

DETERMINANTS OF FISCAL PERFORMANCE IN KENYA

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DECLARATION

This Research paper is my original work and for the best of my knowledge it has not been submitted for examination in any other University.

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This research paper has been submitted for examination with our approval as University Supervisors.

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DEDICATION

The research project paper is dedicated to my late father, David Njoroge Kimani, my mum, lovely wife and daughter Kelcy Wanjiru.

ABSTRACT

The objective of this study was to analyze the determinants of fiscal performance in the Kenya. The study analyzed data for 1963 to 2012 which represented the sample size for the study using Unrestricted Vector Auto regression Analysis. A model on the determinants for fiscal performance in Kenya was also estimated.

The research established that real GDP per capita growth rate, the treasury bill rate, the total debt service as a proportion of total exports, inflation rate, tax revenue as a percentage of GDP, broad money to GDP, current account balance and gross government investment are jointly significant determinants of fiscal performance in Kenya.

We recommend that the Government should have measures aimed at reducing inflation rates that increases the cost of prices and affects the value of public consumption and subsequently public demand. We also recommend the promotion of local investment by maintaining a stable interest rate leading to increased private investment and increased tax revenues and subsequently improved revenues for the Government .Finally, we recommend re-evaluation of the financial industry or sector by introducing conditions to control lending and consequently utilize available monetary policies to keep money supply in control.

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DEFINITION OF TERMS

Fiscal performance	The difference between government revenue and government expenditure.
Fiscal vulnerabilities	Conditions that cause a country to be exposed to adverse effects stemming from unfavourable fiscal performance.
Fiscal deficit situation	Where Government expenditure exceeds revenue.
Fiscal surplus	Situation where government revenue exceeds expenditure.
Seignorage	The process of printing currency to finance expenditures in situations where a government runs a deficit. A form of deficit financing.

ABBREVIATIONS

ADF	Augmented Dickey Fuller
BOP	Balance of Payments
GDP	Gross Domestic Product
GOK	Government of Kenya
MTEF	Medium Term Expenditure Framework
SAP	Structural adjustment programmes
IMF	International Monetary Fund
TB	Treasury bill
OECD	Organization of Economic Cooperation and Development
VAR	Vector Autoregressive model

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Fiscal deficit is defined as excess of government total expenditure over its income; hence a government injects more money into the economy than it gets by taxation, in the belief that increased business activity will bring enough additional revenue to cover the shortfall. It is also referred to as deficit spending or simply put, debt to cover excess of expenditure over income. When the outlay of a government (its purchases of goods and services, plus its transfers (grants) to individuals and corporations, in addition to its net interest payments) exceed its tax revenues, the government budget is said to be in deficit (Black, 1997).

Fiscal performance is a framework within which policy is successfully conducted in open economies to promote internal (price stability and full employment) and external equilibrium (sustainable balance of payments). Sound fiscal policy is a critical determinant of long-term economic success and requires governments to balance their financial affairs and avoid imposing a tax burden which becomes a disincentive for people to work hard, save, invest, and be entrepreneurial, while still ensuring adequate and efficient public services (Küttel, & Kugler 2000).

Improving fiscal performance by reducing budget deficits has for long been at the heart of many governments due to the negative consequences such as, high inflation arising mainly from increased money supply by the government to pay off debt, over indebtedness from increased borrowings that has resulted to huge amounts of principal and interest repayments, decreased sovereignty as a result of impositions of Structural Adjustment Programmes (SAP) by donors and crowding out of the private sector as a result of increased domestic borrowings, all of which have resulted to slower economic growth in most developing countries (Kosimbei, 2009).

Miller (1983) points out that budget deficit in all cases (whether monetized or not) tends to generate inflationary pressures in an economic system. Majority of developing nations have had a dismal performance by attracting negative budget balances over the years.

Over the last few years, internationally, public finance has been characterised by rising deficits and public debt. In a bid to achieve the goal of sustainable public finances (as well as reduced national debt levels), many countries have adopted some form of fiscal rules. However, a government with strong reputation of fiscal prudence does not necessarily need to be constrained by any such fiscal rules and consequently fiscal prudence does provide a useful framework for which fiscal policy ultimately contribute to macroeconomic stability and eventual economic growth.

Fiscal vulnerabilities have increased in a number of countries, notably in Ghana and Zambia. In both countries, spending has been growing at unsustainable levels. In Zambia civil servants' wages increased sharply in 2013. In Ghana, twin deficits (fiscal and current account) in the context of weak foreign reserves will make 2014 particularly challenging, and in some countries facing elections (for example, Malawi and Nigeria) policy uncertainty could rise amid intensifying spending pressures. In countries with high debt levels, such as Cape Verde, The Gambia, and Seychelles, there is relatively limited room to manoeuvre in the face of shocks (IMF Regional Economic Outlook, 2014).

Historically, the government of Kenya has had a mixed fortune in terms of fiscal performance. The Country has had budget deficits since independence which is mainly attributed to over expenditures due to dwindling resources brought about by poor macroeconomic performance, among other causes. This has contributed to the weak overall development performance, and high public debt and the associated high interest rates.

The Government of Kenya like most developing countries has for the past several years been a perpetual victim of poor fiscal performance leading to budget deficit. However, over time, the government has adopted several strategies aimed at reducing the budget deficits so as to attain surplus. The strategies include measures to widen the tax base and various austerity measures to cut down on recurrent expenditures (Republic of Kenya, 2010).

1.2 Kenya Fiscal Performance Trends

Kenya has continued with her structural reforms since 1990 in such areas as privatization of state Owned enterprises, civil service reforms aimed at reducing the number of those employed in the public sector and improving efficiency and delivery of service. These reforms however, have not proved successful, as the country has been experiencing a rise in

the stock of debt coupled with poor debt repayment level and declining economic growth. Table 1.1 illustrates the trend of Kenya's fiscal performance for selected years.

Table 1.1 : Kenya Fiscal Performance Trends

Year	GDP Growth Rate	Revenue (excluding Grants % of GDP)	Government Spending (% of GDP)	Govt Budget Balance(% of GDP)Deficit/surplus (Including Grants)
1990	4.19	18.9	18.64	-2.4
1991	1.44	19.5	16.77	-2.76
1992	-0.8	20.6	15.68	-1.61
1993	0.35	16.6	14.48	-0.19
1994	2.63	21.5	15.15	-3.41
1995	4.41	17.5	14.84	-5.07
1996	4.15	17.5	15.18	-0.78
1997	0.47	18.5	15.54	-0.58
1998	3.29	17.1	16.25	-0.76
1999	2.31	19.64	15.75	1.2
2000	0.6	19.6	15.05	1.98
2001	3.78	19.05	15.97	2
2002	0.55	21.9	17.08	1.99
2003	2.93	16.7	18.13	-2.2
2004	5.1	19.9	17.86	-1.47
2005	5.91	20.22	17.38	-1.9
2006	6.33	18.35	17.57	-2.7
2007	6.99	18.73	17.88	-3.1
2008	1.53	19.4	16.48	-4.1
2009	2.74	19.66	16.23	-5.3
2010	5.76	20.31	17.61	-5.87
2011	4.38	23.2	28.8	-5
2012	4.3	23.2	29.9	-6.2
2013	4.4	24	30.9	-5.5

Source: World Bank, World Development indicators, IMF regional outlook report for sub Saharan Africa, 2014).

As shown in table 1, Kenya Government spending has been fluctuating in the period under review. The lowest figure is 14.48% of GDP recorded in 1993. This can be attributed to the introduction of fiscal reforms in spending. The highest percentage recorded is in 1990.

The average fiscal performance averaged -1.88 % of GDP over the period with the highest mark being 2% of GDP in 2001. In the Year 2012, fiscal deficit averaged 6.2% of GDP

inclusive of grants while in 2013, Kenya fiscal performance was a dismal figure of -5.5% of GDP.

In the fiscal year 1990/91, budget balance/deficit as a proportion of GDP stood at 2.76%. The balance improved to 0.19% of GDP in the fiscal year 1993. There was a big improvement as seen in the year 2001 where the same averaged a positive 2% indicating a surplus. The worst budget balance recorded was in the year 2010 at 5.87% of GDP. This can be attributed to the introduction of many institutions and programmes geared towards implementation of the new Constitution in 2010.

Kenya has experienced a fluctuating fiscal deficit since early 1990s. This has mainly been caused by the government's increased expenditure to provide for public investment and public consumption. Despite the upward trend in both revenue and expenditure over the period 1990 to 2013, expenditure exceeded revenue in most of the years. During the mid-1990s to 2007, the government was able to contain the huge public consumption. This meant that although there were fluctuations in fiscal balance, the government was able to contain a huge increase in expenditure. This could be attributed to the reform measures implemented during the later half of the 1990s, such as rationalization of public service delivery and prudent financial management. During the period 1997 to 2007, the government was able to register some fiscal surpluses.

In the year 2001/02 financial year, total Government expenditure was recorded to be Ksh. 308 Billion with revenue amounting to Ksh. 188 billion. The Country also incurred domestic debt totalling to Ksh. 214 billion. The deficit was financed purely from local sources (Republic of Kenya, 2003).

In financial year 2009/10, Central Government revenue (including grants) was expected to record a 15.3% increase to stand at KSh612.6 billion in 2009/10. Revenue (including grants) as a percentage of GDP was expected to rise to 27% in 2009/10. The fiscal deficit was expected to widen, necessitating increased short term and long term domestic financing by 30.3% and 53.2%, respectively. The stock of total outstanding debt as at 30th June 2009 amounted to Ksh. 889.9 billion compared to Ksh. 748.5 billion owed one year earlier (Republic of Kenya, 2010).

Table 2: Yearly Government Expenditure

Year	Government Expenditure (Ksh)
2011	1.2 trillion
2010	922.6billion
2009/10	805.3billion
2008/09	773billion
2007/08	658billion

Source: Republic of Kenya (2012)

In the fiscal year 2011 as shown in Table 2, overall Government expenditure stood at Ksh. 1.2 trillion compared to Ksh. 922.6 billion in 2010/11. Total budgeted recurrent expenditure increased from Ksh. 706.4 billion in 2010/11 to Ksh. 787.9 billion in 2011/12. Development expenditure increased from Ksh. 216.1 billion in 2010/11 to Ksh. 377.6 billion in 2011/12. The stock of Central Government outstanding public debt increased by 22.2 per cent from Ksh 1.1 trillion as at June 2010 to 1.3 trillion as at June 2011. Domestic debt stood at Ksh. 624.8 billion and accounted for 47.2 per cent of the total debt External debt stood at Ksh. 697.8 billion. The ratio of total debt to GDP stood at 43.7 per cent in 2011 compared to 42.5 per cent in 2010. This ratio was within the GoK medium term debt sustainability framework as at that time. ((Republic of Kenya, 2012)

1.3 Fiscal Reforms in Kenya

In the 1990s, the government maintained a relatively tight fiscal stance ,inflation fell sharply from its peak of around 60% per annum in early 1994 and remained in single digits throughout the remainder of the decade. By mid 2000s, however inflation was once more starting to drift upwards and accelerated it from 2007.

In the 1990s, the major monetary policy instrument the system relied upon was the Open market operations. In the wake of the withdrawal of aid funding prior to the 1992 election, the government sold treasury bills to fund the fiscal deficit. The Treasury Bill (TB) rate became the main determinant of bank lending rates, not least because investments in the real economy had become more risky relative to high TB rates with risk free returns.

During this period a number of tax reforms were introduced which included the detachment of the department of revenue collection from the National Treasury. This led to the formation of the Kenya Revenue Authority as an independent Tax Collection agency of the Government.

There were a number of other reforms in the light of planning and budgeting for resources. The key one was the adoption of the Medium term expenditure framework. This formed part of the requirements that the development partners insisted the Government adopts to facilitate smooth flow of donor aid. The reforms in the budget process entailed setting realistic 3 year targets in terms of expenditure and revenue. It also entailed aiming at key priorities in terms of Government funding priorities for the medium term period (Government of Kenya, 2003).

The Government continued to tighten fiscal policy with the objective of reducing domestic debt thereby reducing pressure on interest rates. The overall deficit on a commitment basis (excluding grants) was programmed to decline from 6.2 per cent of GDP in 2002/03 to 3.7 per cent by 2005/06, allowing for a decline in net domestic borrowing from 4.2 per cent of GDP in 2001/02 to a net domestic debt repayment by 2005/06. Net external borrowing rose from negative 1.4 per cent of GDP in 2001/2002 to 3.4 per cent in 2005/2006 (GOK, 2003) implying that fiscal deficit was rising hence the need for more borrowing.

1.4 Fiscal Performance and Fiscal Policy in Kenya

Fiscal performance refers to the overall government performance in terms of revenue and expenditure which assess its public debt sustainability and sovereign risks. It also assists in the choice of policy interventions that guide a country's growth process, while maintaining sustainable debt levels (Talvi & Végh, 2000).

A country's fiscal performance is important in assessing its public debt sustainability and sovereign risks. Fiscal performance assists in the choice of policy interventions to guide a country's growth process, while maintaining sustainable debt levels. Kenya has transited through periods of poor fiscal performance especially in the 1980s up to mid-1990s, and it experienced improved fiscal performance in the 2000s.

A healthy fiscal performance is hinged on various factors such as gross domestic product, per capita income, tax revenue, government consumption, public investment, terms of trade, stock of public debt, and current account balance. All these factors, if not well monitored, might impact adversely on the fiscal performance of a country, leading to the problem of fiscal unsustainability.

Several variables have been used to measure fiscal performance. Stein *et al.* (1998), in their analysis of institutional arrangements and fiscal performance, describe fiscal performance in terms of a country's debt to revenue ratio, fiscal deficit and the size of the public sector. Some countries approach fiscal performance through a set of fiscal rules. This entails setting numerical targets on budgetary aggregates such as government deficit, debt and government spending and working towards achieving those targets that have upper limits (Von Hagen, 2006). Although Kenya has not had strict fiscal rules, it has always set targets for government deficit, expenditure and debt. This gained ground when the Medium Term Expenditure Framework (MTEF) was adopted in the year 2000 under the wider public expenditure management reforms (Government of Kenya, 2003). Though this reduced the huge deficit experienced in the 1980s and 1990s, the deficit has not been fully contained and it keeps on fluctuating.

In this study, fiscal performance is measured through the country's fiscal balance expressed as a ratio of gross domestic product. Fiscal balance is given as the difference between government revenue and government expenditure. The advantage of using fiscal balance to GDP ratio as an indicator of fiscal performance is that policy makers are interested in flow variables other than stock variables and can be monitored over time. It can also be used as a policy target with a limit which, if not exceeded by the government, then the fiscal situation of the economy would be deemed to be sustainable.

Fiscal policy not only plays an important role in macroeconomic stabilization, it also ensures sustainable economic growth. The possibility that fiscal policy decisions in a democracy are biased towards deficit finance and excessive spending with targeted benefits and diverse costs has been recognized at least since the studies by Buchanan and Wagner (1977) or Weingast, Shepsle and Johnson (1981). In order to tackle problems of mounting public deficits created by an "unsustainable" fiscal policy in the 1970s and 1980s many governments have implemented statutory limitations to balance their budgets (Poterba, 1997

The Government of Kenya depends heavily on taxes as her source of revenue. The tax rate in Kenya is among the highest in developing countries and, therefore, does not provide room for increased revenue generation through tax adjustment. On the other hand, the proportion of government non-discretionary expenditure is high, meaning that there is little the government can do to firmly contain the escalation of fiscal deficit. At the same time, the government is supposed to spend more on building productive infrastructure that would support private sector investment.

The current Government was elected on the basis of its campaign manifesto which promised a number of benefits to the public once it was elected. The promises included free health care, free laptops for all the kids joining standard one and soft funding for youth and women enterprises. It also promised to build close to an additional 13,000 kms of tarmac road among other benefits. All these call for more prudent fiscal management and efficient management of public expenditures in the short term to control the budget deficits.

Many developing countries like Kenya have been unable to constrain the growth of their public domestic debt to ensure sufficient revenues remain available after debt service payments to finance other vital government recurrent and development expenditures. Stagnating real revenue receipts, unending expenditure pressures and reduced external donor support especially in the 1990s among other factors, have resulted in accumulation of high stocks of domestic debt in developing countries. According to the IMF (2007), domestic debt accounted for 23 percent of total debt in sub-Saharan Africa between 1995 and 2000, up from an average of 20 percent between 1990 and 1994. Furthermore, the domestic debt to GDP ratio for these countries increased considerably from 12 percent to 16 percent in the same period.

Excessive domestic borrowing could also crowd out private sector investment as the government competes with the private sector for private savings. This is more so in developing countries like Kenya where national savings are quite low compared with those of developed countries. Christensen (2005) examined the domestic debt crowding-out effect on private sector credit for 27 sub-Saharan countries, including Kenya, and found significant evidence for the period 1980 to 2000.

Governments incur domestic debt for a number of various reasons. One of the major reasons is to finance the budget deficit when the government is not able to meet its expenditure commitments using domestically raised revenue and externally sourced grants and borrowing.

Similarly, the burden of debt to GDP has been recorded at over 54% of GDP way above the conventional level of 45% of GDP for the financial year 2014/15. The Government has already borrowed over Ksh. 1. 2 trillion in domestic markets and hence the policy direction now is to shift to borrow in the international Markets. It raised over ksh 200b in July 2014 through a sovereign Bond issued in Europe to finance due debts and other mandatory obligations.

1.5 Problem Statement

Kenya has been having a fluctuating fiscal balance. This shows that fiscal balance has been quite unstable, thereby impacting negatively on the country's growth process and other macroeconomic variables. Coupled with high levels of public debt and debt service ratios, a huge fiscal deficit undermines economic stability and growth. In some years, fiscal deficit as a percentage of GDP has moved outside the target of three per cent as projected by the World Bank and Ministry of finance. For instance, over the period 1990 to 2010, fiscal deficit on cash basis averaged five per cent of GDP.

The deficit in recent years has increased, in the 2014/15 financial year, the total budget is expected to be close to Ksh.1.3 trillion with the Kenya Revenue Authority expected to collect close to Ksh. 1Trillion (GOK, 2014).This leaves a deficit of close Ksh. 300 billion expected to be filled with both external and domestic borrowing. In this respect the deficit has continued to widen.

The foregoing leads one to question why dismal fiscal performance has continued to be experienced despite the fact that a lot of fiscal reforms have been undertaken. It is also unclear whether the macroeconomic policy reforms have had any effect in improving fiscal performance.

Studies on budget deficit in Kenya have mainly focussed at addressing the adverse effects of budget deficit in the economy and pointing out the main variables that contributes to the same but no study has clearly come out to specifically analyze the following determinants; level of development of financial markets, tax effort among others. Therefore, this research project gives an analysis of the aforementioned determinants in as far as the Kenya context is concerned.

1.6 The Research Questions

This research paper tries to provide answers to the following question:

What are the factors that affect fiscal performance in Kenya?

What are the trends of the determinants of the fiscal performance in Kenya?

1.7 Objectives of the Study

The main objective of this study is to identify determinants of fiscal performance in Kenya.

The specific objectives are to:

- i. To identify the trend of the determinants of the fiscal performance
- ii. Establish the extent to which these determinants (factors) influence country's fiscal performance.
- iii. Make policy recommendations for prudent fiscal policy management.

1.8 Significance of the Study

The findings of this study will provide immense contribution to the existing literature and data concerning the determinants of fiscal performance in Kenya given that the economic trends and variables have changed significantly since the 1990s.

Secondly, the study forms a very good basis for recommendations to policy makers in both public and private sectors on the best ways to deal and plan for prudent responsible fiscal management as envisaged in the Constitution of Kenya 2010 as one of the key principles of public finance management. Finally, this study forms the basis for further research and discussion in this area of public finance.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Literature Review

What explains persistent budget deficits? What are the theoretical implications of persistent budget deficits? Theories of budget deficit run in two general directions. There are some theories that look at the effect of fiscal deficits on economic variables. Others look at the reverse direction, that is, what macroeconomic and fiscal variables (including budget rules and institutions) affect and determine fiscal deficits.

2.1.1 Tax Smoothing Model

Barro's tax smoothing theory postulates that it is the desire of Governments to minimize distortions associated with raising taxes that cause or determine budget deficits. His model implies that deficits and surpluses arise when the ratio of public purchases to the overall national output is expected to have some variations. During periods of war or aggression or when a country is experiencing a recession, the Government purchase to output is less than the current ratio.

Alesina and Perotti (1995) agree to that in spite of its validity as a normative theory, the tax-smoothing approach is deficient as a positive theory of fiscal budgets. They argue that, this explanation does not answer the question as to why there are cross-country differences and why there has been a debt accumulation in the past years. Positive contributions have looked for political and institutional determinants of budget deficits and public debts.

Roubini and Sachs (1988) find only partial evidence support tax smoothing where the taxes are set over time to minimize excess burden. They concluded that there are larger deficits in countries with governments who have shorter tenures. The study covered OECD countries. Also the presence of many political parties in a ruling coalition and higher tax collection overheads also led to high deficits.

2.1.2 Government as a 'Leviathan' Theory

This theory postulates that the Government as a 'levithian' the beast tries to extract an extra rent from the citizens by raising taxes and budget deficits in order to provide public goods. It says that Government tries to control as much as possible of the economy (Brennan and Buchanan, 1980). But this is inconsistent with the notion that Government spending would increase and then level down as it approaches stable spending.

Wagner (1882) postulated that there exists a positive correlation between the level of economic development and public expenditure because, in developed countries, the ratio between the amount of total expenditure and income grows both in absolute and relative terms. According to Wagner, this is attributed to three factors. Firstly, due to an augmentation in the fundamental functions of the state as a result of increase in population density and urbanization. Secondly, the increasing role of the state as a provider of social welfare particularly education, health and the redistribution of income. And finally as change in technology and the required scale of capital for investment activity, with growing participation of the state in the sectors of production and regulation also serves to increase public expenditures.

2.1.3 Political Theory of Government Debt

Cukierman and Meltzer (1989) developed a theory of budget deficits that focused on the aspect of redistribution of government debt across generations. They found that individuals who are negatively constrained in bequest are inclined to transfer resources from future generations to finance present consumption, via negative bequests. These individuals will advocate present tax rate reductions without an accompanying decrease in current government expenditures. Hence, in a democratic political system, the larger the percentage of bequest-constrained individuals in the population, the more likely it is for the government to run larger deficits. Based on this scenario, they argued that increase in the expected rate of economic growth, the spread of the income distribution or expected longevity tends to increase the population share of bequest constrained individuals, which will consequently lead to larger budget deficits.

2.1.4 Positive Theory of Government Deficit

This theory emphasizes that Governments use public debt to influence the choice of successors. It provides that the growth of public debt depends on the strategic interaction of different governments in different periods due to their difference in fiscal policies. The theory shows that the equilibrium stock of debt tends to be larger than with a benevolent social planner certain of her future reappointment. In effect, disagreement among alternating governments and uncertainty about the elections' outcome prevent the party in office from fully internalizing the cost of leaving debt to its successors (Alesina and Teballini, 1987).

Lizzeri (1999) also asserts that deficits can be aimed at voters in order to secure electoral victory in election or in future elections. Persson and Svensson (1989) agree with this theory and argue that strategic deficits can be used by Governments in order to tie up the spending decisions of possible successors. This presents the appealing idea of a current conservative government which leaves high deficits for the incoming government in order to curtail them in public spending if it is a liberal one.

Bacha (1990) extends the two-gap analysis of the savings gap and the foreign exchange gap by introducing fiscal constraint as an additional important impediment to economic growth independent from the savings and foreign exchange constraints. He presents a three-gap analytical framework containing the savings gap, the foreign exchange gap and the fiscal gap. The savings gap is derived from the basic national income identity, and states that when income is at its potential level and private consumption is determined exogenously, then we get the savings-constrained level of investment, which determines the potential growth rate, assuming constant incremental capital output ratios. The savings gap is, therefore, equal to the sum of internal (or domestic) savings and foreign transfers.

Bacha (1990) further argues that variations in interest rate are the main sources of changes in foreign transfers and are exogenously determined, just like foreign transfers. He further states that in the savings gap, assuming all foreign capital inflows finance the government budget, the primary budget surplus in the current account and the net foreign transfers to the government will be exogenously determined

The savings gap is written as:

$$IS = PS + (T - G) + (F - J) \dots\dots\dots 1$$

Where

IS= is the saving gap

PS =is private savings at the potential output level

T= is government Revenue

G=Government expenditure

F =is net capital inflows

J= is net factor services exported abroad

The savings gap shows that the sources of investment financing are private savings, primary budget surplus in the current account, and the net foreign transfers to the government. The main assumptions are that all foreign capital inflows are to finance the government budget, and that all factor service outflows are paid out of the gross government income.

From the balance of payments equation (BOP = current account surplus + capital account surplus), the excess of imports over exports is equal to foreign transfers, which are the difference between net capital inflows and net factor services to abroad. Imports are divided into complementary capital goods imports and other imports. Complementary capital goods are a proportion of total investment of a country. Therefore, the foreign exchange constrained level of investment is a function of net exports and foreign transfers. The government budget constraint is also derived from the basic national accounting identity after translating investment into private and government. The government investment is, therefore, a function of the differences of private savings and private investment, government gross income and expenditure, and net capital inflows and net factor services to abroad.

Making an assumption that government investment crowds in private investment, we get a fiscally constrained level of investment. The fiscal constraint of investment is therefore determined by the rate of inflation, variations in money holdings, government budget surplus in the current account and foreign transfers. The fiscal constraint assumes that the government's bond market is non-existent, and hence money expansion is the only alternative for domestic financing of government budget deficit, Mwegu *et al.* (1994)

postulate that potential growth is proportional to the gross investment ratio. Investment is further decomposed into private and public investment.

Private investment is positively determined by capacity to deploy and utilize private capital. Due to the indivisible nature of many investments, the investors first accumulate savings and then invest. Private investment is also positively determined by public investment in infrastructure, public utilities and basic industries. The public investment provides the crowding-in effect that complements private investment. Finally, private investment is positively determined by availability of domestic credit to the private sector.

2.2 Empirical Literature Review

Attiya et al (2010) estimated the economic, political and institutional sources of budget deficits in two regions; South Asia and ASEAN countries for the period 1984 to 2010 by applying the dynamic panel model and Generalized method of Moments. They found out that high income, high inflation rate and large budget to GDP ratio are associated with large budget deficits. Also, high corruption, low institutional quality (legal and bureaucracy) and conflicts (internal, external, ethnic and religious) cause more fluctuations in the budget deficit.

Diokno (2007) used a two stage linear regression model to establish the Economic and fiscal policy determinants of public deficits in Philippines. He concluded that: inflation, domestic liquidity, capital outlays, and tax effort were statistically significant determinants of fiscal balance. Further, economic growth, Exchange rate, interest payment as percent of GDP, and intergovernmental grant (IRA) as percent of total government expenditures were found to be statistically insignificant determinants.

Genius and Irene (2013) used vector auto-regression model to estimate the respective impact of unemployment, economic growth, foreign reserves, foreign debt, and government investment consumption on budget deficit between the period 1980 to 2010 using time series annual data in South Africa. They found out that all determinants of budget deficits, except for foreign debt have a positive impact on budget deficits.

Hassan and Kalim (2009) estimated the role of key macroeconomic variables in fiscal deficit in Pakistan by use of Granger causality model and Fully Modified Ordinary Least Square Method. They found out that *GDP* per capita and money supply significantly affected

fiscal deficit in Pakistan in both the short run and long run. The total debt servicing lagged by one year reduced fiscal deficit in the long run. However, volume of trade and total debt servicing were found to positively and significantly contribute to the fiscal deficit in Pakistan in the both long run and short run. Moreover; the empirical findings report that there exists univariate Granger causality from fiscal deficit to *GDP* per capita, from fiscal deficit to money supply, from volume of trade to *GDP* per capita, and from money supply to *GDP* per capita.

Easterly and Schmidt-Hebbel (1994) estimated the relationship between inflation and fiscal deficits. In their cross section estimation, they found no simple relationship between fiscal deficits leading to inflation.

The literature on financial openness has also hinted at a positive relationship between financial depth and fiscal balance. Financial repression, as indicated by a less liquid banking sector, is practiced by government either to finance its budget deficits or to direct its access of cheap credit to select industries, or both. Restrictive financial policy can be implemented in various ways: (1) imposing high nominal interest rate ceilings; (2) money creation (i.e. seignorage); and (3) imposing high reserve requirements. Denizer, et al (1998) found evidence that the post-Communist governments in their study, inhibit the development of financial institutions to ensure adequate flows of external capital to enterprise sectors rather than to finance deficits.

Other empirical evidence, however, has shown a negative relationship between fiscal deficit and financial market development. Woo (2001) looked at the effect of financial depth on consolidated public sector deficit in developing countries. He found that an increase in financial depth is negatively associated with fiscal stance. He explained that a more liquid banking system could more easily finance fiscal deficits by issuing bonds without having to resort to inflationary finance.

Aizenman and Noy (2003) found similar evidence that a budget surplus has a negative impact on financial openness for developing countries. That is, a bigger budget deficit will increase *de facto* financial openness. This was explained by evidence that those developing economies engaged in pro-cyclical, rather than counter-cyclical, policy. In developing economies, financial crises tend to lead to recessions that in turn result in lower budget deficits because government reduces its spending. In addition, if the tax system is relatively

inelastic to economic activity, an economic recession would lead to relatively higher tax revenues. However, in the same study, evidence of a positive relationship of fiscal balance and financial openness was found for OECD countries.

Eschenbach and Schuknecht, (2002) assert that asset prices may also have an impact on fiscal balances through the tax system. The impact could be through tax revenues on capital gains and turnover related taxes. Also, an increase in the stock prices leads to an improvement in fiscal balance. The degree of economic development as measured by per capita income is another determinant of fiscal balance. It is argued that on one hand, greater economic development may be associated with a more efficient tax system and therefore a smaller deficit. On the other hand, a more developed financial sector could provide improved access by the government to debt, and thereby give rise to a larger budget deficit (Isabel and Hernández, 2008).

Roubini and Sachs, (1989), argue that Political instability is another cause for large fiscal deficit. It is argued that a government that is less likely to be re-elected into office may accumulate a higher level of public debt, leading to a high fiscal deficit. Also, high fiscal deficit is associated with countries with more frequent changes in government, countries with difficulties of political management in coalition governments, and those with many political parties in a ruling coalition Countries with well-developed budgetary institutions tend to have smaller fiscal deficits.

Diokno (2003) argue that Tax effort is seen as a robust determinant of fiscal balance. It has a positive relationship with GDP growth and that a higher tax effort is related to a larger fiscal surplus and lower deficit. This followed a study done on the Philippines. On the revenue side, tax revenue is affected positively and significantly by GDP and efficiency of public productive spending, and it is negatively and significantly affected by tax rate. Using the full model of fiscal deficit, the study finds a positive and significant relationship between fiscal deficit and previous period public consumption spending, public productive spending and tax rate. It further finds a negative and significant relationship between fiscal deficit and gross domestic product, previous period tax revenue, efficiency of public productive spending, and receipts from public corporate companies.

Adedeji and Williams (2007) analyze fiscal performance in the CFA zone (West African Economic and Monetary Union and the Central African Economic and Monetary

Community) using panel data for 1990 to 2006. They find that fiscal stance is strongly and positively influenced by the fiscal effort in the previous period, hence underscoring the risks of a pro-cyclical fiscal policy stance. They also find a positive and significant impact of lagged debt stock on fiscal performance. They further find that economic performance as captured by economic growth and per capita GDP, openness, and terms of trade are significant in explaining fiscal performance.

Diokno (2003) found that there is an inverse relationship between the total decentralized funds and budget deficit in Philippines.

Sirengo (2008) in a study to determine factors that affect fiscal performance in Kenya used a regression model developed from three-gap analysis using time series data for the period 1975 to 2006. The long run results indicate that Treasury bill rate positively and significantly affects fiscal balance, while total debt service and trade openness negatively and significantly affect fiscal balance. However, real per capita GDP was not a significant determinant of fiscal balance. Using error correction model, the results indicate that real per capita GDP positively and significantly affects fiscal balance, while total debt service and trade openness have a negative and significant impact.

Gongera, et al., (2013) by use of descriptive research design investigated how inflation, tax policy and government expenditure affects reduction of budget deficits in Kenya. They evaluated the economic strategies and measures that the Government can put in place to reduce budget deficits. They conclude that tax policy and government expenditure were the main causes of the persistent budget deficits in Kenya. Also, they found out that inflation was heavily contributing to the budget deficit in Kenya hence recommended that the government initiates various fiscal and monetary policies to contain inflation to manageable levels.

2.3 Overview of Literature

It is evident that the field of determinants that affect fiscal performance has been substantially covered. However, most of the studies have focused on macroeconomic factors. There is a gap in terms of the factors that empirical studies have seen to affect fiscal performance relating to a number of policy and institutional factors including issues like the level of financial market development and Tax effort.

It is evident from the above empirical literature that fiscal balance is determined by a number of macro-economic, political and institutional factors. Also it is emerging that in the Kenyan context there is need to carry out an in-depth empirical analysis of the other factors not covered by the earlier studies. This will also incorporate other fiscal reforms that have been implemented from the 1990 to 2013.

This study will endeavour to capture the above factors whether macro-economic or policy in nature and document their relationship and the extent of their effect in relation to Kenyan case. Lastly, from most studies concerning Kenya, majority of them have focused on the Budget deficit as an independent variable like in the case of (Okelo et al., 2008), and Ndegwa, 2012). In this study, I will use the budget deficit as the dependent variable as opposed to earlier studies concerning Kenya.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

The present chapter incorporates the research design and framework for the study, especially, the econometric method utilized by the study. Besides, the structure and design of the model is well and clearly explained.

3.2 Overview of the Model

In this section, we developed a model based on the theoretical and empirical literature discussed in the preceding section. The study adopted the three gap model used by Sirengo (2008). The model was selected because it is relevant to the Kenyan case, the country being a developing country with investments and savings gap constraints easily identified and also because it makes it easier to make policy inferences from the findings. The national income identity of a small open economy in the context of the three-gap model is thus presented as:

$$Y = C + I + G + X - M \quad \dots\dots\dots (1)$$

Where

Y is national income,

C is private consumption,

I is Investment,

G is government expenditure,

X is exports, and

M is imports.

Assuming that national income includes taxes (T), we can derive the disposable income (Y_d) and rewrite equation (1) as:

$$Y_d + T - C = I + G + X - M \quad \dots\dots\dots(2)$$

We introduce savings as the difference between income and private consumption. We rearrange the terms to get a new identity in terms of fiscal gap, exports-imports gap (foreign exchange gap) and the savings gap as follows:

$$T - G = I - S + X - M \quad \dots\dots\dots (3)$$

This equation (3) indicates that fiscal gap is equal to the sum of the investment- savings gap and exports-imports gap.

The fiscal gap which is also referred to as fiscal balance determined by factors that affect both the investment-savings gap and the exports-imports gap.

According to the theory of marginal propensity to save, savings expand from increased income. As a result, following this concept it can be easily understood that when there is economic growth then per capita increases leading to an increase in savings and subsequently a reduction in the investment-savings gap.

In terms of the Treasury bill rates, investors base their investments decisions on the Treasury bill rate which is a risk free instrument. Banks base their interlending and deposit rates on this rate. The impact of this is that if the rate is too low, then investors will not be willing to lend the government money by buying the bills. This will lead the Government to seek alternative deficit financing methods/options.

Since national saving are defined as domestic saving plus net factor income from abroad, the increase in debt servicing is likely to reduce saving through its adverse effects on net factor income from abroad. The same linkage can be used to derive a negative relationship between the size of foreign debt and national savings. In particular, a larger volume of foreign debt not only increases the charges of debt servicing but also decreases the national savings and subsequently investment. On the other hand, foreign debt is likely to have a favorable effect on total investment in a country because most of the foreign borrowing is done on the plea that domestic savings are not sufficient to finance the planned investment expenditures.

The above factors affect both the savings –investment gap and imports exports gap which sum up to the fiscal gap. Therefore, fiscal gap is a function of GDP per capita, Interest rate, tax revenue, debt service, treasury bill rate, inflation, broad money, current account and government investment.

Equation (3) can thus be transformed from an identity into a behavioural equation for estimation purposes as is shown in equation (4):

$$\begin{aligned}
 FB_t = & \alpha_0 + \alpha_1 GDPPCG_t + \alpha_2 TBR_t + \alpha_3 TDEBT_t + \alpha_4 INF_t + \alpha_5 TRV_t + \alpha_6 M3_t \\
 & + \alpha_7 CA_t + \alpha_8 GGL_t + \mu_t
 \end{aligned}$$

..... 4

Where:

- FB - fiscal balance to GDP ratio
- GDPPC - Real GDP per capita growth rate,
- TBR - Treasury bill rate,
- TDEBT - Total debt service as a proportion of total exports,
- TRV - Tax Revenue or tax effort
- INF - Inflation rate
- M3 - Ratio of Broad money to GDP
- CA - Current account balance
- GGI - Gross Government Investment as a percentage of GDP
- μ_t - An error term, while subscript t is a time period.

3.3 Definition of Variables

Fiscal Balance is the total revenue and grants minus total expenditures, excluding interest payments. The variable measures the fiscal effort of the government in preserving fiscal sustainability (Adedeji and Williams, 2007). The variable is a better measure of fiscal performance, since it excludes interest payments that are predetermined by the level of borrowing from previous years (Cas and Ota, 2008). We use fiscal balance as our dependent variable, instead of any other variable such as debt to GDP ratio because first, policy makers are interested in flow variables instead of stock variables and, secondly, the government can set a target on fiscal balance, which is easier to monitor than debt to GDP ratio.

GDPPC is real GDP per capita growth rate and it measures the impact of the state of the economy on fiscal performance. Tujula and Wolswijk (2004) argue that this variable is a measure of welfare level and in less developed countries, they expect the variable to lead to higher fiscal deficit, since the countries finance catching-up expenditure. They argue that such countries also face high investment needs and, therefore, the variable enters the equation with a negative sign. However, an increase in real GDP per capita growth rate is likely to lead to increased revenue and thereby improve fiscal balance. In this case, the variable would have a positive sign.

Treasury Bill Rate captures the cost of government borrowing from the domestic market. The government usually borrows to finance fiscal deficit. We expect the coefficient to have

a negative sign, since this will limit government borrowing thereby making the government to operate within the set budget constraint. An increase in the Treasury bill rate leads to higher interest payments on the borrowed funds, thereby increasing government expenditure and worsening fiscal balance.

Tdebt is the total debt service to exports ratio and captures the response of fiscal policy to debt, and concerns about the sustainability of the fiscal policy. Tujula and Wolswijk (2004) argue that an increase in total debt service to exports ratio worsens fiscal balance. We, therefore, expect the coefficient of the variable to have a negative sign.

INF- Inflation rate is the rate of increase in general price levels. We expect that an increase in inflation will lead to an increase in deficit. Hence it enters the equation with negative sign.

TRV- Tax Revenue as a percentage of GDP. It is used as a proxy for tax effort. Increased tax revenue would lead to improved fiscal balance. Therefore, it is expected to have a positive relationship with the fiscal balance.

M3- Ratio of broad Money to GDP. This is a proxy for the level of development of the financial markets. A more developed financial market would have more readily available forms of money to buy goods and services without incurring costs. The World Bank suggests that a more developed financial sector has increased flexibility in adjusting to macroeconomic shocks to prevent banking or financial crises. This is expected to have a negative relationship with the budget balance.

CA-Current account balance –it is the value of Kenya’s net exports of goods and services in one year. It was measured in millions of Kenya shillings. We expect it to have a negative sign as deteriorating current account balance is believed to worsen fiscal deficit (The case of twin deficit).

GGI-Gross Government Investment as a percentage of GDP per year. We expect it to have a positive sign as an increase in productive investment will increase the productive capacity of the economy. It is measured by the level of development expenditure to GDP.

3.3.1 Hypothesis

We specified our null hypothesis as $\beta_i = 0$ where $i=1, 2, 3 \dots 4$.

We expect a priori that $\alpha_1 > 0$, $\alpha_2 < 0$, $\alpha_3 < 0$, $\alpha_4 < 0$, $\alpha_5 < 0$, $\alpha_6 > 0$, $\alpha_7 > 0$, $\alpha_8 > 0$,

3.4 Data Sources

The data used in the study is sourced from the Kenya Economic Surveys, Statistical Abstracts, International Monetary Fund's *International Financial Statistics* and World Bank's *World Development Indicators* covering the period 1963 to 2013.

3.5 Estimation Procedures

The Vector Autoregressive analysis was applied on the time series data. The fiscal balance to GDP ratio was taken as dependent variable; while changes in GDP per Capita, inflation, Treasury bill rate, Broad money, Inflation, Tax effort Ratio of broad Money to GDP, Current account balance and gross Government investment to GDP were taken as independent variables with their respective lag variables.

3.6 Data Analysis

Time series approach was used in analysing collected data. The study employed unrestricted vector autoregressive (VAR) model to estimate the relationship between fiscal performance and its determinants. The econometric package used was Stata version 12 which was most recent and dynamic.

3.6.1 Unit Root Tests

To avoid spurious relationship as a result of non-stationarity of variables, unit root test was carried out on all the variables to ensure they were stationary. The variables which were found to be non-stationary were differenced once to make them stationary and thus said to be integrated to the order one. The unit root tests used were the Dickey Fuller test and the Augmented Dickey Fuller test. The null hypothesis for this test requires that the coefficients of the autoregressive parameter of the variable be equal to one and the alternative hypothesis states that it is less than one.

3.6.2 Co integration Analysis

This test was necessary against the loss of information relating to possible long-term relationship in a model specified in first differences. This involved using the Engle-Granger (1987) two step procedure due to its simplicity. The model was subjected to Cointegration analysis to ensure that there was a stable long-term relationship between the explained variables and the regressors. Unrestricted VAR model was applied because variables were found not to be cointegrated.

CHAPTER FOUR

4.0 ESTIMATION RESULTS

4.1 Introduction

This section details the study findings. It analyses factors behind the performance of the fiscal balance and evaluates their relationship and the extent of their effects. It reveals how macro-economic, political and institutional factors affect fiscal balance using time series data collected, consolidated and analysed for the period 1963 to 2013. The study employed unrestricted vector autoregressive (VAR) model to estimate the relationship between fiscal performance and its determinants. In VAR model the short run identifying restrictions do not depend on the specification of the reduced form VAR model, whereas, the long run restrictions is less general in that it requires some model variables to be first order integrated or others to be integrated of order zero leading to misspecification of integrating properties of the individual series.

The study employed this estimation model since most of the robust methods are designed for VAR models based on the short run identifying restrictions, only, of course, as a shift from exact unit roots immediately invalidate the use of long run identifying restrictions. Lastly, the results are presented mainly descriptively in table forms and structured as per the study objectives.

4.2 Descriptive Results

The descriptive result has considered the mean or average, standard deviation and the range of the respective dependent and explanatory variables. Table 4.1, shows that among the study variables, only three had full information¹ (51 years), followed closely by four other variables with 50 years, whereby for TBR, TRV and TDEBT information available covered 45 years, 41 years and 38 years respectively. The fiscal balance and current account balance have a negative mean of -24884.38 and -683.036 with a standard deviation of 57608.19 and 896.4168 respectively. Inflation and tax revenue have an average of 10.87882 and 17.4844 but the former exhibit unique range of between -0.171501 and 45.97888 while the later has the lowest number of observations and thus a standard deviation of 1.663564.

¹ Full information implies that data for all years considered was obtained/ available. The total numbers of years are 51, (1963-2013). They include INF and FB.

The range of Gross Domestic per capita growth is unique since it involves a negative (-7.915491 and 17.92928) and a very small average of 1.441831 for the period covered. It however, fluctuates by 4.185848 units.

Table 4.1: Summary Statistics

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
FB	51	-24884.38	57608.19	-304816	3214
GDPPCG	50	1.441831	4.185848	-7.915491	17.92928
TBR	45	11.08456	8.567027	1.42	49.798
TDEBT	38	19.96485	11.42545	3.6	39.76611
INF	51	10.87882	8.595068	-.171501	45.97888
TRV	41	11.95384	5.838077	2.335701	20.49433
M3	50	34.80986	7.574146	22.66169	51.2
CA	50	-683.036	896.4168	-3675	914.1
GGI	49	4.42375	3.015906	1.12456	14.0372

Source: Author

Where FB is fiscal balance to GDP ratio, GDPPCG is real GDP per capita growth rate, TBR is the Treasury bill rate, TDEBT is the total debt service as a proportion of total exports, INF-Inflation rate, TRV- Tax revenue as a percentage of GDP, M3- Ratio of Broad money to GDP, CA-Current Account Balance and GGC-Gross Government Investment (% of GDP).

4.3 Correlation Matrix

Multicollinearity promotes biasness which arises when one or more pairs of independent variables are perfectly correlated to each other. To this effect correlation matrix was examined. Table 4.2 shows a mix of positive and negative correlations among the variables. If correlation among the coefficients of the variables is more than |0.6| then it shall be an indicative of multicollinearity. The presence of multicollinearity inflates the variance of parameter estimates leading to provision of wrong estimates and signs, and thus incorrect

conclusions. Although from Table 4.2 we detected multicollinearity, it was not severe and thus as a remedy² we retained the variables.

Table 4.2: Correlation Matrix

Variables	FB	GDPPCG	TBR	TDEBT	INF	TRV	M3	CA	GGI
FB	1.0000								
GDPPCG	-0.3478	1.0000							
TBR	0.4290	-0.4890	1.0000						
TDEBT	0.5650	-0.6136*	0.4104	1.0000					
INF	0.1202	-0.4804	0.6331*	0.2008	1.0000				
TRV	-0.3843	0.3271	-0.4784	-0.2990	-0.3231	1.0000			
M3	-0.6574*	0.4568	-0.5466	-0.7120*	-0.0356	0.6424*	1.0000		
CA	0.3305	-0.4075	0.4450	0.7353*	0.2256	-0.6330*	-0.7908*	1.0000	
GGI	-0.5932	0.4478	-0.3825	-0.6839*	-0.0793	0.6559*	0.8753*	-0.7403*	1.0000

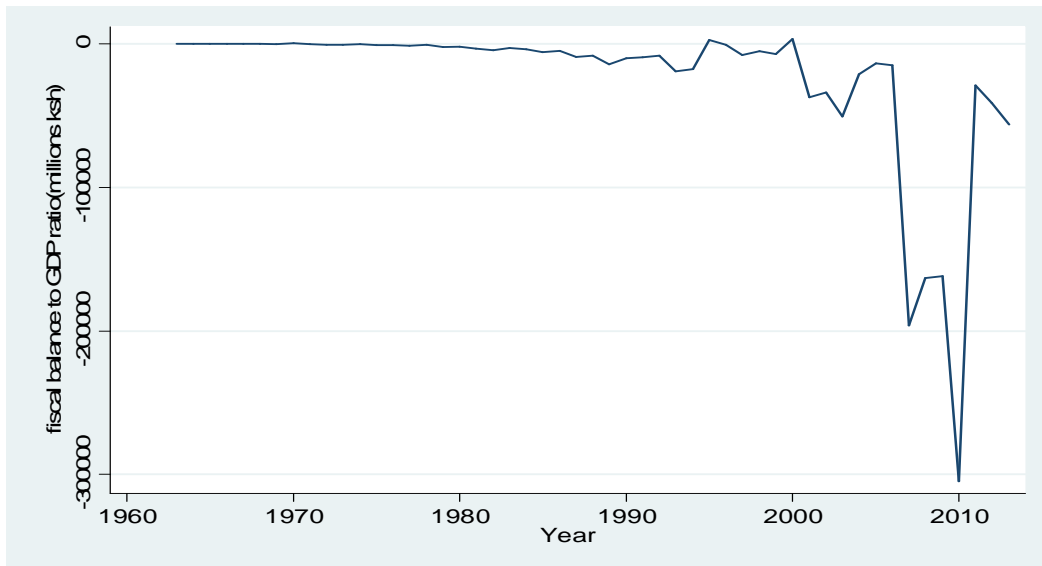
*Highly correlated prompting to elucidate the issue of Multicollinearity, although not severe.

4.4 Establishing the Nature of Factors under Investigation

Fiscal Balance: This being our dependent factor, we found out that from the year 1963 to 2000, Kenya's fiscal performance was constant and was almost equal to GDP. However, from then on-wards, it dropped drastically to deficit of 300 billion Kenya Shillings by the year 2010 where again it rose to 200 billion Kenya shillings by the year 2011.

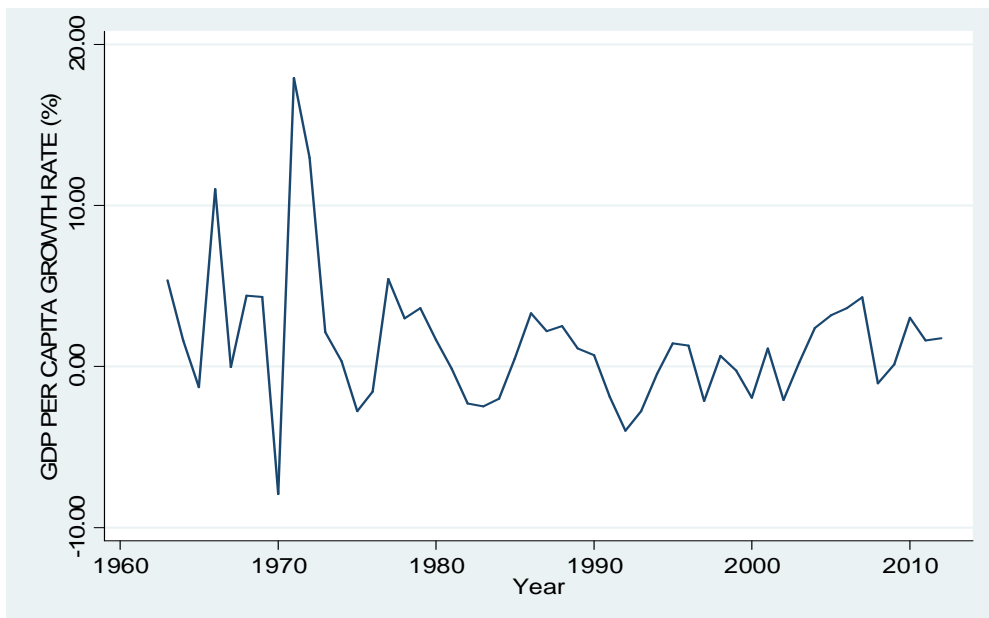
² Usually if Multicollinearity is detected, as a remedy one of the variables that are correlated is dropped or retained if not highly correlated or increasing the sample size.

Figure 4.1: Fiscal Balance



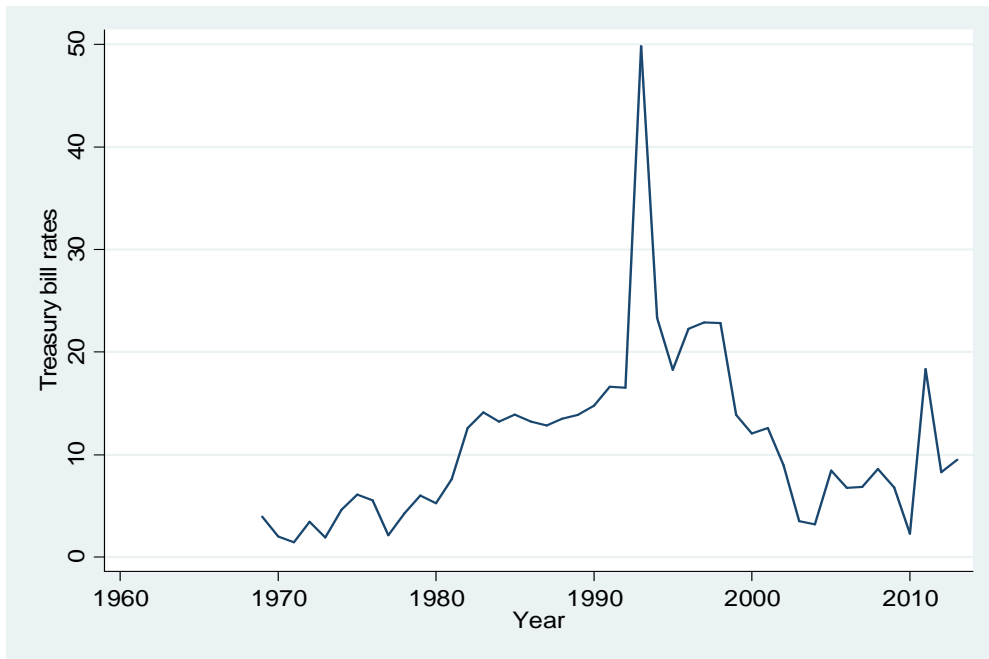
GDP per Capita Growth Rate: This shows the income distribution among the population in Kenya which has been fluctuating without being stable. The most extreme periods include the down fall of the year 1970 and the increase or upsurge of the year 1972. The rest of the periods tended to have constant however decreasing fluctuations until late 2013.

Figure 4.2: GDP per Capita Growth



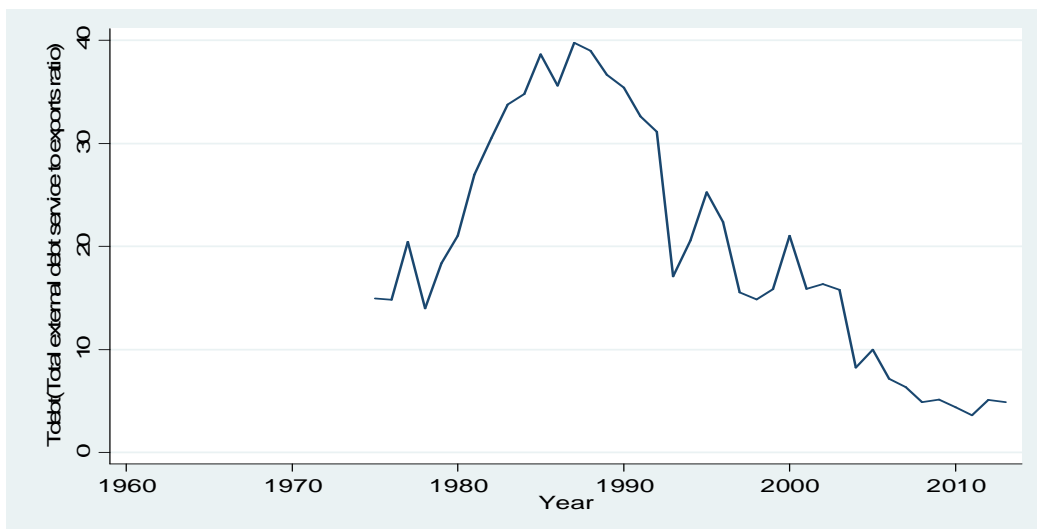
Treasury Bill Rates: This variable showed a unique trend between 1993 and 1997 where treasury bill rates is nearing 50units. However, between the years 1969 and 1992, we have an increase in Treasury bill rates with the contrary observed between the years 1997 to 2013.

Figure 4.3: Treasury Bill Rates



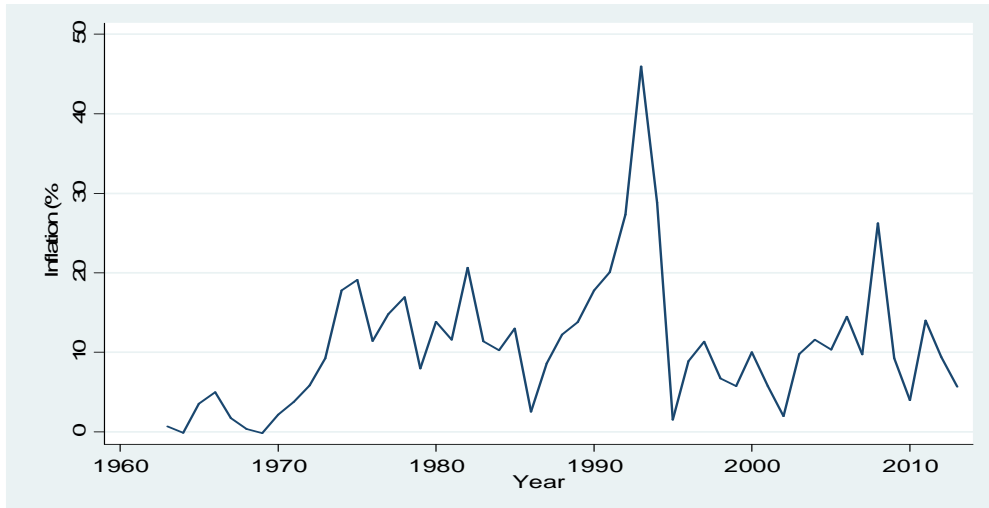
Total External Debt Service: Is represented by bowed shape where they increase in 1977 to around 1989 and illustrates later that they declined to below 5 units by the year 2010.

Figure 4. 4: Total External Debt Service



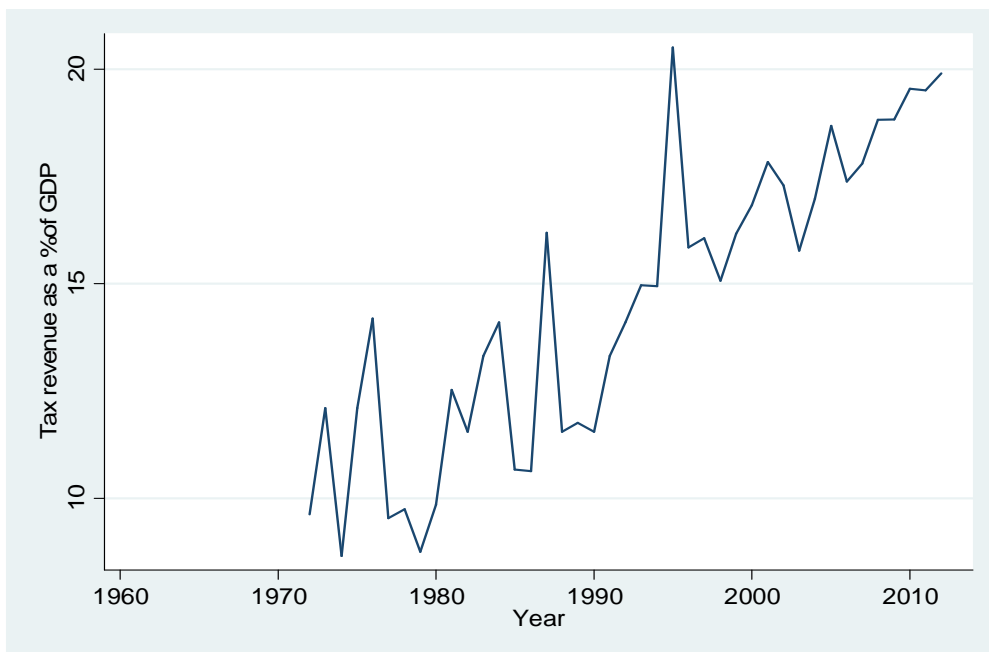
Inflation demonstrated almost the same trend observed on GDP per capita growth with huge and unpredictable fluctuations. However, we observed a unique trend between 1985 and 1995 where consequent rise and fall of inflation rates with the same and equal magnitude existed.

Figure 4.5: Inflation Rates



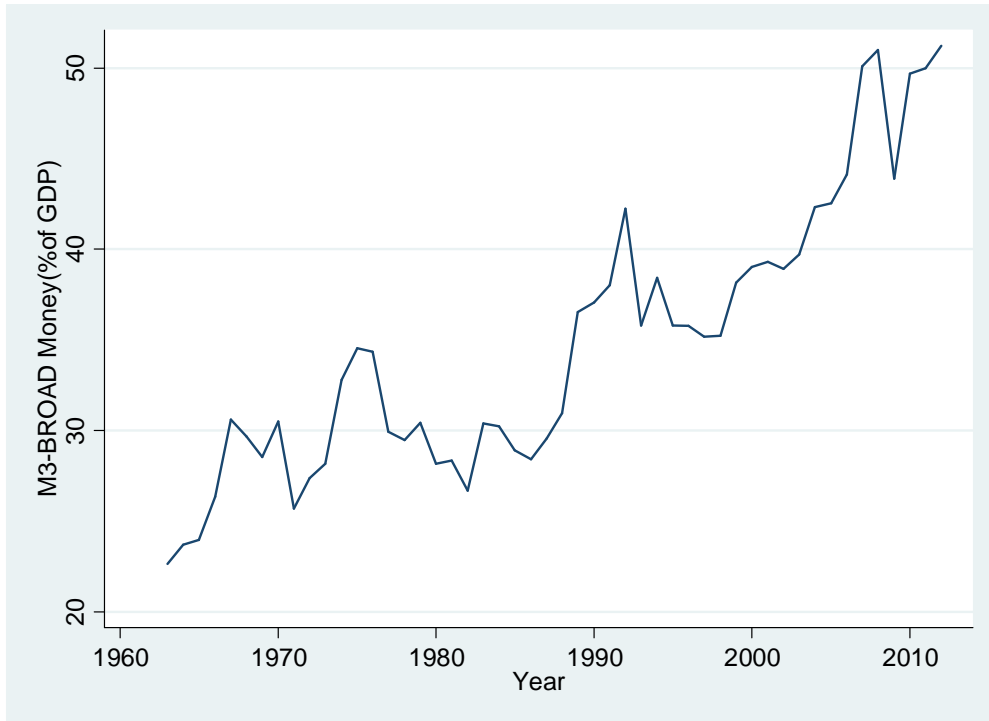
Information on tax revenues as a percentage of GDP is obtained from the year 1972/19723 and 2013. Its fluctuations has sharp turns or changes implying that the variable is suitable for short run since in the short run, the effects and reaction of tax revenues are high.

Figure 4.6: Tax Revenues as a Percentage of GDP



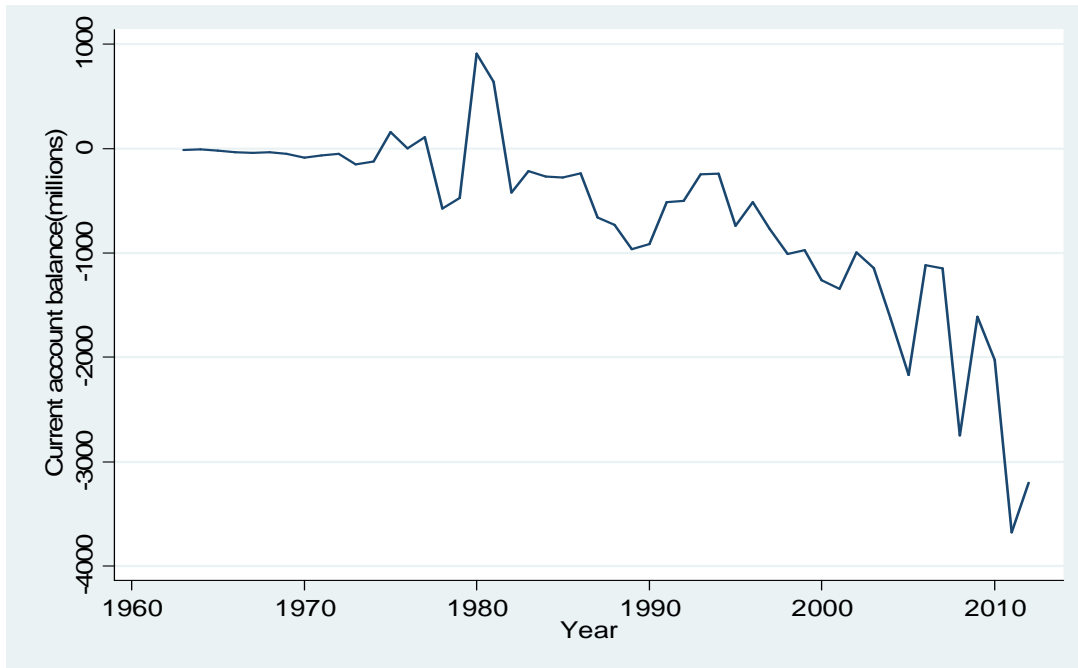
Broad Money: This has been rising throughout the study period. It tended to maintain constant increasing fluctuation which systematically revolved along the 45 degree line as shown by the figure below.

Figure 4.7: Broad Money as Percentage of GDP



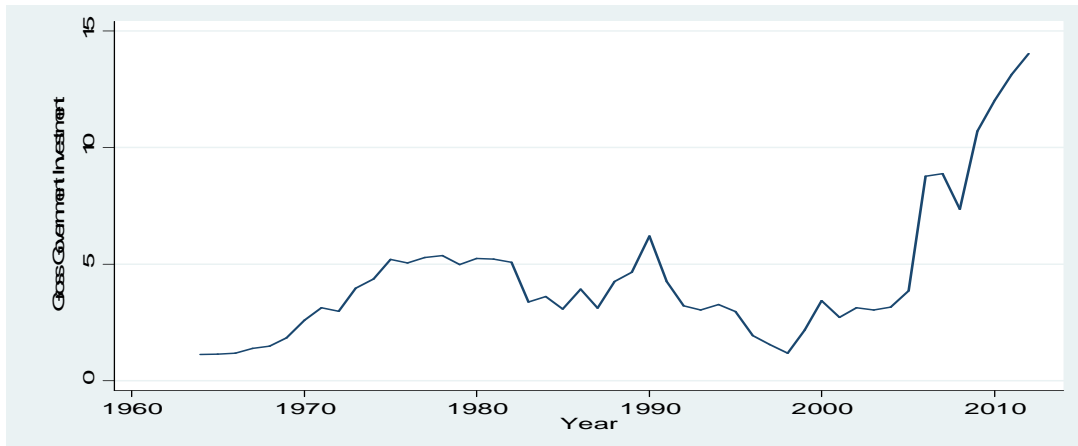
Current Account Balance: this variable also fluctuated although illustrating uniquely concave pattern unlike most of the other study variables. However, it decreases with time.

Figure 4.8: Current Account Balance



Gross Government Investment: This variable fluctuated although it showed an increasing gross government investment with decreasing rate from where it maintained predictable fluctuations to a low of 0.2 in the year falling between 1998 and 1999 thereafter; it experienced high increasing rates with increase in time.

Figure 4.9: Gross Government Investment



4.5 Testing for Unit Roots

If variables are non-stationary, there is a tendency of the estimates to change over time. Unit root tests are used to detect non-stationarity in all the variables. This characteristic and thus presence leads to spurious estimates. Therefore, if variables are found to be non-stationary, successful lagging is applied until the bias is eliminated. The null hypothesis in this case is that the variable under consideration is non-stationary or has got unit root. Augmented Dickey Fuller test was applied and we realized that out of all nine variables, only four (TDEBT, M3, CA and GGI) variables were found to be non-stationary. However, upon conducting the first differences, they became stationary at lag zero.

To validate the model, we ensured that all coefficients of the model are negative³

Table 4.3: Testing for Stationarity

Variables	P-values at lag (0)	P-values at lag(0) after 1 st differencing
FB	0.001	-
GDPPCG	0.000	-
TBR	0.002	-
TDEBT	0.461*	0.0000
INF	0.001	-
TRV	0.007	-
M3	0.399*	0.000
CA	0.232*	0.0000
GGI	0.9863*	0.0000

*These variables have a unit root.
H₀: Variable is non-stationary⁴.

4.6 Test for Autocorrelation

In time series data, we anticipate correlation between the stochastic random error terms of the succeeding time periods. Its presence associated with biasness leads to spurious estimates. From our LM test, we confirmed the absence of autocorrelation.

³ $\Delta Y_t = \beta_1 + \rho Y_{t-1} + a_t + \varepsilon_t$

⁴ Condition: If the p-values are less than 0.05 we reject the null.

Table 4.4: Breusch Godfrey Lagrange Multiplier test for Autocorrelation

Breusch-Godfrey LM test for Autocorrelation		
lags(p)	chi2 df	Prob > chi2
1	0.239 1	0.6250

H_0 : No serial correlation

4.7 Normality of the Residuals

We used Shapiro Wilk and Jarque-Bera tests for normal distribution of the random error terms. The null hypothesis in this case was that the error terms are normally distributed.

$H_0: \varepsilon \sim N$

Since the p value of 0.12601 was greater than the significant level of 0.05, we failed to reject the null hypothesis of normality of residuals.

Table 4.5: Shapiro-Wilk Test for Normal Data

Variable	Obs	W	V	z	Prob>z
res	38	0.93295	1.699	1.074	0.14136

H_0 : Residuals are Normally Distributed

As well, Jarque-Bera test was used in this effect and it showed that all the variables were normally distributed.

Table 4.6: Jarque-Bera Test

Equation	chi2	df	Prob > chi2
FB	4.934	2	0.08484
GDPPCG	3.065	2	0.21604
TBR	2.615	2	0.27043
DTDEBT	3.463	2	0.17706
INF	0.878	2	0.64478
TRV	3.573	2	0.16752
DM3	0.600	2	0.74096
DCA	1.979	2	0.37167
GGI	0.006	2	0.99720
ALL	21.112	18	0.36231

** Residuals are normally distributed

4.8 Cointegration Test

This test was necessary to establish whether there was a long run or short run relationship between the dependent variable and explanatory variables. We made an assumption that the initial variables have respective unit roots⁵ at level, which allowed us to employ Johansen test of Cointegration. We assumed that the variable under consideration was non-stationary without testing.

H₀: There is no Cointegration

H₁: There is Cointegration

Upon conducting Johansen test for Cointegration (with a maximum of two lags⁶), we found out that our variables were not cointegrated⁷ implying that in the long run these variables did not move together. Since there was no Cointegration, we estimated a unrestricted VAR model.

Table 4.7: Johansen Test for Cointegration

Trend: constant Sample: 1977 - 2012			Number of obs = 36 Lags = 2		
maximum				max	5% critical
rank	parms	LL	eigenvalue	statistic	value
0	90	-1303.4505	.	292.8851	192.89
1	107	-1265.1018	0.88122	216.1878	156.00
2	122	-1234.8192	0.81407	155.6226	124.24
3	135	-1211.0371	0.73319	108.0584	94.15
4	146	-1191.9208	0.65424	69.8257	68.52
5	155	-1177.1483	0.55987	40.2807*	47.21
6	162	-1167.5601	0.41297	21.1043	29.68
7	167	-1160.0997	0.33931	6.1836	15.41
8	170	-1157.2375	0.14701	0.4592	3.76
9	171	-1157.0079	0.01267		

In the type⁸ of VAR model we estimated, there were two major issues, which included the presence of short run and long run causality. However, we were aware that the latter was absent in our variables and thus we concluded that we had short run causality which ran from

⁵ However, these variables with unit roots if converted by first differences, they will become stationary. This is the condition.

⁶ Because of collinearity, the information criteria are not able to give the appropriate number of lags, instead they are reduce to a maximum of two lags.

⁷ Variables cease to be cointegrated if the test statistic is less than the critical value.

⁸ There are three types of VAR models i.e. VAR in levels, VAR in first difference or VECM and whenever a decision is made, it depends on pre-test for unit roots and Cointegration.

all explanatory variables to the dependent variable except Gross Domestic Product per Capita Growth Rate and inflation rates.

4.9 Granger Causality Test

Establishing absence of long run relationship, implies lack of long run causality which leads to determination of causality in the short run and whether it is significant or not. In this case, we were interested to know whether one time series predicts another. From Table 4.7, we revealed whether the identified factors in the short run cause fiscal deficit. We established that all the variables were jointly significant in causing or determining performance of fiscal balance. However, Gross Domestic Product per Capita Growth Rate and inflation rates with their respective lags were not significant in causing fiscal deficit. The rest of the variables with their respective lags illustrate short run causality. This means that in the short run, these factors caused fiscal deficit.

Table 4.8: Granger Causality/ Wald Tests by Independent Variables

EQUATION	EXCLUDED	CHI2	DF	PROB > CHI2
FB	GDPPCG*	3.6017	2	0.165
FB	TBR	49.663	2	0.000
FB	DTDEBT	11.881	2	0.003
FB	INF*	3.4097	2	0.182
FB	TRV	9.5912	2	0.008
FB	DM3	38.895	2	0.000
FB	DCA	13.583	2	0.001
FB	GGI	18.377	2	0.000
FB	ALL**	684.4	16	0.000

*These factors are not significant and thus do not cause fiscal balance.

**All of these variables combined significantly cause fiscal performance.

We further tested whether fiscal performance cause the independent variables as shown by Table 4.8. It can be seen that fiscal balance can as well cause all of its determinants except treasury bill rate and tax revenue. This implies that there is short run bidirectional causality. However, fiscal performance cannot be caused by gross domestic product per capita growth rate and inflation hence they have a unilateral short run causality.

Table 4.9: Granger Causality Tests/Wald Test by Dependent Variable

EQUATION	EXCLUDED	CHI2	DF	PROB > CHI2
GDPPCG	FB	18.497	2	0.000
TBR*	FB	6.0007	2	0.05
DTDEBT	FB	15.535	2	0.000
INF	FB	47.985	2	0.000
TRV*	FB	5.5682	2	0.062
DM3	FB	192.8	2	0.000
DCA	FB	2117.1	2	0.000
GGI	FB	60.061	2	0.000

*These variables cannot be caused by fiscal performance.

4.10 Estimation of a Vector Autoregressive Model

The main objective of this study was to establish the extent to which real GDP per capita growth rate, the treasury bill rate, the total debt service as a proportion of total exports, inflation rate, tax revenue as a percentage of GDP, ratio of broad money to GDP, Current Account Balance and Gross Government Investment as a percentage of GDP influence a country's fiscal performance. Variance Autoregressive model was employed in estimation.

We checked unit root, cointegration and goodness of fit of the model⁹ and we are now certain that our model is unrestricted VAR model. Non-stationarity behaviour and high persistence are characteristics of most economic variables. That is why series for pre-test for unit ratio and cointegration prior to the VAR analysis is necessary in order to determine the appropriate transformation that renders the data stationary. However, the pre-test we have mentioned and conducted suffers from lack of robustness for small deviations from unit roots and cointegration. Considering Table 4.9, we confirmed that all the variables under VAR model were significant. This means that lags of FB, GDPPCG, TBR, DTDEBT, INF, TRV, DM3, DCA, GGI and their respective lags significantly¹⁰ affect fiscal performance.

Therefore the results for the estimated model are as follows;

⁹ We established goodness of the model fitness by checking the presence or absence of Multicollinearity, autocorrelation, normality of the residuals of which we confirmed their absence thus the model is desirable.

¹⁰ The p-values are less than 0.05.

$$\begin{aligned}
& FB - 444908.5 + 0.7703801L.FB - 0.7132784L2.FB + 8685.283L.GDPPCG + \\
& 282.1931L2.GDPPCG + 7369.405L.TBR - 7077.112L2.TBR + 8168.574L.DTDEBT + \\
& 502.0139L2.DTDEBT + 3416.123L.INF - 4325.782L2.INF + 18418.12L.TRV - \\
& 41892.07L2.TRV - 1796.269L.DM3 - 28453.39L2.DM3 + 44.45929L.DCA + \\
& 51.09543L2.DCA - 31425.36L.GGI + 24073.59L2.GGI
\end{aligned}$$

.....5

In the short run, fiscal balance increases by 4449085.5 units if other factors are held constant. The unit change of the first and the second lags of fiscal balance increase and reduce fiscal balance by 0.7704 and 0.7133 units respectively whereas the first and second lag of real gross domestic product per capita growth rate both increase fiscal balance by 8685.283 and 282.1931 units respectively. A unit change of the first lag of the treasury bill rate increases fiscal balance by 7369.405 units whereas the second lag of treasury bill rate reduces fiscal balance by 7077.112 units.

Considering the unit change of the first and second lags of the first differences of the Total Debt service, we find that they both increase fiscal balance by 8168.574 and 502.0139 units respectively. Like in the case treasury bill rates, a unit change of the first and second lags of inflation increases and reduces fiscal balance by 3416.123 and 4325.782 units respectively. Similarly, current account both increases fiscal balance considering its first and second lags by 44.4592 and 51.0954 units respectively through its differences. Contrary to our expectations, a unit change in the second lags of tax revenue reduce fiscal balance by 18418.12 units but as expected, the first lag of tax revenue increases fiscal balance by 41892.07 respectively.

The first differences of the ratio of broad money to GDP reduces fiscal balance by 1796.269 and 28453.39 units respectively through its first and second lags whereas the first and second lags of Gross Government Investment reduces and increases fiscal balance through its first and second lags by 31425.36 and 24073.59 units respectively.

Table 4.10: Vector Autoregressive Results for Fiscal Balance

EQUATION	PARMS	RMSE	R-SQ	CHI2	P>CHI2
FB	19	52436	0.9790	932.5687	0.0000
VARIABLES	COEF.	STD. ERR.	Z	P>Z	95% CONF.INTERVAL
FB					
L1.**	0.7703801	.1529649	5.04	0.000	.4705745 1.070186
L2.**	-0.7132784	.238202	-2.99	0.003	-1.180146 -.2464111
GDPPCG					
L1.	8685.283	4770.654	1.82	0.069	-665.0266 18035.59
L2.	282.1931	3680.137	0.08	0.939	-6930.743 7495.129
TBR					
L1.**	7369.405	1101.543	6.69	0.000	5210.42 9528.391
L2.**	-7077.112	1967.644	-3.60	0.000	-10933.62 -3220.601
DTDEBT					
L1.**	8168.574	2444.896	3.34	0.001	3376.667 12960.48
L2.	502.0139	1449.087	0.35	0.729	-2338.144 3342.171
INF					
L1.	3416.123	1870.57	1.83	0.068	-250.1273 7082.373
L2.	-4325.782	2421.81	-1.79	0.074	-9072.441 420.8777
TRV					
L1.**	18418.12	7992.61	2.30	0.021	2752.889 34083.34
L2.**	-41892.07	14818.25	-2.83	0.005	-70935.31 -12848.84
DM3					
L1.	-1796.269	4095.028	-0.44	0.661	-9822.376 6229.838
L2.**	-28453.39	5663.715	-5.02	0.000	-39554.06 -17352.71
DCA					
L1.	44.45929	35.16335	1.26	0.206	-24.45961 113.3782
L2.**	51.09543	13.90386	3.67	0.000	23.84436 78.3465
GGI					
L1.**	-31425.36	8889.944	-3.53	0.000	-48849.33 -14001.39
L2.	24073.59	14874.51	1.62	0.106	-5079.913 53227.1
_cons	444908.5	236300.9	1.88	0.060	-18232.66 908049.7
Sample: 1975 – 2012			No. of observations = 37		
Log likelihood = 5654.847			AIC = -		
FPE = -2.6e-103			HQIC = -		
Det (Sigma_ml) = -1.3e-117			SBIC = -		

*These are the first differences of TDEBT, M3 and CA.

**These variables are significant at 5% significance level.

Source: Author’s computation from data with the aid of STATA.

As can be further observed from Table 4.8, majority of the variables were highly significant in determining the fiscal performance. Their p-values were less than 0.05.

However, it is important to note that differenced VAR specification is not robust to small frequency co-movements similar to case of differenced unrestricted VAR whereby lack of

robustness was expected to characterize the behaviour of the specification based on pre-test of a unit root given that the pre-test will select differenced specification with probability approaching one when the process is integrated. Nevertheless, 97.9% of the total variations explain fiscal performance in Kenya while the rest of the variations were accounted for by other factors not included in the model.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Summary

This study was conducted with the main objective of evaluating the performance of fiscal balance in Kenya and the nature of such behaviour. The study utilized annual data collected from various sources as described in the methodology covering the period 1963 to 2013. The study employed unrestricted Vector autoregressive model upon conducting varied tests and considering the nature/pattern of the data. Given basic and dynamic specifications, the study used time series data and specifically confirmed the nature of factors proposed as influencing fiscal performance in Kenya. Further, the study estimated the effects of those factors on fiscal balance where it found that these factors greatly determine the increase or decrease of fiscal balance.

Main findings of the study were that fiscal performance affects itself significantly both positively and negatively through its first and second lags respectively.

5.3 Conclusions

From the study we established that Gross Domestic Product per capita increased fiscal balance through both its first and second lags although it is not a significant determinant. Unlike GDP per capita growth rate the treasury bill rate through its first lag increased fiscal balance while the second lag of the treasury bill rate reduced the fiscal balance. Both of them significantly affect fiscal balance positively and negatively respectively.

On the other hand, both the first and second lags of Total Debt Service from the findings positively affect fiscal balance significantly except the second lag which is insignificant. The first and the second lags of inflation rates show positive and negative effects on fiscal balance and they are insignificant. The sign might not matter so much since it depends on the direction of spending. From the granger causality test, it is revealed that inflation does not cause fiscal balance in the short run. Nevertheless, the last second year of inflation as suggested by Gongera, et al., (2013) that in Kenya, inflation has contributed to heavy budget deficits through the last second year of inflation.

Tax effort which in this case is represented by tax revenue significantly affects fiscal balance positively and negatively through its first and second lags respectively. Increased tax revenue

would lead to improved fiscal balance. This study further revealed that the first difference of the current account balance also in the short run significantly affects fiscal balance whereby the last one year and the last two years of the first difference of current account balance, positively affect fiscal balance except the former which is insignificant.

The Quantity of money in an economy determines many activities ranging from micro to macro levels. The study revealed that the first difference of broad money is statistically significant and negatively affected fiscal balance through its first and second lags except the second lag which was insignificant. On the other hand, the first and second lags of the gross government investment affected fiscal balance negatively and positively. However, the first lag affected fiscal balance significantly whereas the second lag was insignificant.

Considering the importance of fiscal performance especially on controlling public debt, we have critically seen from the study that there is a need to maintain constant and clear checks on the explored factors by giving first priority to those factors significantly increasing fiscal deficits. These include; the second lag of the fiscal balance, the last year of the Treasury bill rate, the last second year of tax effort and the second lag of the first difference of broad money and finally the last first year of the gross government investment. These factors have been revealed to impact negatively on fiscal performance in Kenya which is likely to lead to a problem of fiscal instability. Therefore the government should intervene through refocusing on the existing fiscal policies to mitigate the anticipated future problems likely to be associated with the existence of unchecked behaviors of these significant factors as a result. This was as well observed by Gongera et al (2013) while estimating fiscal balance in Kenya in their study.

However, it should be noted that the economic and financial crisis experienced especially by emerging economies may have contributed to the behavior of the specific factors hence the rise of fiscal deficits.

5.4 Policy Recommendations

This study assessed diverse theories which looked into the paradox of fiscal performance in Kenya. Theories examined included tax smoothing which proposed the increasing of tax revenues, Leviathan theory which suspects a positive correlation between the level of economic development and public expenditure hence suggesting extraction of extra 'rent' or taxes from citizens, political theory of government debt which concentrates on redistribution

of government debt across generations and lastly positive theory of government deficit which suggests the use of public debt to influence budget deficit in the long run. We therefore recommend review of tax revenue strategies and policies to improve tax receipts and consequently fiscal balance in Kenya

Secondly, the Government should reevaluate the money market conditions in terms of money supply and treasury bill rates as a tool for ensuring a conducive climate for the government to access funds in case of deficits

Finally, Government should prioritise funding on productive areas by investing in those sectors. This will lead to sustainable fiscal performance in the long run by ensuring that the investments are used to generate more revenues either by private or public entities.

5.5 Limitations

This study utilized secondary data from the time of independence (1963-2013) thus experiencing challenges in generation of variables. This may add to inconsistencies and misrepresentation of the findings and thus incorrect inferences.

Second, there was a problem of data gaps for the period. We realized that full data ranged from 1975 to 2012. This was a limitation especially now that our estimation required lagging so as to seek for stationarity or correcting for the model as expected in the analysis.

Finally, there was a challenge of literature which gave little attention to some factors analysed like current account balance and tax effort in the context of developing economies. Making comparison became a problem.

5.6 Areas for Further Research

The main objective of this study was to establish the relationship between various factors and their effects on fiscal performance in Kenya. There is however a need for more or similar studies in the east Africa region to inform governments of the day especially on the anticipated economic amalgamation in terms of the effect of fiscal performance in the success of alliances like East Africa Community (EAC).

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APPENDIX I: DATA

Year	FB	GDPPCG	TBR	TDEBT	INF	TRV	M3	CA	GGI
1963	3.4	5.37			0.6976744		22.661695	-12.1	
1964	52.6	1.64			0.0993049		23.693776	-8.5	1.12456
1965	-81.2	-1.26			3.5785288		23.969627	-19.3	1.14871
1966	-84.2	11.02			5.0143954		26.37602	-34.3	1.17107
1967	-26.4	-0.02			1.7591958		30.606555	-37.8	1.38789
1968	-65.4	4.41			0.3667116		29.674402	-31.5	1.47801
1969	-103.2	4.33	3.95		-0.171501		28.535543	-49.2	1.85255
1970	290.8	-7.92	2		2.188527		30.491119	-87.3	2.59604
1971	-265.8	17.93	1.42		3.7802061		25.710286	-62.9	3.13041
1972	-446	12.96	3.448		5.8316447	7.6089029	27.394669	-50.4	2.97469
1973	-611	2.12	1.917		9.2811942	5.7773305	28.181756	-147.9	3.97091
1974	-312	0.32	4.63		17.809948	2.3357005	32.795688	-124.6	4.3625
1975	-832	-2.77	6.078	14.9362	19.120184	5.7773305	34.529133	158.9	5.20247
1976	-1040	-1.57	5.542	14.81054	11.44903	7.8644053	34.354798	1.7	5.05373
1977	-1091	5.45	2.128	20.45099	14.820964	3.2176551	29.931403	109.7	5.29652
1978	-727	2.98	4.286	13.97476	16.931782	3.4322521	29.470201	-575.5	5.3688
1979	-2100	3.63	6.008	18.37208	7.9793526	2.4295141	30.420469	-474	4.9791
1980	-1790	1.66	5.258	21.02889	13.858181	3.5245222	28.175889	914.1	5.2442
1981	-3149	-0.11	7.606	26.96558	11.603053	8.216184	28.342092	641.3	5.23221
1982	-4525	-2.29	12.58	30.48343	20.666715	7.2326151	26.68185	-422	5.07966
1983	-3002	-2.47	14.15	33.77419	11.397783	9.0089029	30.38808	-214	3.37519
1984	-3995	-2.01	13.243	34.79545	10.284098	9.7922905	30.243954	-266.5	3.62254
1985	-5796	0.49	13.901	38.66533	13.006566	6.3506605	28.901071	-278.7	3.0661
1986	-4707	3.33	13.225	35.60632	2.534276	6.3204773	28.398906	-235.2	3.9348
1987	-9064	2.19	12.862	39.76611	8.6376732	11.879365	29.577016	-660.1	3.11541
1988	-8004	2.52	13.477	38.9906	12.264963	7.2326151	30.981929	-729.5	4.25139
1989	-14405	1.13	13.858	36.64008	13.789317	7.4472121	36.517796	-961.9	4.64629
1990	-9943	0.72	14.783	35.41213	17.781814	7.2326151	37.065232	-915.2	6.20984
1991	-9322	-1.88	16.593	32.61405	20.084496	9.0089029	38.016009	-511.9	4.257
1992	-8192	-3.98	16.527	31.1387	27.332364	9.7922905	42.232269	-500.2	3.21926
1993	-19229	-2.77	49.798	17.06061	45.978881	14.965621	35.791691	-247	3.04579
1994	-17510	-0.44	23.315	20.56434	28.814389	14.935437	38.422653	-238.4	3.26016
1995	2693	1.43	18.288	25.26389	1.5543282	20.494325	35.807184	-738.1	2.97005
1996	-690	1.32	22.251	22.39031	8.8640874	15.847575	35.770798	-510.3	1.95087

Year	FB	GDPPCG	TBR	TDEBT	INF	TRV	M3	CA	GGI
1997	-7918	-2.14	22.868	15.56237	11.361845	16.062172	35.164727	-774	1.56265
1998	-5304	0.68	22.833	14.85174	6.7224365	15.059434	35.240744	-1011.7	1.18123
1999	-7191	-0.27	13.874	15.82429	5.7420011	16.154442	38.15891	-975.1	2.15933
2000	3214	-1.95	12.05	21.0197	9.9800252	16.831144	39.023164	-1261.7	3.44733
2001	-37185	1.12	12.597	15.87806	5.7385981	17.831775	39.327027	-1346.9	2.72662
2002	-33813	-2.05	8.948	16.33771	1.9613082	17.2946	38.906715	-997	3.1419
2003	-50711	0.26	3.505	15.81999	9.8156906	15.765772	39.7084	-1142.6	3.03964
2004	-21054	2.39	3.168	8.254828	11.624036	16.97282	42.316588	-1629.9	3.14997
2005	-13518	3.19	8.426	9.966415	10.312778	18.670459	42.540332	-2168.3	3.8596
2006	-14971	3.63	6.734	7.115201	14.453734	17.376186	44.138005	-1119	8.77878
2007	-196371	4.3	6.87	6.314938	9.7588802	17.790189	50.076569	-1147	8.88438
2008	-163156	-1.03	8.59	4.870192	26.239817	18.808689	50.980229	-2745	7.3586
2009	-161943	0.11	6.82	5.119654	9.2341259	18.819521	43.9	-1611	10.6985
2010	-304816	3.02	2.28	4.389361	3.9613889	19.545495	49.7	-2024	12.0217
2011	-29118	1.62	18.3	3.6	14.02155	19.5	50	-3675	13.1376
2012	-41107	1.75	8.3	5.1	9.4	19.9	51.2	-3205	14.0372
2013	-56073		9.52	4.9	5.7				