 above. The effect of a one standard deviation shock on budget deficits on current account would take twelve years, after which it would reduce to zero. The effect has swings both in the positive and the negative territory, suggesting that budget deficits may have both negative and positive effects depending on the changes in other factors at that particular time, such as exchange rates.

The next figure presents the impact of budget deficits on real GDP growth.

Figure 4.9 The impact of Budget Deficits on real GDP



Source: Derived from Data

The response to one standard deviation innovation to growth in budget deficits resulted in a stable time path which declined to zero with respect to growth in real GDP as shown in figure 4.9 above. The effect of a one standard deviation shock on budget deficits on growth in GDP would take thirteen years to fizzle out. The effect was initially negative for a period of two years then moved to positive territory and then back to negative. This suggests that budget deficits have a mixed effect on GDP, and the effect is felt for long in the economy just like the other macroeconomic fundamentals.

In summary, impulse responses traced out the responses of current and future values of each of the variables to a one unit increase in the current value of one of the VAR errors, assuming that this error returned to zero in subsequent periods and that all other errors were equal to zero. These estimated impulse responses showed patterns of persistent common variation. An unexpected rise in budget deficits, for example slowly faded away over six years, and was associated with both increases and decreases in treasury bills rates, private investments and consumption, money supply, current account and the real GDP.

4.7.2 Variance Decomposition Analysis

The VDA presented a further step of establishing what percentage of the variation in a series was due to its own shocks and which percentage was due to shocks of other variables in the model at a given period following Enders (1995) and Stock and Watson (2001). VDA determined the proportion of a variance in a series that was due to its own shock, the other variables' shocks and other identified institutional shocks.

The variations in other variables brought about by growths in budget deficits were analyzed. This was an alternative method to the impulse response functions for examining the effects of shocks to the budget deficits. This technique determined how much of the forecast error variance for any variable in a system was explained by innovations to each explanatory variable over a series of time horizons (Enders, 1995). The own series shocks explained most of the error variance, although the shock also affected other variables in the system. It was also important to consider the

ordering of the variables when conducting VDA. This was because in practice the error terms of the equations in the VAR were correlated, so the result is depended on the order in which the equations were estimated in the model. The plots of variance decomposition are presented in figure AI Appendix II.

The following are the results of VDA of budget deficits.

Table 4.1 The Results of Variance Decomposition of Budget Deficits

Period (year)	Standard Error	Budget deficits	Treasury bill rates	Money supply	Private investments	Private consumption	Current account	Real GDP
1	229.420	100.000	0.000	0.000	0.000	0.000	0.000	0.000
2	268.477	73.551	5.482	7.589	5.276	1.315	0.919	0.374
3	279.159	68.623	6.657	7.375	5.525	2.185	1.487	0.633
4	286.343	66.703	6.907	7.503	5.836	2.483	1.507	1.019
5	290.245	65.657	6.969	7.314	5.782	3.318	1.503	1.096
6	293.122	64.383	6.973	8.038	5.681	3.554	1.479	1.120
7	295.796	63.533	7.254	8.622	5.655	3.593	1.478	1.118
8	297.095	63.388	7.194	8.702	5.703	3.564	1.601	1.123
9	299.049	62.625	7.488	9.028	5.791	3.678	1.601	1.137
10	301.059	61.796	7.824	9.032	5.786	3.661	1.606	1.137
11	303.467	60.890	8.393	8.902	5.707	3.606	1.591	1.119
12	303.897	60.718	8.381	8.925	5.692	3.603	1.587	1.172
13	304.884	60.335	8.600	8.966	5.719	3.599	1.641	1.165
14	305.460	60.113	8.658	8.935	5.709	3.647	1.636	1.186
15	306.518	59.700	8.955	8.902	5.696	3.622	1.692	1.178

Source: Derived from Data

The results presented on Table 4.1 show that all the variations in growth of budget deficits were due to its own shock at 100 percent in the first year. The variation of own shocks in growth of budget deficits reduced to 73.5 percent in the second year and even to a lower level as the forecast horizon increased. It was further noted that

the variations in the growth of budget deficits shock in the first year brought about by other variables was zero, implying that on impact, the variation of growth in budget deficits were totally own shocks.

A further observation of the results in Table 4.1 reveals that the effects of other variables apart from budget deficits in the system increase with the increase in forecast period. This implies that budget deficits had feedback effects with variables in the system and the effects were multidirectional. The VDA graphs, together with the results in the table further support the findings of this study that budget deficits have a significant effect on macroeconomic fundamentals.

This section reveals that budget deficits have an effect on the selected macroeconomic variables, which lasts for more than five years. The Impulse Response Functions and the VDA have shown that the effects of budget deficits are far reaching in the economy and are felt for long periods of time.

4.8 Relationships between budget deficits and selected macroeconomic variables

These section reports on the relationship between budget deficits and macroeconomic variables, on whether there existed a short run or long run relationship.

4.8.1 Cointegration Analysis

The fifth objective of the study was to establish the nature of the relationships between budget deficits and macroeconomic variables. The study was expected to

establish whether there was a long run or short run relationship between budget deficits and the selected macroeconomic variables. The presence of a long run relationship was tested using the Johansen cointegration method.

The Johansen Cointegration test results are presented in the tables that follow.

Table 4.2 Cointegration Results for Budget deficits, Current Account and Gross Fixed Capital Formation

Series: Budget Deficits and Current Account Balance and Gross Fixed Capital Formation Lags interval 1 to 1				
Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.534	63.318	29.68	35.65	None **
0.415	32.768	15.41	20.04	At most 1 **
0.247	11.340	3.76	6.65	At most 2 **
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 3 cointegrating equation(s) at 5% significance level				

Source: Derived from Data

The results in Table 4.2 show the existence of a cointegrating relationship between the budget deficits, and current account balance of the balance of payments. The Likelihood Ratio (LR) test indicates three cointegrating equations at 1 percent level of significance. This means that the variables have a long run relationship, which may not necessarily hold in the short run (Enders, 1995).

Cointegration analysis was also conducted for the budget deficits, lending rates and money supply. The results are presented in Table 4.3 that follows.

Table 4.3 Cointegration results for budget deficits, lending rates and money supply (M1)

Series: Budget Deficits and Lending rates and Money Supply (M1) Lags interval 1 to 1				
Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.435	38.633	29.68	35.65	None **
0.312	20.358	15.41	20.04	At most 1 **
0.231	8.408	3.76	6.65	At most 2 **
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 3 cointegrating equation(s) at 5% significance level				

Source: Derived from Data

The Table 4.3 shows results that testify the existence of cointegration between the budget deficits and Money supply (M1) and lending rates. The Likelihood Ratio (LR) test indicates three cointegrating equations at 1 percent level of significance. This means that the variables have a long run relationship, which may not necessarily hold in the short run.

The next table presents cointegration test results for budget deficits, nominal exchange rate and money supply.

Table 4.4 Cointegration results for budget deficits, nominal exchange rate and money supply (M3)

Series: Budget Deficits and Nominal Exchange rates and Money Supply (M3) Lags interval 1 to 1				
Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.432	43.375	29.68	35.65	None **
0.356	23.548	15.41	20.04	At most 1 **
0.208	8.168	3.76	6.65	At most 2 **
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 3 cointegrating equation(s) at 5% significance level				

Source: Derived from Data

The Table 4.4 reveals the existence of cointegration between budget deficits, Money supply (M3) and the nominal exchange rate. The Likelihood Ratio test indicates three cointegrating equations at 1 percent level of significance. This means that the variables have a long run relationship. The other variables tested for cointegration include budget deficits, private consumption and investments and their results presented in Table 4.5.

Table 4.5 Cointegration results for budget deficits, private consumption and private investments

Series: Budget Deficits and Private Consumption and Private Investments Lags interval 1 to 1				
Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.582	63.413	29.68	35.65	None **
0.487	32.890	15.41	20.04	At most 1 **
0.239	9.539	3.76	6.65	At most 2 **
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 3 cointegrating equation(s) at 5% significance level				

Source: Derived from Data

The Table 4.5 shows the existence of cointegration between the budget deficits, private consumption and private investment. The Likelihood Ratio test indicates 3 cointegrating equations at 1 percent level of significance. This means that the variables have a long run relationship, which may not necessarily hold in the short run.

The other variables tested for cointegration include budget deficits, real GDP and treasury bill rates.

Table 4.6 Cointegration results for budget deficits, real GDP and treasury bill rates

Series: Budget Deficits and GDP and Treasury Bills Rates Lags interval 1 to 1				
Eigen value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.505	54.488	29.68	35.65	None **
0.386	30.585	15.41	20.04	At most 1 **
0.338	14.021	3.76	6.65	At most 2 **
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 3 cointegrating equation(s) at 5% significance level				

Source: Derived from Data

In Table 4.6, results for cointegration between the budget deficits, real GDP and treasury bills rates are presented. The L.R. test indicates three cointegrating equations at 1 percent level of significance. This means that the variables have a long run relationship, which may not necessarily hold in the short run.

The cointegration tests results presented in these tables reveal that the variables in the form presented are cointegrated in the long run hence model estimations can be conducted. This is similar to the study by Amirkhalkhali and Amirkhalkhali (1996).

4.8.2 Granger Causality Tests

Granger causality was used to determine whether one time series is useful in forecasting another (Enders, 1995). The following table 4.7 shows the results of the Granger causality tests.

Table 4.7 Granger Causality Test Results

Variables	Causality Direction	F-Statistic	Lag	Probability
Private Consumption ↔ Money Supply (M3)	Bidirectional	2.750**	6	0.045
Lending Rates ↔ Budget Deficits	Bidirectional	5.605***	4	0.003
Current Account ↔ Private Consumption	Bidirectional	8.998***	5	0.000
Private Consumption ↔ Real GDP	Bidirectional	3.972***	5	0.008
Current Account ↔ Budget Deficits	Bidirectional	4.709**	2	0.015
Current Account↔ Real GDP	Bidirectional	4.935**	2	0.012
Nominal Exchange Rates → Lending Rates	Unidirectional	10.408***	2	0.000
Budget Deficits → Private Consumption	Unidirectional	4.500***	4	0.006
Money Supply (M3) → Private Investment	Unidirectional	5.029**	2	0.013
***Significant at 1 Percent **Significant at 5 Percent				

Source: Derived from Data

The Granger causality test results revealed that there was bidirectional causality between the following pairs of variables: private consumption and money supply (M3); lending rates and budget deficits; current account and private consumption; private consumption and real GDP; current account and budget deficits; current account and real GDP. This meant that these sets of variables predict each other and hence can be on either side of the equation either as dependent or as an independent variable. The finding that there existed bidirectional causality between budget deficits and current account balance was similar to Mansouri (2002)

The variables that had a unidirectional causality included: nominal exchange rates to lending rates; budget deficits to private consumption; and finally money supply (M3) to private investments. This implied that only one variable could explain the other. In this case, they were required to be only on the right hand side of the equation. There was a unidirectional causality running from the budget deficit to private consumption for example. This implied that in the case of estimation of the model, budget deficit were to be on the right hand side of the equation.

The Granger causality tests revealed important information on the relationship between the variables of interest in this study. Budget deficits predicted lending rates, current account balance, and private consumption. In fact the relationship between budget deficits and private consumption was very strong unlike the others.

These findings confirm the results of the VDA, given that there is bidirectional causality between the following pairs of variables: private consumption and money supply (M3); lending rates and budget deficits; current account and private consumption; private consumption and real GDP; current account and budget deficits; current account and real GDP. This means that these sets of variables predict each other and hence can be on either side of the equation, that is, each variable can either be the regressor or the regressand.

In a nutshell, there was strong causality between budget deficits and selected macroeconomic variables, which suggests that the fiscal policy should be designed

carefully to avoid budget deficits because they adversely affect several important macroeconomic variables in the economy.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study findings and makes conclusions. The policy implications from the findings and areas for further research are also presented.

5.2 Summary

The overall objective of this study was to investigate the relationship between Kenya's budget deficits and macroeconomic performance. The present study is important because it contributes to the debate on rationalization of fiscal policy as presented in Kenya's Vision 2030, by establishing the precise quantitative nature of the impact of budget deficits on current account of the balance of payments, private consumption, private investment, money supply, treasury bills rate, and GDP growth rate.

The study, unlike most other studies that have only concentrated on establishing the effects of budget deficits on selected macroeconomic variables (Funke and Nickel, 2006; Easterly, *et.al*, 1994; Koori, 1992; Islam and Wetzel, 1994; Drakos, 2001; Kosimbei, 2002; Wagacha, 1999; Catao and Terrones, 2003), has gone further to describe the budgeting process in Kenya, explain the sources of budget deficits, and investigate the various methods used by the government of Kenya to finance budget deficits.

In order to meet the objectives of the study, data on various macroeconomic variables were collated for the period 1963 to 2007 from various sources that included Kenya government documents such as Economic surveys, Statistical abstracts, Sessional papers and policy documents.

The first objective of the study was to describe the budgeting process in Kenya. Several budget institutions involved in the development of the government budget were identified. They include Parliament, Executive, the major economic actors, citizens, and development partners. The budget process reform saw the introduction of the Medium Term Expenditure Framework (MTEF) approach, which aimed at linking policy objectives and resource planning and allocation. The main objective was to make public expenditure trends in Kenya be consistent with the objectives of achieving sustained economic growth and poverty reduction. This approach has achieved the following: linking policy making to planning and budgeting, maintaining and facilitating expenditure priorities across policies. However, fiscal discipline has not been maintained because expenditures have been on an upward trend creating budget deficits.

The second objective of the study was to establish the sources of budget deficits in Kenya. Two sets of causes led to budget deficits. The first are structural factors determined by the type of economy and its relationship with the external economies. The second set of causes stems from the implementation of government expansionary policies that led to sharp increase in expenditures.

The third objective of the study was to investigate the methods of financing budget deficits. The study has shown that the government has not been borrowing substantially from external sources. The government resorted to borrowing from the domestic economy between 1981 to 1992 by selling treasury bills and bonds, facilitated by the existence of a fairly well developed financial intermediation system. However, remarkable improvement in tax revenue after 2003, led to a decline in short term borrowing and introduction of long term borrowing instruments.

The forth objective was to analyze the macroeconomic effects of budget deficits in Kenya. Since it was not possible to directly estimate the relationship between the budget deficits and the selected macroeconomic variables using ordinary least squares technique (OLS), it prompted the use of Vector autoregressions (VAR). The VAR method captured the evolution of the interdependencies between multiple time series, generalizing the univariate autoregressive (AR) models. All the variables in the VAR were treated symmetrically by including an equation explaining evolution of each variable based on its own lags and the lags of all the other variables in the model. The VAR employed yielded impulse response functions and variance decomposition analysis, which suggested that the budget deficits have a significant effect on the selected macroeconomic variables that lasted for a long period of time (Usually more than five years). A one standard deviation shock on budget deficits for instance, would have an effect on treasury bill rates, private investment and real GDP growth that would last for twelve, fifteen and thirteen years before fizzling out, respectively.

Finally, Johansen cointegration tests revealed a long run relationship between budget deficits and current account of the balance of payment, private investment, private consumption, money supply, treasury bills rate and economic growth.

5.3 Conclusions

The study concludes that budget deficits have a significant effect on macroeconomic performance. Part of the reason why budget deficits exist is because of the budgeting process, which is prone to abuse by both Parliament and the Executive. Parliament for instance, is charged with the task of scrutinizing the budget, a task which is not done properly because Parliament may at times be compromised by the executive as in the case of allowance and pay hikes, which demonstrates that parliamentarians have their own vested interest. The scrutiny of revenues and expenditure proposals is also marred by lack of quorum in parliament during the financial bills' debate. Furthermore, Parliament has no capacity to ensure that resources in the budget are used to maximize the benefits to Kenyans. This shows that as far as budgeting is concerned, Parliament is a weak citizens' representative.

Besides, the Executive has lost public integrity due to the numerous corruption cases; hence attendance to public hearings of the budget outlook paper is boycotted. The citizens, on the other hand remain rationally ignorant other than invest their time and other resources in obtaining and sorting out information about public issues in order to make more informed voting decisions. This explains why citizens are compromised

to vote for politicians whose agenda is to advance their own personal interests other than the common interest of the citizens.

In addition to fiscal indiscipline associated with inefficient budgeting process, the following have been identified in this study as being responsible for aggravating budget deficits in Kenya: level of economic development, growth of government revenues, instability of government revenues, and the extent of government participation in the economy.

5.4 Policy Implications

In the light of the research findings, Kenya's fiscal policy has been characterized by large budget deficits which have adverse effects on macroeconomic performance. Therefore, the following are the policy implications to remedy the situation.

The Kenyan citizens together with other stakeholders should be sensitized on the importance of scrutinizing the budget before it is presented as required in the budgeting process. This calls for nationwide advocacy campaigns conducted by the Treasury and the Ministry of Planning, which would further inform the citizens and other stakeholders of their key role in the budgeting process.

The Executive and Parliament should play their assigned roles in the budgeting process to ensure that individual interests do not override national interests in the budgeting process. The treasury should avoid budgeting on the basis of political

pressure, and consider the solid budget constraint of the government to achieve optimality. The excesses of the Executive and Parliament can be checked through constitutional, judicial and parliamentary reforms.

The government should contain the growth in its expenditures by establishing a secretariat that monitors the use of public funds and further strengthen the use of results oriented budgeting.

The government revenue sources should be diversified by introduction of more innovative ways of financing the budget. For instance, infrastructure should be funded in partnership with the private sector under public private partnerships (PPPs) or through pension funds. This would ensure efficiency in resource use given that in such modes of financing, long term benefits are greater than long term costs.

The government should work on improving its credit rating, so as to focus on foreign financing, because unlike domestic financing, it does not increase domestic interest rates.

There is need to have a prudent fiscal policy so as to avoid budget deficit and ensure that the economy is not adversely affected.

The budgeting team could consider adopting a detailed performance based budget for its annual and subsequent budgets, which would provide details on spending.

There needs to be a further study that would estimate the coefficients of the determinants of budget deficits in Kenya. This study would generate more light in the area of fiscal policy since it would lead to understanding of the determinants of budget deficits in the Kenyan case.

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APPENDICES

Appendix I: Raw and refined data

Table A.1 Basic Data

Year	Budget Deficits	Current Account Balance	Private Consumption	Private Investment	Lending Rates	Money Supply (M1)	Money Supply (M2)	Gross Domestic Product	Treasury Bill Rates	GDP Deflator
1963	3.4	-12.1	1104	637				6441		6.8
1964	52.6	-8.5	1176	903				7120		7.2
1965	-81.2	-19.3	1312	930				7139		8.3
1966	-84.2	-34.3	1408	1224		1333		8224		9.6
1967	-26.4	-37.8	1496	1644		1410		8751		10.16
1968	-65.4	-31.5	6347	1790		1627	2317	9595		10.258
1969	-103.2	-49.2	6593	1875		1800.75	2748	10416	3.95	10.554
1970	290.8	-87.3	7292	2254		2226.03	3505	11499	2	10.85
1971	-265.8	-62.9	8153	2884	9	2371	3769	12845	1.42	11.343
1972	-446	-50.4	9002	3302	9	2803.51	4295	13776	3.448	7.05
1973	-611	-147.9	10848	3645	9	3449.49	5356	15790	1.917	7.564
1974	-312	-124.6	12554	4075	9.5	3390.31	5819	18776	4.63	8.862
1975	-832	158.9	16240	4837	10	3885.05	6814	21140	6.078	9.649
1976	-1040	1.7	17908	5808	10	4858.03	8455	25562	5.542	10.901
1977	-1091	109.7	20680	7800	10	7006.14	12527	32699	2.128	8.817
1978	-727	-575.5	24977	10280	10	7878.36	14155	35601	4.286	12.937
1979	-2100	-474	28896	10809	10	9177.53	16011	39543	6.008	9.419
1980	-1790	914.1	32178	12451	10.583	8433.75	16136	44648	5.258	10.23
1981	-3149	641.3	27203	14508	12.417	9404.17	18281	51641	7.606	11.162
1982	-4525	-422	44612	13364	14.5	10634.9	21370	58214	12.58	12.364
1983	-3002	-214	48734	14349	15.833	11472.7	22426	66218	14.15	13.485
1984	-3995	-266.5	56481	16143	14.417	13095	25293	72550	13.243	14.637
1985	-5796	-278.7	58435	17631	14	12922.7	26898	100831	13.901	16.486
1986	-4707	-235.2	70385	23064	14	17522	35694	117472	13.225	17.926
1987	-9064	-660.1	81654	25735	14	18916.5	39667	131169	12.862	18.895
1988	-8004	-729.5	94127	30359	15	19159.9	42856	151194	13.477	20.507
1989	-14405	-961.9	111149	33156	17.25	21646.6	48393	171589	13.858	22.231
1990	-9943	-915.2	121655	40560	18.75	27528.7	58099	195536	14.783	24.315
1991	-9322	-511.9	139437	42670.8	18.998	31666.8	69471	224232	16.593	27.487
1992	-8192	-500.2	178571	43776.8	21.068	46576.8	96579	264475	16.527	32.682
1993	-19229	-247	210596	56505.2	29.989	59322.2	123654	333616	49.798	41.08
1994	-17510	-238.4	250098	75616.2	36.24	62406.6	162541	400700	23.315	48.075
1995	2693	-738.1	322622	99497.2	28.796	66524.5	189188	465654	18.288	53.51

Year	Budget Deficits	Current Account Balance	Private Consumption	Private Investment	Lending Rates	Money Supply (M1)	Money Supply (M2)	Gross Domestic Product	Treasury Bill Rates	GDP Deflator
1996	-690	-510.3	360177	110142	33.787	76237.6	238678	687998	22.251	75.912
1997	-7918	-774	431324	118535	30.245	89487.1	278606	770312	22.868	84.592
1998	-5304	-1011.7	513249	133366	29.49	93489.1	309707	850808	22.833	90.455
1999	-7191	-975.1	712664	141403	22.38	109067	324415	906928	13.874	94.269
2000	3214	-1261.7	757727	161714	22.339	118672	340337	967838	12.05	100
2001	-37185	-1346.9	811793	185186	19.666	125670	349909	1020020	12.597	101.552
2002	-33813	-997	814361	178466	18.453	149130	390857	1035370	8.948	102.521
2003	-50711	-1142.6	875154	179254	16.573	193130	437457	1138060	3.505	109.479
2004	-21054	-1629.9	965528	207196	12.5317	209368	547121	1286460	3.168	117.766
2005	-13518	-2168.3	1077071	264912	12.883	230845	497379	1445480	8.426	125.164
2006	-14971			309402	13.636	291741		1642400	6.734	134.027
2007				309781	13.973					

Sources: Republic of Kenya. Economic Survey (various issues). Nairobi: Government Printer.

Republic of Kenya. Statistical Abstract (various issues). Nairobi: Government Printer,

International Monetary Fund. (2007). *International Financial Statistics.* Vol. LV, Number 2. Washington, DC: International Monetary Fund.

Table A.2 Refined Data

Year	Growth in Budget Deficits	Growth Current Account Balance	Growth in Private Investment	Growth in Lending Rates	Growth in Money Supply (M1)	Growth in Money Supply (M3)	Growth in Private Consumption	Growth in GDP	Growth in Treasury Bill Rates
1963									
1964	1447.059	-29.7521	41.75824				6.521739	4.400628	
1965	-254.373	127.0588	2.990033				11.56463	-13.0215	
1966	3.694581	77.72021	31.6129				7.317073	-0.40155	
1967	-68.6461	10.20408	34.31373		5.776444		6.25	0.543062	
1968	147.7273	-16.6667	8.880779		15.39007		324.2647	8.59712	
1969	57.79817	56.19048	4.748603		10.67916	18.60164	3.875847	5.511937	
1970	-381.783	77.43902	20.21333		23.61683	27.54731	10.60215	7.3857	-49.3671
1971	-191.403	-27.9496	27.95031		6.512491	7.532097	11.80746	6.850323	-29
1972	67.79533	-19.8728	14.49376	0	18.24167	13.95596	10.41334	72.55512	142.8169
1973	36.99552	193.4524	10.38764	0	23.04183	24.70314	20.50655	6.830828	-44.4026
1974	-48.9362	-15.7539	11.79698	5.555556	-1.71562	8.644511	15.7264	1.494082	141.5232
1975	166.6667	-227.528	18.69939	5.263158	14.59277	17.09916	29.36116	3.407335	31.2743
1976	25	-98.9301	20.07443	0	25.04421	24.08277	10.27094	7.030071	-8.81869
1977	4.903846	6352.941	34.29752	0	44.21772	48.16085	15.47912	58.15581	-61.6023
1978	-33.3639	-624.613	31.79487	0	12.44937	12.99593	20.77853	-25.7981	101.4098
1979	188.8583	-17.6368	5.145914	0	16.49036	13.11197	15.69044	52.55843	40.17732
1980	-14.7619	-292.848	15.19104	5.83	-8.10436	0.780713	11.35797	3.958872	-12.4834
1981	75.92179	-29.8436	16.52076	17.32968	11.50639	13.29326	-15.4609	6.004975	44.65576
1982	43.69641	-165.804	-7.8853	16.77539	13.08707	16.89733	63.99662	1.769073	65.39574
1983	-33.6575	-49.2891	7.370548	9.193103	7.877836	4.941507	9.239666	4.293361	12.48013
1984	33.07795	24.53271	12.50261	-8.94335	14.14052	12.78427	15.8965	0.939288	-6.40989
1985	45.08135	4.577861	9.217618	-2.89242	-1.31577	6.345629	3.45957	23.39383	4.968663
1986	-18.7888	-15.6082	30.81504	0	35.59086	32.70132	20.45007	7.14507	-4.86296
1987	92.56427	180.6548	11.58082	0	7.958566	11.13072	16.01051	5.933505	-2.7448
1988	-11.6946	10.51356	17.96775	7.142857	1.286707	8.039428	15.27543	6.205771	4.781527
1989	79.97251	31.85744	9.213083	15	12.97867	12.92001	18.08408	4.688269	2.827039
1990	-30.9754	-4.85497	22.3308	8.695652	27.17332	20.05662	9.452177	4.189033	6.674845
1991	-6.2456	-44.0669	5.204142	1.322667	15.03195	19.57349	14.61674	1.441998	12.24379
1992	-12.1219	-2.2856	2.591936	10.89588	47.08401	39.0206	28.06572	-0.80135	-0.39776
1993	134.729	-50.6198	29.07567	42.34384	27.36427	28.03404	17.93404	0.355328	201.313
1994	-8.93962	-3.48178	33.82167	20.84431	5.199403	31.44823	18.75724	2.632194	-53.1809
1995	-115.38	209.6057	31.58186	-20.5408	6.598501	16.39402	28.99823	4.406692	-21.5612
1996	-125.622	-30.863	10.69859	17.33227	14.60079	26.15916	11.64056	4.147381	21.66995
1997	1047.536	51.67549	7.620163	-10.4833	17.37922	16.72881	19.75334	0.475605	2.772909
1998	-33.0134	30.71059	12.51192	-2.49628	4.472153	11.16308	18.99384	3.290794	-0.15305

Year	Growth in Budget Deficits	Growth Current Account Balance	Growth in Private Investment	Growth in Lending Rates	Growth in Money Supply (M1)	Growth in Money Supply (M3)	Growth in Private Consumption	Growth in GDP	Growth in Treasury Bill Rates
1999	35.57692	-3.61767	6.026274	-24.1099	16.6628	4.749005	38.85346	2.283345	-39.2371
2000	-144.695	29.39186	14.36391	-0.1832	8.806513	4.907911	6.323176	0.60018	-13.1469
2001	-1256.97	6.752794	14.51451	-11.9656	5.896926	2.812506	7.135288	3.780925	4.539419
2002	-9.06817	-25.9782	-3.62878	-6.16801	18.66794	11.70247	0.316337	0.545477	-28.9672
2003	49.97486	14.60381	0.441541	-10.188	29.50446	11.92252	7.465117	2.93228	-60.8292
2004	-58.4824	42.64835	15.58794	-24.3848	8.407808	25.06852	10.32664	5.085314	-9.61484
2005	-35.7937	33.0327	27.85575	2.803291	10.25801	-9.09159	11.55254	5.71979	165.9722
2006			16.79426	5.844912	26.37961			6.109431	-20.0807

Source: Derived from data analysis

Appendix II: Diagnostics and VAR Results

Table A.3 Unit Roots Tests Results

Variables			Unit Root Tests			
			ADF test		PP test	
			Statistic	Critical Value (5%)	Statistic	Critical Value (5%)
Growths Budget Deficits	Levels	Constant	-3.8833*	-2.9399	-8.5753**	-2.9339
		Constant and Trend	-3.9685*	-3.5312	-8.3818**	-3.5217
Growths Current Account (BOP)	Levels	Constant	-3.2982*	-2.9399	-7.2133**	-2.9339
		Constant and Trend	-3.3927*	-3.5312	-7.2088**	-3.5217
Growths Gross Fixed Capital Formation	Levels	Constant	-3.8987**	-2.9378	-5.9292**	-2.9320
		Constant and Trend	-3.9622**	-3.5279	-5.8955**	-3.5189
Growths M3	Levels	Constant	-2.0232	-2.9527	-4.5402**	-2.9446
		Constant and Trend	-2.1764	-3.5514	-4.6123*	-3.5386
Growths Lending Rates	Levels	Constant	-1.7761	-2.9591	-4.3839**	-2.9499
		Constant and Trend	-3.3697	-3.5514	-3.3697	-3.5514
Growths Treasury Bill Rates	Levels	Constant	-2.7173	-2.9527	-7.6679**	-2.9446
		Constant and Trend	-3.3491	-3.5514	-8.1272**	-3.5386
Growths Private Consumption	Levels	Constant	-3.4740**	-2.9399	-6.94675**	-2.9339
		Constant and Trend	-4.4573**	-3.5312	-7.352989**	-3.5217
Growths Private Investment	Levels	Constant	-3.51161**	-2.9527	-4.484575**	-2.9446
		Constant and Trend	-3.5869**	-3.5514	-4.50440**	-3.5386
Growths M1	Levels	Constant	-3.3356**	-2.9446	-6.1425**	-2.9378
		Constant and Trend	-3.28009	-3.5386	-6.0526**	-3.5279
Growths Nominal Exchange Rates	Levels	Constant	-2.4592	-2.9378	-6.6833**	-2.9320
		Constant and Trend	-2.3228	-3.5279	-6.6731**	-3.5189
Growths Gross Domestic Product	Levels	Constant	-3.0188	-2.9378	-8.0064**	-2.9320
		Constant and Trend	-3.9933**	-3.5279	-8.2930**	-3.5189
Significant at 1 Percent (**) and 5 Percent (*)						

Source: Derived from Data Analysis

Table A.4: VAR Estimation Results

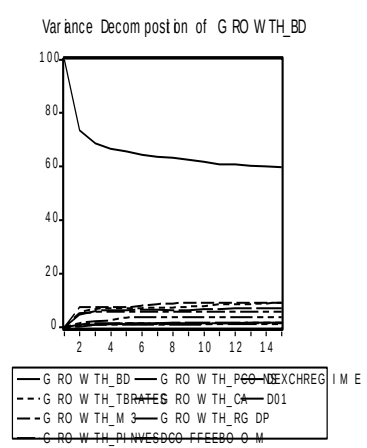
Equation		Budget Deficit	Current Account	Private Consumption	Private Investments	Real GDP	Treasury Bill rates	Money Supply	Coffee Boom	Exchange Rate Regime	Oil shock
Budget Deficit(-1)	Coefficient	0.001	-0.185	0.009	-0.010	-0.015	-0.046	-0.005	0.000	0.002	0.000
	Standard Error	-0.437	-1.226	-0.015	-0.012	-0.018	-0.064	-0.016	0.000	0.000	0.000
	t-statistic	-0.001	(-0.151)	-0.609	(-0.820)	(-0.820)	(-0.718)	(-0.285)	(-0.0417)	-0.768	(-0.448)
Budget Deficit(-2)	Coefficient	0.251	0.509	0.025	-0.008	-0.016	-0.044	-0.004	0.000	0.000	0.000
	Standard Error	-0.374	-1.048	-0.013	-0.011	-0.015	-0.054	-0.014	0.000	0.000	0.000
	t-statistic	-0.671	-0.486	-2.014	(-0.767)	(-1.020)	(-0.801)	(-0.287)	(-0.076)	-0.775	(-0.917)
Current Account(-1)	Coefficient	0.012	-0.387	0.005	-0.001	-0.008	0.003	0.000	0.000	0.000	0.000
	Standard Error	-0.134	-0.374	-0.004	-0.004	-0.004	-0.019	-0.005	0.000	0.000	0.000
	t-statistic	-0.091	(-1.033)	-1.066	(-0.246)	(-0.246)	-0.166	-0.014	(-0.172)	(-0.568)	-0.487
Current Account(-2)	Coefficient	0.029	0.002	0.000	-0.001	0.007	-0.002	0.000	0.000	0.000	0.000
	Standard Error	-0.110	-0.308	-0.004	-0.003	-0.005	-0.016	-0.004	0.000	0.000	0.000
	t-statistic	-0.261	-0.007	-0.007	(-0.210)	-1.495	(-0.107)	-0.080	-0.565	(-0.011)	(-0.023)
Private Consumption (-1)	Coefficient	-5.794	-19.347	-0.653	-0.098	-0.236	-0.045	-0.294	-0.004	0.002	0.001
	Standard Error	-7.614	-21.339	-0.256	-0.216	-0.314	-1.109	-0.276	-0.008	-0.005	-0.004
	t-statistic	(-0.761)	(-0.907)	(-2.55)	(-0.454)	(-0.752)	(-0.041)	(-1.063)	(-0.455)	-0.516	-0.135
Private Consumption (-2)	Coefficient	-0.900	5.195	-0.181	-0.088	-0.277	-0.077	-0.033	-0.001	0.004	0.004
	Standard Error	-7.601	-21.300	-0.256	-0.216	-0.314	-1.107	-0.276	-0.008	-0.005	-0.004
	t-statistic	(-0.118)	-0.244	(-0.71)	(-0.409)	(-0.883)	(-0.069)	(-0.118)	(-0.186)	-0.870	-0.880
Private Investments(-1)	Coefficient	-14.754	-38.428	-0.124	-0.114	-0.039	-0.704	-0.243	-0.003	0.007	0.002
	Standard Error	-10.161	-28.476	-0.342	-0.289	-0.419	-1.479	-0.369	-0.010	-0.006	-0.006
	t-statistic	(-1.452)	(-1.349)	(-0.36)	(-0.394)	(-0.093)	(-0.476)	(-0.659)	(-0.307)	-1.115	-0.432
Private Investments(-2)	Coefficient	9.672	23.940	0.547	-0.435	-0.029	-1.239	0.121	0.000	-0.002	0.001
	Standard Error	-9.207	-25.803	-0.310	-0.261	-0.380	-1.341	-0.334	-0.009	-0.006	-0.005
	t-statistic	-1.051	-0.928	-1.766	(-1.662)	(-0.077)	(-0.924)	-0.361	-0.012	(-0.302)	-0.221
Real GDP(-1)	Coefficient	-2.380	-6.377	-0.352	0.160	0.042	0.157	-0.054	-0.001	0.000	-0.002
	Standard Error	-6.588	-18.461	-0.222	-0.187	-0.272	-0.959	-0.239	-0.007	-0.004	-0.004
	t-statistic	(-0.361)	(-0.345)	(-1.59)	-0.854	-0.153	-0.163	(-0.227)	(-0.173)	-0.051	(-0.545)
Real GDP(-	Coefficient	0.239	-4.699	-0.188	-0.097	-0.214	1.032	-0.061	-0.005	-0.002	0.001

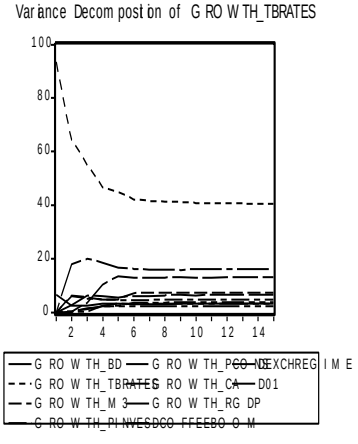
2)	Standard Error	-4.862	-13.626	-0.164	-0.138	-0.201	-0.708	-0.176	-0.005	-0.003	-0.003
	t-statistic	-0.049	(-0.345)	(-1.15)	(-0.700)	(-1.065)	-1.457	(-0.347)	(-1.027)	(-0.496)	-0.415
Treasury Bills rates(-1)	Coefficient	-0.135	-0.869	0.086	0.002	-0.105	-0.550	0.026	0.000	-0.001	0.001
	Standard Error	-1.768	-4.954	-0.059	-0.050	-0.073	-0.257	-0.064	-0.002	-0.001	-0.001
	t-statistic	(-0.078)	-0.175	-1.446	-0.039	(-1.440)	(-2.135)	-0.405	-0.007	(-1.094)	-0.848
Treasury Bills rates(-2)	Coefficient	-1.123	1.459	0.010	0.074	-0.014	-0.462	0.014	0.002	-0.002	0.000
	Standard Error	-1.879	-5.267	-0.063	-0.053	-0.078	-0.274	-0.068	-0.002	0.001	0.001
	t-statistic	(-0.597)	0.276	0.156	1.384	-0.175	-1.687	0.198	0.916	-1.312	0.332
Money Supply M3(-1)	Coefficient	17.659	-13.733	0.361	-0.055	-0.417	4.817	0.063	-0.007	0.013	-0.008
	Standard Error	-12.382	-34.701	-0.416	-0.352	-0.511	-1.803	-0.449	-0.013	-0.008	-0.007
	t-statistic	-1.426	(-0.395)	-0.867	(-0.157)	(-0.815)	-2.672	-0.140	(-0.524)	-1.662	(-1.147)
Money Supply M3(-2)	Coefficient	13.356	39.737	-0.122	0.581	1.128	1.248	0.611	0.003	-0.003	-0.012
	Standard Error	-11.801	-33.073	-0.397	-0.335	-0.487	-1.718	-0.428	-0.012	-0.007	-0.006
	t-statistic	-1.132	-1.202	(-0.31)	-1.734	-2.317	-0.727	-1.426	-0.221	(-0.373)	(-1.876)
Coffee Boom(-1)	Coefficient	-113.57	3954.84	-6.585	15.675	29.765	-146.029	18.313	0.556	-0.430	0.115
	Standard Error	-406.495	-1139.20	-13.673	-11.543	-16.777	-59.188	-14.754	-0.417	-0.253	-0.223
	t-statistic	(-0.279)	-3.472	(-0.49)	-1.358	-1.774	(-2.467)	-1.241	-1.335	(-1.699)	-0.515
Coffee Boom(-2)	Coefficient	-543.334	-1120.11	-9.157	4.389	-25.499	-35.422	-21.332	-0.177	-0.067	0.226
	Standard Error	-493.276	-1382.40	-16.592	-14.008	-20.358	-71.823	-17.903	-0.506	-0.307	-0.271
	t-statistic	(-1.101)	(-0.810)	(-0.56)	-0.313	(-0.125)	(-0.493)	(-1.192)	(-0.351)	(-0.218)	-0.834
Exchange Rate(-1)	Coefficient	-524.188	-711.538	-0.112	-9.756	-21.940	-78.498	14.771	-0.153	0.910	0.176
	Standard Error	-441.26	-1236.65	-14.979	-12.531	-18.212	-64.251	-16.016	-0.452	-0.275	-0.242
	t-statistic	(-1.188)	(-0.575)	(-0.01)	(-0.779)	(-1.205)	(-1.221)	-0.922	(-0.340)	-3.315	-0.728
Exchange Rate(-2)	Coefficient	203.845	663.529	-3.009	15.854	9.655	23.289	-18.309	0.063	-0.190	0.080
	Standard Error	-445.33	-1248.04	-14.979	-12.531	-18.379	-64.843	-16.163	-0.456	-0.275	-0.245
	t-statistic	-0.458	-0.531	(-0.20)	-1.254	-0.525	-0.359	(-1.133)	-0.138	(-0.686)	-0.326
Year2001(-1)	Coefficient	476.270	-28.542	-5.619	-30.711	-22.767	-28.415	-3.521	-0.142	0.554	-0.529
	Standard Error	-843.19	-2363.04	-28.361	-23.945	-34.799	-122.773	-30.603	-0.864	-0.525	-0.463
	t-statistic	-0.565	(-0.012)	(-0.19)	(-1.282)	(-0.654)	(-0.231)	(-0.115)	(-0.16457)	-1.056	(-1.141)
Year2001(-2)	Coefficient	384.796	103.648	10.731	-24.073	-18.006	-117.693	-7.011	-0.186	0.506	-0.503
	Standard Error	-753.67	-2112.18	-25.351	-21.403	-31.105	-109.739	-27.354	-0.772	-0.469	-0.414
	t-statistic	-0.511	-0.049	-0.423	(-1.125)	(-0.579)	(-1.072)	(-0.256)	(-0.241)	-1.079	(-1.214)

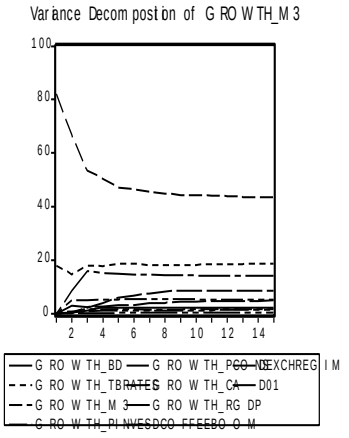
C	Coefficient	-127.394	107.483	24.462	13.635	14.905	-4.751	13.723	0.319	-0.143	0.121
	Standard Error	-341.746	-957.742	-11.495	-9.705	-14.104	-49.760	-12.404	0.350)	-0.213	-0.188
	t-statistic	(-0.373)	-0.112	-2.128	-1.405	-1.057	(-0.095)	-1.106	-0.912	(-0.672)	-0.643
Adj. R^2		0.374	0.650	0.618	0.618	0.717	0.713	0.456	0.313	0.917	0.443
F-Statistic		0.388	1.208	1.054	1.054	1.649	1.616	0.545	0.296	7.214	0.518
Akaike IC		14.944	17.005	8.160	7.821	8.570	11.090	8.312	1.178	0.180	-0.069
Schwarz IC		15.887	17.948	9.103	8.764	9.512	12.033	9.253	2.121	1.123	0.874

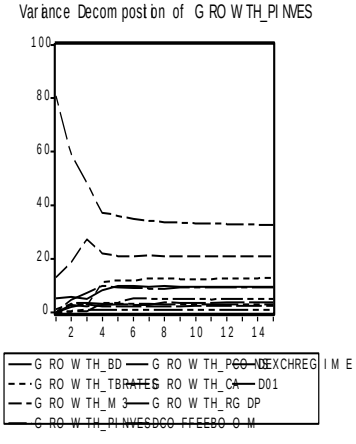
Source: Derived from Data Analysis

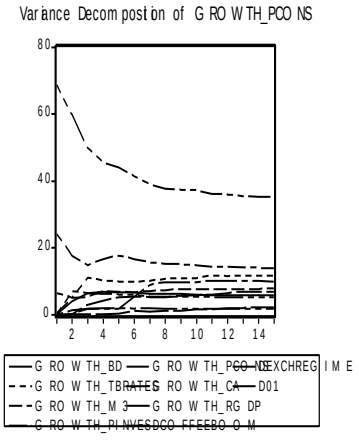
Figure A.I Variance Decomposition Graphs

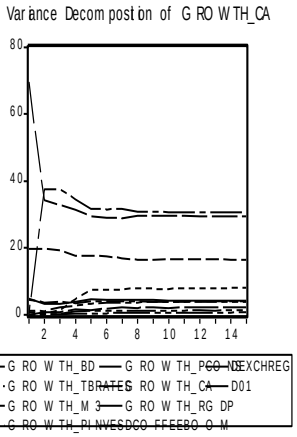


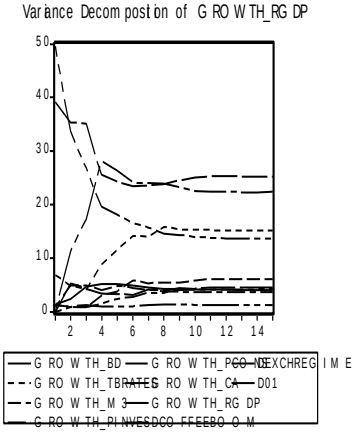






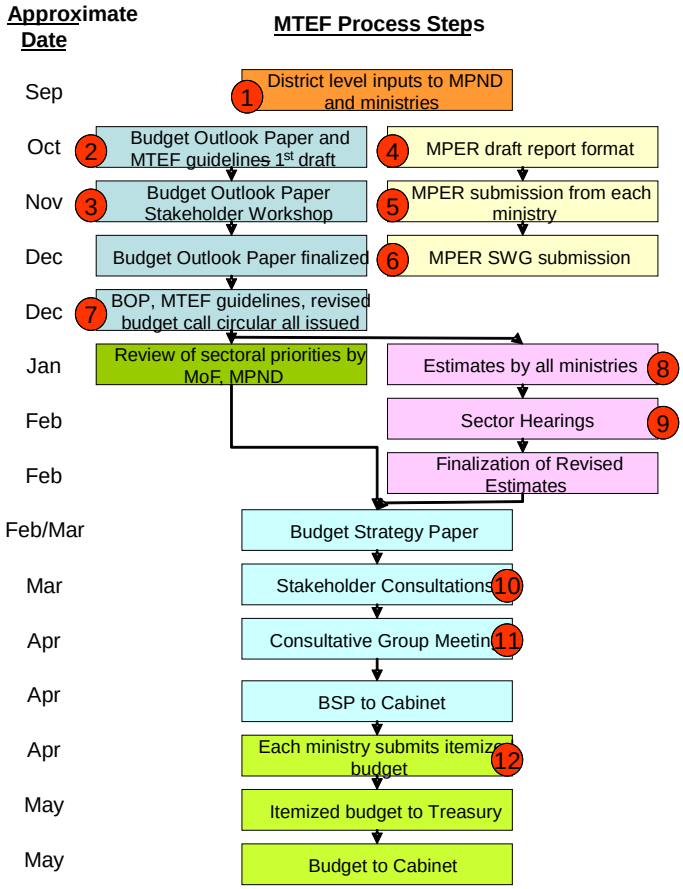






Appendix III: The Budgeting Process

Figure A.II The Budget Process



Key Intervention Points

1. Support districts with district level input to MPND and appropriate ministries
2. Comment on BOP and MTEF guidelines
3. Contribute to discussions on BOP with clear position paper
4. Provide input to MPER report format
5. Assist ministries in compiling MPER
6. Review and edit SWG MPER submission
7. Work with Treasury to ensure inputs into budget call circular. Hold sensitization sessions with ministry Central Planning Units and desk officers
8. Assist ministries with budget estimates as needed
9. Attend Sector hearings to advocate for inclusion of sufficient funds
10. Comment on draft BSP and attend meetings with clear position paper
11. Support attendees
12. Provide support on technical budgeting issues as required