EFFECTS OF BUDGET DEFICIT ON ECONOMIC GROWTH IN KENYA

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DECLARATION

I the undersigned, declare that this project is my original work and it has not been presented in any other University or Institution for academic credit.

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DEDICATION

I dedicate this project to my husband and kids for their love and support during the entire process and to my parents for their continuous encouragement especially to my late Dad and Mum for their continuous prayers**.**

ABSTRACT

Kenyan economy has consistently and persistently experienced budget deficits for a long time and this exposes the economy to various vulnerabilities from both within and outside. The study sought to examine the relationship between budget deficit and economic growth and then determine the level of budget deficit that is favourable to the economy of Kenya using time series data for the period 1980 to 2014 on stata by employing Ordinary Least Squares (OLS) method of estimation. The results indicate a positive relationship between budget deficit and economic growth but as the budget deficit increases, the impact on growth decreases. The study identified a budget deficit of approximately 4 per cent of Gross Domestic Product (GDP) as being optimal for the case of Kenya economy, beyond this level, the benefits obtained from the deficits start diminishing. This result supports the Keynesian view of budget deficit which advocates for deficit in stimulating the economy during recession periods. In conclusion, the government`s concern should not be about running the budget deficits but whether the levels are sustainable. The study recommends financing of development expenditures through public private partnerships or off the balance sheet to create fiscal space.

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LIST OF ABBREVIATIONS

ARDL	-	Autoregressive Distributed Lag
ADB	-	African Development Bank
BPS	-	Budget Policy Statement
BD	-	Budget Deficit
CBK	-	Central Bank of Kenya
EACMU	-	East African Community Monetary Union
GoK	-	Government of Kenya
GDP	-	Gross Domestic Product
IDA	-	International Development Association
IMF	-	International Monetary Fund
IFMIS	-	Integrated Financial Management & Information System
MTP	-	Medium Term Plan
NLLS	-	Non Linear Least Squares
OLS	-	Ordinary Least Square
2SLS	-	Two Stage Least Square
OECD	-	Organization for Economic Cooperation & Development
RSS	-	Residual Sum of Squares
SGR	-	Standard Gauge Railway
TAR	-	Threshold Auto Regressive Model
USD	-	United States of America Dollar
WAEMU	-	West African Economic and Monetary Union
WB	-	World Bank
VECM	-	Vector Error Correction Model

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CHAPTER ONE: INTRODUCTION

1.1 Background

The basic nature of any economy depends on the availability of its productive resources in proportion to its requirements. These requirements are ever growing while the availability of resources to meet them is always insufficient.

Each and every government undertake numerous activities and pursue certain policies which have implications in terms of revenue and expenditure. The government of Kenya describes its plans, strategies and policies that it wants to undertake during the fiscal year in the Budget Policy Statement (BPS) which is tabled in parliament for approval. It then draws a financial plan in terms of a budget corresponding to what it intends to do. The budget contains details of estimated receipts and disbursements and proposed expenditures for the financial year which is subject to annual revisions depending on the circumstances prevailing in the country.

While the expenditures are ever growing, most of developing countries have revenue structures that do not yield enough revenue. More often the growth in revenue has lagged behind, with government spending pressures increasing at an increasing rate leading to a situation that has occasioned huge imbalances in public funds. Revenues are uncertain and depend on a number of factors. Availability and mobilization of revenue is very important because it is through it an economy is run and managed. Tax is the main fiscal instrument which the government uses to raise revenues to finance its expenditures and also achieve sustained growth targets hence an important principal source of revenue for most governments. The implication of using this instrument is that, it depends on the fiscal performance of the economy and achievement of government policy objectives.

A budget deficit occurs when the revenue collected from taxation, social contributions, grants, recurrent appropriations in-aid, or other revenues sources are insufficient to meet expenditures projected in the budget. A large proportion of budgetary resources are internally generated through various taxes, with a small proportion coming from non-tax sources.

The causes of budget deficits are of varied levels. The major being when the actual revenues collected falls short of projected amount. This may be attributed to low economic performance affecting the ability of the government to collect enough. Other causes may be due to; changes in weather forecast which constrains the economy`s productivity, insecurity which dampen the tourism sector , external factors like the global crisis which dwindle the private and public investments, natural disasters such as droughts, floods and hurricanes which destroy assets and hamper economic activities, war which is costly and often unforeseen and even if it is foreseen, it's often too difficult to project its end and resources required to successfully prosecute (Grimsey, 2004). PKF Kenya,(2012) noted that corruptions, unwarranted public expenditure by the government and high noncompliance rate among the tax payers have also been the major contributors to budget deficits in Kenya.

1.1.1 Ways of financing the budget deficits and their implications

The government can finance its deficit through domestic borrowing. This involves the issuance of domestic debt instruments commonly; Treasury bills, Treasury bonds and obtaining loans locally. In Kenya, this is done through the banking system where the Central bank of Kenya (CBK) issues the debt instruments on behalf of the government. The key market players include commercial banks, non-financial institutions like Pension funds, insurance funds, corporations and individuals. This option has the disadvantage of reducing the credit which would otherwise be available to the private sector, thus exerting pressure on interest rates to rise and where interest rates are controlled; domestic borrowing leads to credit restrictions and reduction of private sector investment (Abbas and Christensen, 2007). The main advantage of domestic borrowing is that the money used for debt servicing remains within the country which automatically restrains the possible loss of liquidity towards the foreign land. It also develops, deepens and regulates the domestic financial markets making it vibrant (Abbas and Christensen, 2007).

The other way the government can finance its deficit is by borrowing externally through mobilization of resources from the international capital market, bilateral relations and

multilateral institutions. The government of Kenya has a good international credit rating which has enabled it to tap the international capital market (Republic of Kenya, 2012). The limit in this case is given by the willingness of foreign investors and their perception on the government's credibility. Foreign borrowing is often riskier because at some point foreign creditors may decide that foreign debt is excessive and stop lending. This may lead to a debt crisis, repeated devaluations and debt rescheduling (Ugo, 2008).

Another source of deficit financing involves money printing which entails increasing the supply of money in the economy by printing more notes or coins. Generally, the government uses this source in form of loans from CBK i.e. overdraft. Financing the budget deficit through this option has a significant effect on inflation and emerging countries should be cautious to the fiscal policies they adopt since inflation is affected by many economic shocks such as high budget deficit (Solomon and Wet, 2004). More often than not the government of Kenya resorts to debt financing options due to its ability of promoting economic growth.

1.1.2 Growth Rates Trends

After independence, the economy was growing at an annual average of 6.6 per cent due to the adoption of various policies by the government to promote public investment, smallholder farming, and private and local industries for the period 1963 to 1973 (Economic surveys, various issues).

Between 1974 and 1990, however, the economy`s performance declined due inappropriate agricultural policies, inadequate credit, and poor international terms of trade which led to growth rate to drop to an average of 5.2 per cent (Economic Survey, 1991). The inward-looking policy of import substitution and rising oil prices made Kenya's manufacturing sector uncompetitive. The government began massive interference into the private sector. Lack of export incentives, tight import controls, and foreign exchange controls made the domestic environment for investment even less attractive.

From 1991 to 1993, Kenya had its worst economic performance since independence. Growth stagnated, and agricultural production shrank at an annual rate of 3.9 per cent. Inflation

reached a record 100 per cent in August 1993, and the government's budget deficit was over 10 per cent of GDP. As a result of these combined problems and unwillingness from the political systems at the time, bilateral and multilateral donors suspended programme aid to Kenya in 1991.

In 1993, the government of Kenya began a major economic reform and liberalization. A series of economic measures were undertaken with the assistance of the World Bank (WB) and the International Monetary Fund (IMF) which helped the government to eliminate price controls and import licensing, remove foreign exchange controls, privatized a range of publicly owned companies, retrenched civil servants, and introduced conservative fiscal and monetary policies. These led to a growth in real GDP of about 4.2 per cent in the years 1994 to 1996.

In 1997, however, the economy entered a period of reduced growth, due to adverse weather conditions and reduced economic activity prior to general elections. In 2000, GDP growth was negative but recovered slightly reaching 1.8 per cent in 2003 and 6.4 per cent in 2006. The trends in GDP growth rates are shown in Figure 1.

Figure 1: GDP Growth rate

Source: Kenya National Bureau of Statistics (KNBS)

The GDP growth was at its peak in 2007 fiscal year at 7.0 per cent but declined drastically in fiscal year 2008 to 1.5 per cent due to effects of post-election violence which affected the economy`s performance and this was worsened by the global crisis that was experienced during the period under review. There has been a moderate economic recovery since 2010 where economic growth averaged 5.2 per cent up to 2014 fiscal year, but due to systemic corruption, high unemployment, and insecurity in the country, economic development is undermined.

The rebasing of GDP in 2014 due to structural changes that have occurred over the period, improved coverage and use of better data has seen Kenya to be elevated to a lower middle income country as its GDP per capita increased from USD 1029 to USD 1,269 which is above the benchmark set by World Bank of USD 1,036. This means that Kenya has more resources at its disposal because it is eligible to borrow from non-concessional facilities of World Bank (WB) and African Development Bank (ADB) and even access more funds in the international markets (Medium Term Debt Strategy, 2016).

1.1.3 Government Fiscal operations

The government of Kenya has been experiencing a consistent and increasing budget deficit but the question of whether it contributes to good or poor economic performance is what the study intends to find out.

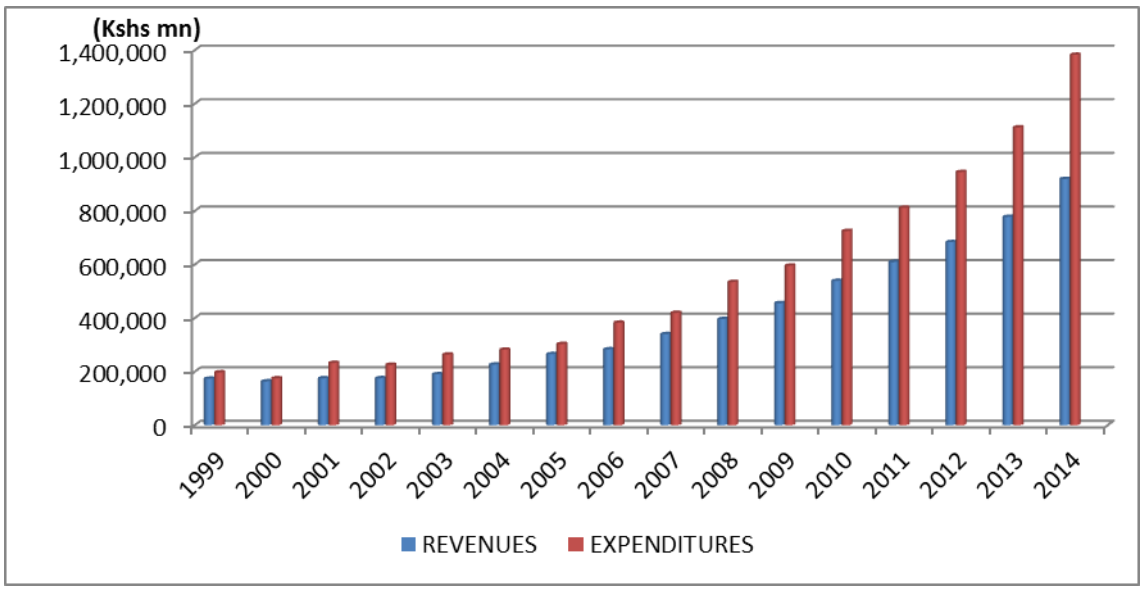
Since independence to early 1970`s, the government was able to finance all its recurrent expenditure and part of its development expenditure through revenues sources, and thus incurred minimal fiscal deficits (Muriithi and Moyi, 2003). From late 1970s, due to exogenous and non-exogenous factors, the government started experiencing chronic fiscal deficits and the persistence of these deficits has been ascribed to unrestrained government expenditures and a rigid tax system. Neither government tax policy nor system was able to mobilize funds on a reliable basis. To reduce these deficits, the government had to increase its efforts in mobilizing revenue while maintaining its expenditures under watch simultaneously (Muriithi and Moyi, 2003). This is because growth in government expenditure increases the fiscal deficit if revenue

is not growing at the same ratio and this can even be worsened if the rise in revenue is spent in poor and unproductive social programs (Gandolfo, 2001) .

Reducing budget deficits has been at the centre of many governments due to its negative consequences such as, rising inflation resulting from increased money supply to pay off debts, over indebtedness from increased borrowings to finance the deficit leading to increased amounts in debt servicing, decreased autonomy through impositions of suctions and conditionalities by donors and reduced investments as a result of crowding out of the private sector due to deficiency of funds available for borrowing (George, 2009).

Kenya's fiscal operations for the period 1999 to 2014 are highlighted in the Figure 2.

Figure 2: Total Government Revenue and Expenditure



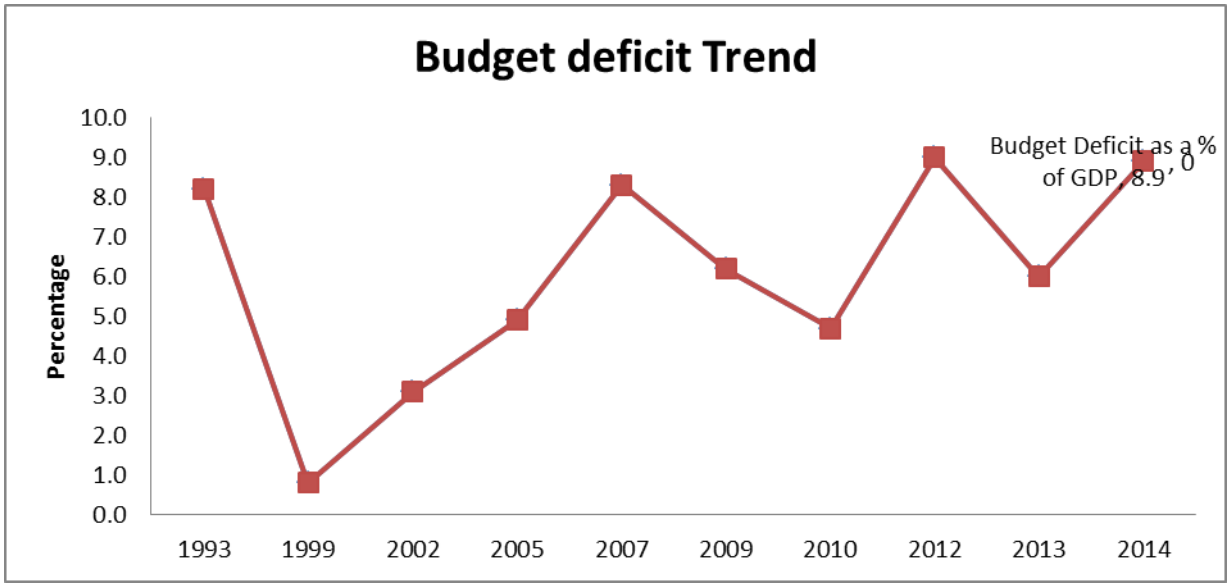
Source: The National Treasury (2014)

Figure 2 shows that for all the years, in absolute terms; the expenditure exceeded revenue. Similarly, both government's revenue and expenditure maintained consistent growth patterns. In relation to GDP, government revenue averaged 22.1 per cent, while expenditure was 26.5 per cent resulting to a resource gap of about 4.4 per cent for the period 1999 to 2014.

These deficits continue to persist even though the fiscal target of the government has been to reduce it through adoption of several and diversified strategies. Among the strategies adopted include: measures to widen the tax base, ensuring efficiency in tax collection, raising the flexibility of the overall tax system and various austerity measures to cut down on the recurrent expenditures some of which include; lessening of foreign travels, reducing purchase of new furniture and reduction in budget allocation for hospitality, and other low priority sectors (BPS, 2014).

The trends on the budget deficit can be seen in Figure 3, which shows the movement of the budget deficit from the fiscal years 1993 up to 2014. From one year to another, in terms of GDP ratio, the deficit increased from 4.5 per cent in the fiscal year 1987/88 to 8.3 per cent in 1992/93 and then declined to a low of 1.5 per cent in 1995/96.

Figure 3: Trends in Budget Deficit in Fiscal years (as a per cent of GDP)



Source: The National Treasury (2014)

Kenya's budget deficit in the fiscal year 2003/04 was around 4.0 per cent of GDP, increasing to 4.9 per cent of GDP in 2005/06 fiscal years. The deficit touched the highest points of 8.3

per cent of GDP in the fiscal year 2006/07, but has slightly been constant at this range recording 8.9 percent of GDP in the fiscal year 2013/14.

Taxes have been the principal fiscal instrument used by the government to meet its expenditures but to taxpayers, it is seen as wicked. As a result of this perception, the citizens employ various tactics to avoid paying tax. This revenue source has proved to be inadequate causing a persistent recurrence of revenue shortfalls throughout the fiscal years.

Revenue shortfalls occur due to; poor tax administrative systems making it possible for taxpayers to evade tax, poor economic performance and existence of the black market, operation of illegal and socially unacceptable activities like drug trafficking, prostitution and even piracy in the economy. These activities operate but tax is not paid due to their unreported or unrecorded nature to the tax authority and thus denying the government a chance to raise additional revenue which leads to persistent deficits.

In light of increased budgetary demands, borrowing becomes essential and inevitable. The government resorts to financing its deficit through borrowing either domestically or externally to fill the revenue shortfall and to ensure the budget is implemented as expected. This leads to accumulation of debt levels. Table 1 shows the evolution of debt since 2005 to 2014 fiscal years. The total debt in nominal terms has been increasing steadily but in terms of GDP, it has been averaging 49.2 per cent. As at end June 2014, the share of domestic debt in the total debt was 53.0 per cent compared to 47.0 per cent of external debt.

Table 1: Evolution of public debt in Kenya (Ksh millions)

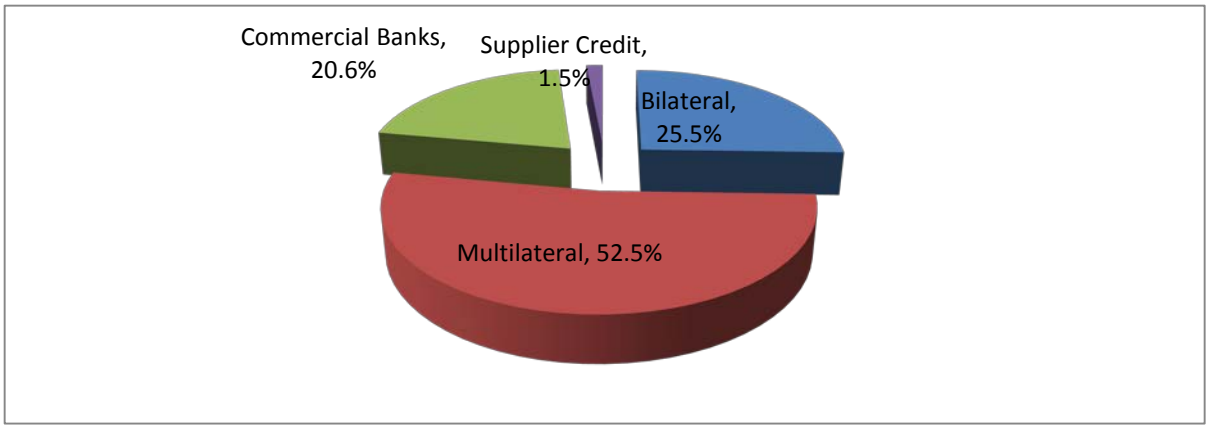
	June 2005	June 2006	June 2007	June 2008	June 2009	June 2010	June 2011	June 2012	June 2013	June 2014
External Debt	434,453	431,237	400,966	439,967	518,507	660,268	764,222	858,830	1,050,555	1,138,505
As a per cent of GDP	32.2	27.9	21.7	21.1	22.7	26.9	27.4	26.2	28.7	22.8
Domestic	315,573	357,839	404,690	430,612	540,875	569,138	722,888	763,971	843,562	1,284,327
As a per cent of GDP	23.4	23.2	22.1	20.8	23.7	23.2	25.9	23.3	23	25.8
Grand Total	750,025	789,076	805,686	870,579	1,059,382	1,229,406	1,487,110	1,622,801	1,894,117	2,422,822
As a per cent of GDP	55.6	51.1	43.8	41.9	46.4	50	53.4	49.5	51.7	48.6

Source: The National Treasury (2014)

The Kenya`s public and publicly guaranteed debt increased from Ksh 750 billion in the fiscal year 2005 to Ksh 2,422 billion in 2014 fiscal year. This increase is attributed to the development of the economy in terms of population and infrastructure leading to high demand for funds to meet the government requirements.

As at end of the financial year 2013/14, Kenya's external debt portfolio was mainly owed to multilateral (52.5 per cent), bilateral (25.5 per cent), commercial creditors (20.6 per cent) and 1.5 per cent to suppliers creditors. Figure 4 shows creditor category of the external debt as at end June 2014.

Figure 4: External Debt Composition

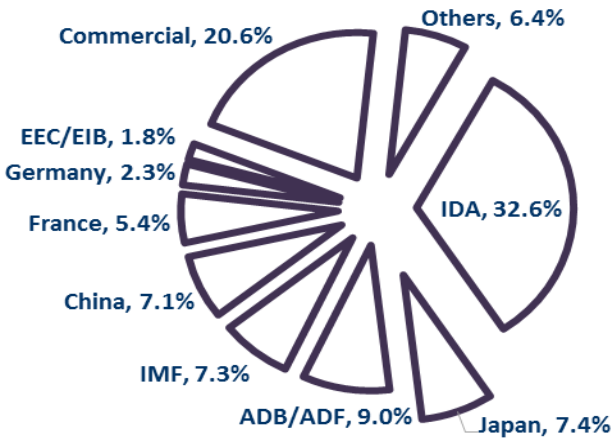


Source: The National Treasury (2014)

The World Bank (IDA) is the leading creditor in the external debt portfolio at 32.6 per cent of total external debt, followed by commercial creditors at 20.6 per cent and ADB/ADF at 9.0 per cent (Figure 5). Among the major bilateral creditors are Japan, China and France.

Figure 5 shows the funding sources of the government as at end June 2014.

Figure 5: External funding sources.



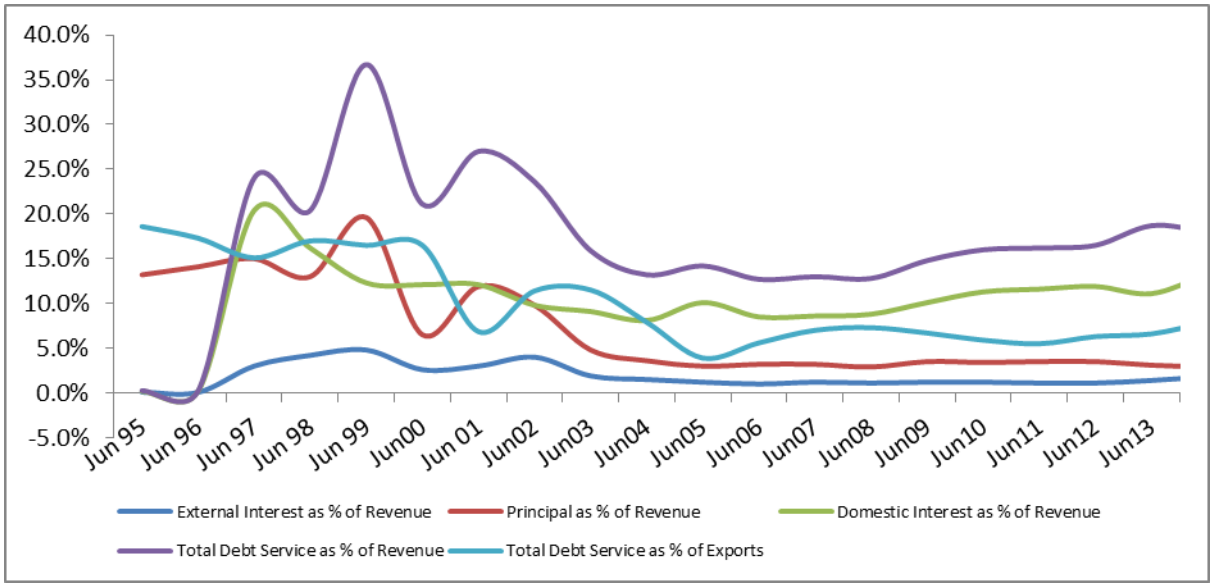
Source: The National Treasury (2014)

1.1.4 Debt Service Payments

A high level of borrowing has led to high levels of debt service in terms of interest payments and principal repayments.

An interest payment on public debt is seen as a burden in relation to the levels of national income. As interest on debt as a proportion of national income rises, a larger portion of national income will have to be taxed and collected as revenue to pay that interest. The real worrisome burden of debt is the erosion of budget since a large portion of budgetary expenditure becomes a committed component. As debt continues to grow, the country falls into a debt trap where fresh borrowing will always be required to service the existing debt. Large public borrowing increase the interest cost for the government and it increases the refinancing risk of paying it. Figure 6 shows evolution of debt service payments over time.

Figure 6: Debt service payments as a percentage of Revenue and Exports



Source: KNBS (2014)

From Figure 6; it is evident that a large share of revenue is used for debt service payments in Kenya. Out of the total interest payments, a large proportion goes to the domestic interest cost which has been growing as a percentage of revenue from 0.2 per cent in 1995 to a high of 20.4 per cent in 1997 and then dropped over time to 13.3 per cent in 2014. This is because domestic debt is expensive compared to external debt in relation to the financial terms of the loans due to the undeveloped domestic financial markets and use of short term instruments to raise funds which lead to refinancing risks. Total debt service as a percentage of revenue has been generally stable at around 16.0 per cent except for the fiscal year 2013 and 2014 when it rose to around 18.0 percent. The total debt service as a per cent of export stood at an average of 6.5 per cent with 2014 recording a high of 7.9 per cent.

1.1.5 Government Fiscal Policy Framework

The government of Kenya`s fiscal policy framework is anchored in the blue print vision 2030. The vision aims at increasing the Kenyan economic growth to 10.0 per cent per annum while ensuring the debt levels are sustainable. For this to be achieved, it requires efforts in

mobilizing additional revenue and containing current spending so that more public resources are invested in capital projects to promote sustainable and inclusive growth. The overall deficit needs to be maintained at a level less than 5 per cent of GDP for Kenya`s debt sustainability to remain. Domestic debt need to be maintained at levels that allows for credit expansion to enable private sector participation in development and achievement of Kenya`s vision 2030 (Republic of Kenya , 2007).

The Kenya`s vision 2030 is implemented through a series of 5 years Medium Term Plans (MTP). The first MTP for the period 2008 to 2012 showed that, much was achieved even though it was faced with a lot of challenges. The second MTP for the period 2013-2017 currently being implemented aims at ensuring fiscal and debt sustainability by implementing tax reforms aimed at broadening the tax base and also to borrow at a ratio of 30: 70 from both domestic and external sources to avoid crowding the credit market for the private sector. This can be seen from the tax and revenue reforms currently being undertaken by the government, which are aimed at enhancing revenue yield through broadening the tax base, facilitating private sector growth and lessening compliance charges. All these policies are aimed at propelling the economic growth rate to 10.1 per cent by 2017.

Containing the growth of total expenditure to create fiscal space has been the government's intention through rationalization of resources from non-priority to priority sectors, increasing development expenditures share to 30.0 per cent to benefit priority areas in the infrastructure, agriculture and social sectors. To improve expenditure efficiency and effectiveness the government has put in place various measures like continued rationalization of public expenditures in identification and removal of expenditure overlaps and waste, use of Integrated Financial Management Information System (IFMIS) and e-procurements to entrench transparency and accountability, and to generate increased efficiency and cost savings.

As the country progressively graduates to middle income level status, the governments` concessional funding will continue to reduce and thus, it will diversify its financing sources through access to commercial sources of financing in the international financial markets and other non-debt foreign debt investments. The levels of domestic borrowing will be controlled

to avoid crowding out the private sector and a careful approach will be implemented on the external borrowing to minimize exposures to foreign exchange rate risk and the level of contingent liabilities.

The East African Community Monetary Union (EACMU) protocol of which Kenya is a signatory states that the parties have to monitor and realize the convergence criteria for fiscal deficit excluding grants of 6.0 percent of GDP as a pre requisite for the establishment of the union. Further, the countries have to meet a macroeconomic convergence criterion of fiscal deficit of 3.0 per cent including grants and this has to be achieved by the year 2021, Protocol by EACMU (2013).

In view of the above background, the provision of basic goods and services is a key mandate of the government of Kenya (GoK). However, in a time of constrained public budgets, high sovereign debt, and rising public expenditure demands from both the National and County government functions, the government is faced with a lot of challenges. The two tier system of government arising from the Constitution of Kenya 2010 means that huge resources are required to ensure devolution process is success.

1.2 Statement of the Problem

The existence and persistent growth of the budget deficit in Kenya exposes the economy to various vulnerabilities from both within and outside the economy. In spite of the numerous austerity measures and the various attempts to widen the tax base over the years, the budget deficits continues to grow with the 2013/14 fiscal year budget deficit hitting 8.9 per cent of the GDP (BPS , 2014). A high deficit implies that the government will continue to increase its borrowing and hence the debt levels will continue to grow. Kenya's public indebtedness as at end-June 2015 is estimated at 48.8 percent of GDP, the highest level seen since independence (Annual debt report, 2015). The main driver for public debt accumulation in the past has been the primary deficit, which has contributed to 8.8 percent of GDP increase in the public debt level (Medium Term Debt Strategy, 2016). Accumulation of public debt levels leads to the widening of the current account deficits. As the current account deficit worsens, it turns to the

depreciation of the domestic currency which may impact the economy negatively due to the inflationary pressures and thus increase in interest rates. As a consequence, the cost of borrowing goes up for the government and this exerts pressure on the government budget due to high debt service and thus high deficit levels. The vicious cycles will continue again and again and the potential spiral effects are creating anxieties in the Kenyan economy.

This study is not aimed at solving the inconclusiveness of the debate between economic growth and budget deficit, but it aims at contributing to the unending debate on the relationship of the two variables by identifying the level of budget deficit that is sustainable to help policy makers caution the government on the risk of insolvency or risk of the country plunging into a debt crisis.

1.3 Objectives of the study

The study aims at investigating the effects of budget deficit on the economic growth of Kenya. Specifically, the study intends;

1. To analyse the relationship between budget deficit and economic growth in Kenya
2. To analyse the budget deficit threshold that is sustainable.
3. To provide policy implications for managing the budget deficit.

1.4 Research Questions

1. How does the budget deficit influence the economic growth of Kenya?
2. What is the budget deficit threshold level that is sustainable for Kenya?
3. What are the policies that the Government of Kenya can adopt to manage budget deficits

1.5 Significance of the study

This study makes several contributions to literature and policy. By examining the budget deficit and economic growth on a country- specific level, the study contributes to literature and aims at influencing both fiscal, monetary and debt policy in Kenya since it is covering an interesting period in Kenya where political upheavals influences fiscal policy while the

economy undergoes significant transformations in relation to the constitution 2010. The empirical findings will shed more light on the best way to manage a budget deficit without harming the economy. The policy makers will therefore have a better understanding of the issues surrounding the relationship between budget deficit and economic growth and a threshold of budget deficit which will act as an indicator to warn against the country plunging into debt crisis or debt overhung. Since Kenya finances its budget deficit largely by borrowing, the study aims at providing the understanding of managing debt within sustainable levels.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter has two sections, section one explores some theories behind budget deficit and economic growth, and the other section discusses, some empirical studies that have previously been carried out on the subject.

2.2 Theoretical Literature Review

The Neoclassical economists assume that each consumer belongs to a specific generation and the lifespans of succeeding generations overlap. This school of thought also assumes that the market will always be at equilibrium in all periods. Based on these assumptions, they argue that budget deficits have detrimental effects on the economy and thus advocate for a balanced budget at all times (Bernheim, 1989). This is because, in the case of a closed economy with under employment of resources, the budget deficit will lead to an increase in expenditure which translates to high interest rates, reduction in national savings and thus reduced future investments. In case of an open economy, an increase in expenditure will have no effect on interest rates in the international market but may lead to increased external borrowing which will lead to appreciation of the local currency and thus a fall in exports and a rise in imports. This worsens the current account position of the economy (Bernheim,1989).

Keynesian economists' assume the existence of unemployed resources and credit constrains individuals in an economy. They are of the idea that budget deficits are good due to their multiplier effects to the economy. Increased government spending stimulates aggregate demand which leads to employment of idle resources and thus increase output. They advocate the use of budget deficits during economic downturn periods to kindle aggregate demand and thus reduce the period of recovery. Thus, they recommend that budget management should follow anti cyclical economic conditions (Barro, 1989).

The Ricardian Equivalence approach advanced by Barro (1978) asserts that budget deficits are neutral to the growth and development of the economy. When taxes are reduced, it's accompanied by widening of the budget deficit. This does not trigger high consumptions and

thus no growth expectations as individuals will increase their savings as they wait for higher taxes in future. This is because; an increase in government debt as a result of increased deficit implies future increases in tax liabilities with a present value equivalent to the value of debt. Thus rational individuals should know this equivalence and continue as if the debt did not exist (Seater, 1993). Considering the fact that lower taxation in the present will be balanced by higher taxation in future, this means that budget deficit will have no impact on macroeconomic variables. Thus the government may finance its deficit by taxing the current taxpayers or through borrowing. However, the borrowing must be repaid by raising more taxes than what would otherwise have been in future. The approach also argues that, a debt financed deficit has no effect on the current account and exchange rates.

2.3 Empirical literature review

Tesic, Ilic, & Delic (2014) in a study on the consequences of fiscal deficit and public debt in financing the public sector using various methods of descriptive statistics found that high public debt especially the external component does not contribute to economic development of any economy .Hence, should not be used as main tool for stimulating growth. The use of debt to finance deficits means that the costs associated with it will be borne by future generations and this narrows the fiscal space in the public finances thus slowing down the economic growth in future.

Osuka & Chioma (2014) using Johansen cointegration and Granger Causality test examined the impact of budget deficits on macro-economic variables in the Nigerian economy for the period 1981-2012 with the aim of establishing if there is a long-run relationship between budget deficits and other macro-economic variables. The study found out that budget deficit crowds in investment through its reduction in interest rates and thus contributing to economic growth but emphasis should be on capital expenditure and thus refuting the claim that budget deficit increase interest rates. The results also show that there is Uni-directional Granger causality between budget deficit and GDP with GDP Granger causing budget deficit. The study

concludes that budget deficit exerts significant impact on the macro economic performance of an economy.

Huyuh (2007) in his study for the period of 1990 to 2006 for developing Asian Countries analyzed the trends found out a negative effect of the budget deficit on the GDP growth. Further as the budget deficit burden increases, the crowding-out effect surfaces.

Adam and Bevan (2005) in assessing the relationship between fiscal deficits and growth in developing countries for a panel of 45 countries found out that the average growth effect of a deficit-financed increase in 'residual' expenditure could be positive or negative given that the deficit is below or above a certain threshold. There will be growth within the economy if the deficit levels are less or equal to the threshold levels of 1.5 percent of GDP and the reverse is true for deficit levels greater than the threshold. Therefore the threshold indicates an adjustment in the marginal effect but this adjustment is adequate enough to suggest a turning point.

Ristil, Nicolaescu and Tagaduan (2013) using regression analysis on time series data for real GDP and consolidated general budget analysed the mutual impact between the budget deficit and economic growth for Romania economy. The findings show a positive correlation between GDP growth rate and the general government balance in the long run. Positive economic growth creates extra resources and these results in a causality relationship between economic growth and budget deficit. Thus in periods of positive economic growth, large budget deficits should be discouraged.

Mendoza and Oviedo (2006) focused on the incomplete market economy. The competitive equilibrium in the economy where the government decides on the optimal plans for the public debt and government expenditures and is faced with revenue volatility. Using the markov perfect equilibrium methodology, they obtained a negative nonlinear relationship between the average public debt ratios and inconsistency of fiscal revenue. Whenever there is revenue shortfall, then it means that the country`s access to debt will be more in order to finance its fiscal deficit to smoothen the expenditures.

Aghion and Howitt (1998) in examining cyclical budgetary policy and economic growth, on Organization for Economic Cooperation and Development (OECD) countries using yearly panel data showed that growth is positively related with more counter cyclical budget deficit. Growth increases by 0.11 percentage points if counter cyclicality of the budget deficit is increased by one percentage point. This positive effect of counter cyclicality diminishes for private credit increases by each percentage point in over GDP. A counter cyclical budgetary policy has to be large enough to induce growth. A rise in the budget deficit through government spending on development has a much greater impact on economic growth when the economy is weak, and a decrease in government spending on development has much smaller impact on the growth of the economy when the economy is flourishing.

Odhiambo and Momanyi (2013) Employed Error Correction and Cointergration approach to study budget deficits and economic growth relationship in Kenya using a classical production function. The empirical results suggested that fiscal deficits increase growth since it enhances productivity through provision of infrastructure, education health among others. The results found that, there is a positive relationship between economic growth and the budget deficit.

Tokunbo and Oladele (2006) examined how budget deficits when used as tools of stabilization lead to increase in external debt and the effects on the Nigeria growth using the linear spline regression on cointegration model. The results indicate that when debt levels are low, they influence growth in a positive way but when levels are high, it will contribute in an adverse manner. Thus there exist a nonlinear relationship between growth and external debt. Through combining their relations, the study shows existence of the debt Laffer curve in Nigeria and the nonlinear effects of external debt on growth. This demonstrates that, when the government operates a budget deficit, the debt to GDP ratio increases while it declines when the government operates a budget surplus in each financial year.

Keho (2010) estimated the connection between budget deficits and economic growth for West African Economic and Monetary Union (WAEMU) countries by following Toda and Yamamoto's version of the Granger Causality Test. The results failed to reject the null hypothesis of Granger non-causality for Côte d'Ivoire, Senegal and Togo, showing no evidence

of causality between deficit and growth and this confirmed the Ricardian hypothesis. In the case of Niger, there was a unidirectional causality from deficit to growth implying that long run deviations in the fiscal deficit lead to deviations in the growth rate but deviations in economic growth does not lead to long run deviations in fiscal deficits. But in countries, like Mali, Burkina Faso and Benin, there was a reciprocal causality between growth and deficit. This means that variations in budget deficits cause changes in economic growth and vice versa. Where causality existed, under the growth equation, the totality of the coefficients on lagged budget deficit variable was positive, inferring that deficits hinder economic growth rates.

Rahman, Nur, and Hayali (2012) investigating the relationship between economic growth and budget deficit in Malaysia by using Autoregressive Distributed Lag (ARDL) concluded that there is no long-run relationship between economic growth and budget deficit which concurs with the Ricardian equivalence hypothesis due to the small size of the budget deficit levels as compared to that of GDP that was manageable. Nevertheless, a positive long-run relationship between productive expenditures and the economic growth exist. The study advocates for government productive expenditures in stimulating the economy in cases of any shock to help the economy move to equilibrium state faster.

Ezeabasili and Tsegba (2012) analyzed how fiscal deficit influence economic growth in Nigeria. Using the two stage Ordinary Least Squares (2SLS) approach, the results indicated that fiscal deficit negatively affect economic growth. It showed that a one per cent rise in fiscal deficit can lead to 0.023 per cent decrease in growth.

Fatima, Ahmed and Rehman (2012) using OLS approach regressed data for budget deficit and output growth for Pakistan economy to establish the consequential effects of budget deficit on economic growth. The results showed a negative impact of budget deficit on economic growth due to the fact that governments have insufficient resources to meet their expenditures in the long run. On one hand different capital projects started by the government lead to increased growth in the long run, but they also make it difficult for the management to meet actual expenses due to unforeseen expenditures. This result confirmed another study done by them in

2011 by estimating using 2SLS method, the fiscal deficit and economic growth in Pakistan economy by employing simultaneous equations model.

Eminer (2015) using time series data for North Cyprus applied ARDL model to test the impact of government deficit on economic growth and the result could not conclude that the future economic growth can or cannot be influenced by today's budget deficit .

Bose, Haque, and Osborn (2007) analyzed the effects of budget deficit on economic growth for 30 developing countries using panel data and the results showed that if government spends large on capital expenditure, it will spur economic growth but overall a rise in the total budget deficit due to aggregate expenditures leads to adverse effects on the growth of the economy without considering the sectoral contribution.

Acaravci & Ozturk (2008) using ARDL model and bound test for cointegration to assess the short term and long run dynamics of the twin deficits in Turkey sought to examine the validity of the twin deficit hypothesis. The empirical results supported the Keynesian view that there is long run relationship between budget deficits and current account deficits and rejected the Ricardian equivalence hypothesis. The study also indicated that the directional causality runs from budget deficit to current account deficit.

Iya (2014) investigated the effects of fiscal deficits using Granger causality tests and Johansen cointegration test by applying OLS techniques on Nigeria economic growth.The results showed that government`s fiscal deficits does not significantly affect economic growth (real GDP) but the good prospects in the country is attributed to domestic investment share of real GDP, exchange rate and interest rate hence no need for fiscal deficit in the country.

Were (2001) in her paper sought to establish the impact of Kenya`s indebtedness on the economic growth for a period of 27 years from 1970 to 1997 using time series data. The results indicated the likelihood of a problem of debt overhang in the country for both economic growth and investment equations by using Error Correction formulation model. Past debt accumulations hinder the economic growth of the economy while the current debt flows hinder

the growth in the short run. As a result, the study confirms that external debt acccumulation impacts negatively the economic growth in Kenya.

Amanja and Morrissey (2005) did a study using ARDL model and time series data for the period 1964-2002 to investigate the relationship between economic growth and fiscal policy in Kenya. They categorized government expenditures into unproducive and productive and revenues into non-distortionary and distortionary to measure the impact of fiscal policy. The major findings of the study indicate that fiscal policy matters in economic growth in the sense that, government investments especially in human capital development, private investment and productive consumption expenditures play a big role in determining real growth in per capital income in Kenya.

Khan and Senhadji (2001) using panel data for 140 countries estimated the threshold levels for inflation and economic growth for a period covering 1960 to 1998. They applied the nonlinear Least Squares (NLLS)) estimation methodology and the results shows a negative relation between inflation and economic growth which was significant for levels above the threshold. The results identified 1.0 to 3.0 per cent as threshold levels for developed countries and for emerging countries as 11.0 to 12.0 per cent.

Wu, et al; (2011) did a study to determine the existence of the longrun relationship between debt, budget deficit and economic growth in Malasyia economy using quartely data from 1970 to 2009. Besides, the study went a head to determine the threshold levels for debt and budget deficit.Using OLS and threshold estimation method by Khan and Senhdji (2001) the results provide evidence of a negative relationship between debt and economic growth and between budget deficit and economic growth. The threshold level for debt was 83.0 per cent of GDP and that of budget deficit as 2.5 per cent of GDP.Exceeding this levels affects economic growth in a negative manner.

Akosah (2013) using OLS model and Vector Correction Model together with threshold estimation model by Khan et al (2001) sought to determine the threshold effects of budget deficit on economic growth of Ghana, using the quartely time series data from 2000 to 2012.The results found out a long run opposite relationship among budget deficits and growth

on one hand , and among debt and growth on the other hand. This means that,high budget deficit levels decrease the economic growth. The study identified a threshold of 4.0 per cent of GDP as the level the government should maintain, breach of which the deficit becomes detrimental to the economy of Ghana.

Faraji and Makame (2013) did a study on the impact of external debt on the growth of Tanzanian economy using time series data for the period of 1990 - 2010. They applied OLS technique to estimate the effects and the results shows that external stock has a positive impact of 0.369 per cent while the debt service have a negative impact of 28.517 per cent, hence as the country borrows more externally, it may lead to growth in the economy but this growth may decline if the debt service is increasing.

Onwioduokit & Bassey (2013) empirically estimated the levels of fiscal deficit that is favorable to output growth in the Gambia. Using Keynessian aggregated demand relationship and the Threshold Autoregressive Model (TAR), they regressed the data using OLS estimation technique for a period of 30 years from 1980 to 2009. The outcome of their study indicated an optimal level of fiscal deficit of 6.0 per cent for the Gambia economy.

Musa and Mawejje (2014) in their study on macroeconomic effects of budget deficits in Uganda using Vector Error Correction Model (VECM) for the period 1999 to 2011 clearly indicate that widening current account deficit and rising interest rates are due to budget deficits. Thus it is important for governments to put in place efforts aimed at fighting corruption deals and tax which undermine their efforts in tax collection

Ndung'u (2014) in his research on the determinants of fiscal performance in Kenya, used time series data for the period 1963 to 2013 and VECM model, found out that fiscal performance affect itself in a negative or positive way in the first and second lags. GDP per capital increased fiscal balance though it is not a significant factor.

2.4 Overview of Literature Review

Most of literatures reviewed give mixed results on the link between budget deficit and economic growth which can either be neutral, negative or positive depending on the size of the deficit, financing sources and government expenditure patterns. The debate on the threshold level has not been given much attention, especially to African countries except a few literatures which have identified some specific levels for their countries and these calls for a specific empirical study for Kenya.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter discusses the theoretical and empirical framework that the study will use to analyze the impact of budget deficit in Kenya.

3.2 Theoretical framework

The study adopts the work of Onwioduokit et al., (2014) which heavily follows the Keynesian framework. The desired aggregate demand relationship in the goods market in the Keynesian framework is expressed as follows:

Y= C + I+G+ (X-M)…….1

The behavioural equation is written as;

$C = a + bY^d$, b> 0

Y^d= Y-T

$I = \partial + \gamma i$, $\gamma < 0$

$G = G^*$

$X = s + \sigma e$, $\sigma > 0$

$M = m + \phi Y^d$, $\phi > 0$

Where Y = output, C = Consumption, Y^d= Disposable income, T = Tax revenue, I = Investment, ∂ = exogenous investments, I = interest G = exogenous government expenditure (G*), X = exports, s= exogenous exports, e=exchange M= Imports, m= exogenous imports and b, σ, ϕ and γ are coefficients.

Substituting the behavioural equations into equation 1, it gives the output at equilibrium as follows:

$Y^* = \frac{A}{\theta} + \frac{1}{\theta}(\gamma i + \sigma e + G - (b - \phi)T)$ ……..… 2

Where

$\theta = 1 - b + \phi$, and $A = a + \partial + s - m$

From equation 2, if taxes are increased, output will reduce while if government expenditure increases, output will grow

Budget deficit (BD) is specified as;

$$BD = G - T = G - (b - \phi)T \quad \text{.....3}$$

Budget deficit is the shortfall between government revenues and expenditures. With an assumption that the government`s total income is derived from taxes, then $G - T$ is equal to the deficit. The total revenue generated from consumption expenditure is given by: $(b - \phi)T$ with the assumption that individuals do not spend all their income. The fiscal balance is obtained by subtracting this equation from government expenditure.

Substituting equation (3) into (2) results into;

$$Y^* = \frac{A}{\theta} + \frac{1}{\theta}(\gamma i + \sigma e + BD) \quad \text{.....4}$$

Given the fact that Kenya is a small open economy with no ability to influence international prices, the model includes the money market and external sector through the balance of payments schedule and terms of trade.

In an open economy the money market is represented by the following equation;

Money Demand Function: $\frac{M^D}{P} = kY + \lambda i \qquad k > 0, \qquad \lambda < 0$ 5

Money Supply Function: $\frac{M^S}{P} = m_1\frac{B}{P} + m_2 i \qquad m_1, m_2 > 0,$ 6

At equilibrium: $M^D = M^S$

Where B = international reserves, P= general price level, m_1, m_2, ķ, and λ, are coefficients.

From the equations (5) and (6) in the money market, equilibrium is obtained through the LM schedule specified as follows;

At equilibrium: $M^D = M^S$

$$kY + \lambda i = m_1\frac{B}{P} + m_2 i$$

LM Schedule; $i = \psi\frac{B}{P} + {}^{\varphi}Y$ $\psi<0, {}^{\varphi} >0$……..…….8

The external sector effects are incorporated through balance of payment schedule given as follows;

$B = A_2 - \theta_0 Y + \theta_1 e + \theta_2 i$ $\theta_0, \theta_1, \theta_2 >0$…….9

Where A_2 = exogenous net export function and $\theta_0, \theta_1, \theta_2$ are coefficients.

Substituting equation (8) into (4) gives;

$$Y^* = A_2 + B_1\frac{B}{P} + B_2 Y + \sigma e + BD$$ ……10

Where $B_1 = \frac{\psi Y}{\theta}$ and $B_2 = \frac{\phi Y}{\theta}$

$B_2 = \frac{\phi Y}{\theta}$Substituting equation (9) into (10) we obtain

$$Y^* = A_1 + B_1\frac{B}{P}(A_2 - \theta_0 Y + \theta_1 e + \theta_2 i) + B_2 Y + \sigma e + BD$$ ……11

Rearranging of equation (11) gives

$$Y^* = C + \frac{1}{P}(\alpha_1 e + \alpha_2 i) + \alpha_3 e + \alpha_4 BD$$ ……12

Where

$1 + B_1\theta_0 - B_2 = {}^{\varphi}$, $C = \frac{A_1 + B_2 A_2}{\varphi}$, $\alpha_1 = \frac{B_1\theta_1}{\varphi}, \alpha_2 = \frac{B_1\theta_1}{\varphi}, \alpha_3 = \frac{\sigma}{\varphi}, \alpha_4 = \frac{1}{\varphi},$

Equilibrium output in equation (12) is positively related to the budget deficit. But since output is influenced by its own past levels in time series data, equation (12) can be re- written as

$$Y^* = C + \varpi Y_{t-1} + \frac{1}{P}(\alpha_1 e + \alpha_2 i) + \alpha_3 e + \alpha_4 BD$$ 13

Recasting the equation gives

$$y_t = c + \delta_1 i_t + \delta_2 e_t + \delta_3 BD_t + \delta_4 \pi$$ 14

Where $y_t = Y_t - Y_{t-1}$ is the change in GDP and $\delta_1, \delta_4 < 0$

Equation (14) implies that the budget deficit is positively related to growth of any economy as postulated by the Keynesian framework.

3.3 Model specification

This study specifically adopts the model of Fatima, Ahmed and Rehman (2012) to study the relationship of budget deficit in a mathematical form of:

$GDP_t = \beta_0 Ln\ DE_t + \beta_1 Ln\ RE_t + \beta_2 Ln\ BD_t + \beta_3 Ln\ TD_t + \beta_4 Ln\ Inft_t + \beta_5 Ln\ Tot_t + \beta_6 Ln\ CA_t + \mu_t$……..…4

Where Ln denotes natural logarithm of each variable, β_0, β_1, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, and β_6 are coefficients. This model will be interpreted to discuss the elasticity, where all the variables under study, are measured against time frames, from 1980 to 2014,

For analyzing the threshold level, the model will be:

$\Delta GDP_t = \lambda_0 Ln\ DE_{t-1} + \lambda_1 Ln\ RE_{t-1} + \lambda^* Dummy\ (LnBD - LnBD^*) + \lambda_3 Ln\ TD_{t-1} + \lambda_4 Ln\ Inft_{t-1} + \lambda_5 LnTot_{t-1} + \lambda_6 LnCA_{t-1} + \lambda_7 LnGDP_{t-1} + \mu_t$……..…….……..5

Where the dummy= 1 if LnBD > LnBD*; 0 if LnBD ≤ LnBD*, BD*is the threshold budget deficit, which is calculated arbitrary as suggested by Khan (2001)

In this model, the particular coefficient of interest will be λ^* which actually explains the threshold level of budget deficit.

GDP- Is the gross domestic product that is defined as the measure of value of goods and services produced by the Kenyan economy. The study will employ the annual real GDP growth rate as a percentage. Real growth rate is expected to have a negative coefficient due to the fact that large deficits destabilises economic growth.

TD – Is the total amount of debt stock of the country which represents the total unpaid financial obligations of the government rising from past borrowing. It includes government guaranteed debts to State Corporations. It is expected to negatively affect the performance of the economy.

RE- is the total recurrent government expenditure expressed as a percentage of GDP. It relates to the total government spending for recurrent activities. An increase in government recurrent expenditure is expected to decrease economic growth as revenue is not generated in these activities especially if the large percentage of the funds is used to finance recurrent activities.

DE- is the total development government expenditure expressed as a percentage of GDP. It relates to the total government spending for development or investment activities. An increase in government expenditure is expected to increase economic growth as more revenue will be generated in the same proportion and thus increasing the level of activities.

BD- Is the budget deficit of the economy which is the difference between total expenditure and total revenue in a given country. The deficit will be measured as a percentage of GDP for the period under study. It is expected to increase or decrease the economic growth of the country depending on its level as a percentage of GDP.

INFT- is the inflation rate, which is used to measure the impact of price on the GDP of Kenya and the monetary financing of the budget deficit by the central bank. It is expected to decrease economic growth of the economy.

TOT- is the terms of trade, which is used to measure the impact of trade on GDP. If the terms are favourable, it is expected to increase expected economic growth.

CA- is the current account deficit, which represents the impact that the external (foreign) markets have on the Kenyan GDP. It is expected to decrease economic growth

Error Term- is included to capture the effects of all other factors that may affect the economic growth but have not been taken into account explicitly on this model.

Since total debt stock and government expenditure variables have an implication on the extent of budget deficit, they are expected to be highly correlated.

3.4 Data sources

The study will use time series secondary data that will be extracted from various sources. The data will be for a period running from 1980 to 2014. The major sources will include; IMF and World Bank international statistics year books, Kenya National Bureau of Statistics Economic Surveys, Statistical Abstracts and annual reports of the Ministry of Finance/ The National Treasury.

3.5 Tests of Data

3.5.1 Tests of stationarity

Unit root tests will be performed on the data using the Augmented Dicker Fuller test to identify if the variables used for the study are stationary or non-stationary. Non stationary model are not encouraged in regression because they will give spurious results also called non-sense regression (Gujarati, 2004). Cointegration tests will be done in situations of non-stationarity of the series to confirm long run relationships. In the presence of non-stationarity and cointegration, the error correction model will be used to estimate the relationship between the variables.

The existence of cointegration between GDP and budget deficit will imply a true long-run economic relationship and this will stop the residuals from becoming larger and larger in the long-run.

3.5.2 Test of correlation

Spearman's Rank Correlation will be used to test if the variables are correlated since the study will use a non linear relationship in analysisng for the threshold level assumes a monotonic relation.

CHAPTER FOUR: DATA ANALYSIS

4.1 Introduction

This chapter presents an analysis of the data used for the study. Throughtout the analysis, the initials GDP, Ln TD, Ln DE, Ln RE, Ln Inft BD, BDDB, Ln GDP, ToT and CA stand for gross domestic product growth rates, natural logarithim of total debt, natural logarithm of development expenditures, natural logarithim of inflation, natural logarithim recurrent expenditures, budget deficits, budget deficit minus threshold, natural logarithim for past year gross domestic product growth rates, terms of trade, and current account respectively. Further the notations of; ***, ** and * will imply variables are significant at 1 per cent, 5 per cent and 10 per cent respectively. This chapter first presents the summary of the variables used, and then other statistical measures that were done are discussed later.

4.2 Summary Statisctics

The analysis covered a period from 1980-2014, as such 35 observations of each variable was made, and presented on Table 2.

Table 2: Summary Statistics of the variables under study

Variables	No. of Obs	Mean	Std. Dev.	Min	Max
Gdp	35	3.790806	2.27681	-0.79949	8.402277
Ln TD	35	13.17921	0.881131	9.500999	14.61181
Ln DE	35	9.626902	2.240113	4.625115	13.65965
Ln RE	35	11.41387	1.614652	8.838305	13.8372
Budget deficit	35	-4.2565	3.12977	-12.612	2.56
Infl	35	11.9525	7.038306	2.093803	41.98877
ToT	35	77.83565	14.39803	48.40918	114.5746
CA	35	-70243.3	134456.7	-536083	11100

Source: Owner`s computations using Economic Surveys of Kenya Data

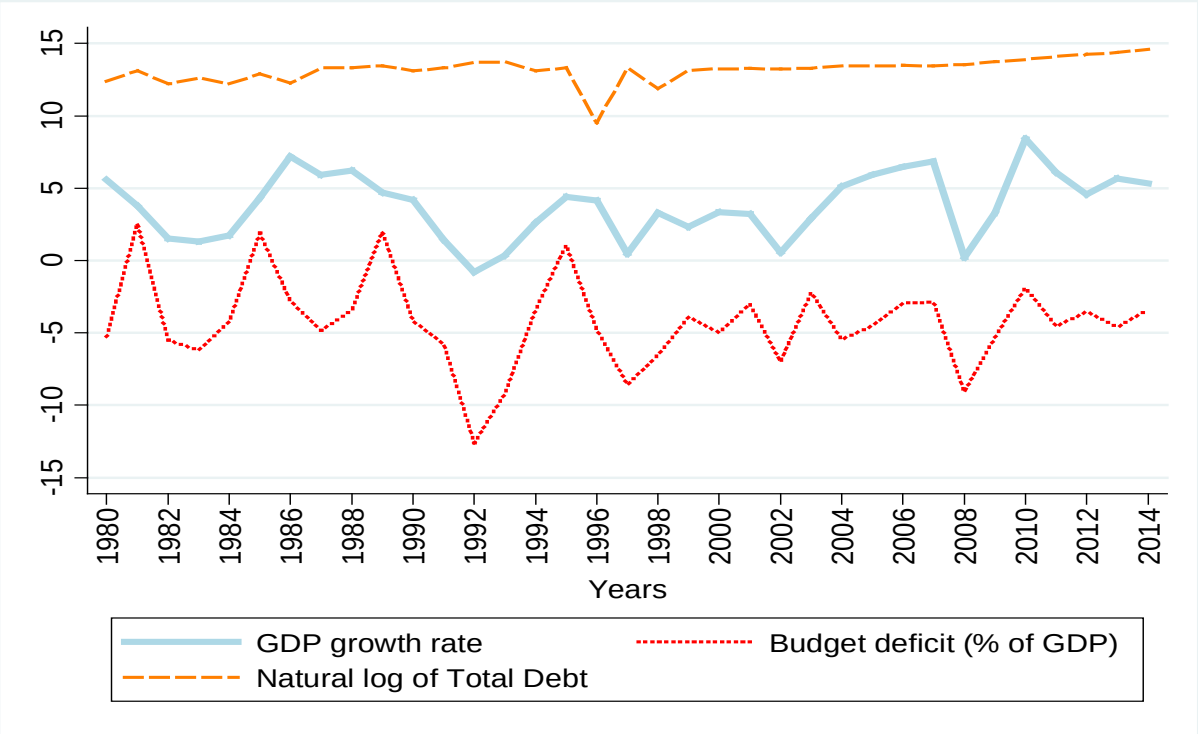
From Table 2, on average the Kenyan economy GDP growth rate has been around 3.8 per cent, with a minimum growth rate of -0.8 and a maximum growth rate of 8.4 per cent. The standard deviation has not been very large, implying most of the values (GDP growth rates)

have been around the mean growth rate. On the other hand, the country has had an average budget deficits of around 4.25 per cent of GDP, with a maximum budget surplus 2.56 per cent within the years of analysis. There is a notable spread of values of terms of trade, and current account deficit, given by how their standard deviations are large.

4.2.1 Trend Analysis

As observed in Figure 7; there seems to be a related trend movement between GDP growth rates and budget deficit growth rates. As the budget deficits are growing, GDP growth rates are decreasing, notably in 1992, when the trend GDP growth rate declined; it was accompanied by a sharp increase in the budget decifit of around 12 per cent. Similar trends are observed in 1983, 1997, 2002, and 2008. An opposite trend, where Budget deficit has been declining (a move towards a budget surplus) has been accompanied by an increase in GDP growth rates, notably in the years; 1981, 1989, 1995, 2003, 2007and 2010.

Figure 7: Trend of Buget deficits and GDP growth rates.



Source: Computations using Economic Surveys of Kenya Data

4.3 Test of Correlations

Spearman's Rank Correlation was used to test if the variables are correlated, Spearman was used since it assumes a monotonic relation, in which when one of the variable changes; the other will also tend to change but not necessarily at a constant rate. Table 3 confirms a significant positive correlation between budget deficit and GDP growth rates, implying as budget deficits reduced ,GDP growth rates also tended to increase, though not in a similar rates.

Table 3: Correlation of Variables

	Gdp	**Ln TD**	**Ln DE**	**Ln RE**	**BD**	**Infl**	**ToT**	**CA**
Gdp	1							
Ln TD	0.2546	1						
Ln DE	0.4773***	0.556***	1					
Ln RE	0.312*	0.6874***	0.8843***	1				
BD	0.5961***	0.009	0.2782	0.0899	1			
Infl	-0.750***	-0.1978	-0.4193**	-0.2647	-0.3165*	1		
ToT	-0.3983**	-0.536***	-0.833***	-0.728***	-0.1235	-0.406**	1	
CA	-0.409	-0.634***	-0.712***	-0.647***	-0.0613	0.4067**	0.8773***	1

Source: Computations using Economic Surveys of Kenya Data

Data also reveals a negative significant correlation between inflation rates and GDP, implying as inflation rates increase, GDP growth rates tends to decline significantly, though not at a constant rate. There seems to be no correlation between total debt stocks and GDP growth rates. As also observed in Figure 7, there seemed to be a constant growth rate of total debt stocks, while GDP growth rates have been fluctuating over the years. Other variables in this study, have either positive or negative correlations with GDP, but in all cases, they tend to be weak correlations.

4.4 Test for Stationarity

The variables were measured across time as such it was important to carry out a stationarity test to verify if the data sets are stationary. Stationary time series is one whose statistical

properties like the mean and variance are constant over time. This study used an Augmented Dickey Fuller test where:

Ho: Unit root (non-stationary)

H1: No unit root (Stationary)

Where the null hypothesis is accepted, if the absolute test statistic is smaller than the critical values.

Table 4: Test for Stationarity

Variables	Stage	Test Statistics	1 per cent Critical value	5 per cent Critical value	10 per cent Critical value	Conclusion
GDP	Level	-3.371	-3.689	-2.975	-2.619	Stationary
Ln TD	Level	-4.167	-3.689	-2.975	-2.619	Stationary
Ln DE	Level	-1.085	-3.689	-2.975	-2.619	non- Stationary
Ln DEd1	1st difference	-5.997	-3.696	-2.978	-2.62	Stationary
Ln RE	Level	-1.108	-3.689	-2.975	-2.619	non-Stationary
Ln RE d1	1st difference	-8.437	-3.696	-2.978	-2.62	Stationary
BD	Level	-4.912	-3.689	-2.975	-2.619	Stationary
BDBD*	Level	-6.469	-3.689	-2.975	-2.619	Stationary
Inflt	Level	-4.353	-3.689	-2.975	-2.619	Stationary
ToT	Level	-0.848	-3.689	-2.975	-2.619	non-Stationary
ToTd1	1st difference	-5.209	-3.696	-2.978	-2.62	Stationary
CA	Level	4.649	-3.689	-2.975	-2.619	Stationary

Source: Owner`s Computations using Economic Surveys of Kenya Data

From Table 4, all the variable in their level stages were stationary apart from the developmet expenditure, recurrent expenditure and terms of trade. Nonetheless the three became stationary after 1st differencing.

The main independent variable for this study was the budget deficit, which is stationary at its level stage, implying there is a short run equilibrium relationship between GDP growth rates and budget deficit. The three control variables which are non-stationary were used in OLS regression after their differencing once to make them stationary variables to check if they have an impact on GDP growth rates.

4.5 Regression analysis before the budget deficit threshold level

Table 5, shows budget deficit, inflation rates and Current Account are the statistically significant factors in explaining changes in GDP growth rates, when stationarity has been taken into account. The analysis show, a one percent increase in budget deficit increases GDP by close to 0.102 per cent as illustrated in Table 5 .

Table 5: OLS Regression Results

Source	**SS**	**df**	**MS**	**Number of observations**	**35**	
				F(7, 26)	**3.84**	
Model	**87.92404**	**7**	**12.56058**	**Prob > F**	**0.0054**	
Residual	**84.98776**	**26**	**3.26876**	**R-squared**	**0.5085**	
				Adj R-squared	**0.3762**	
Total	**172.9118**	**33**	**5.239752**	**Root MSE**	**1.808**	
GDP	**Coefficient**	**Std. Error**	**t-statistics**	**P>t**	**[95 per cent Conf. Interval]**	
Ln TD	-0.68098	0.573713	-1.19	0.246	-1.86026	0.498308
Ln DET1	0.195024	0.315419	0.62	0.542	-0.45333	0.843378
Ln RET1	-0.55088	0.743497	-0.74	0.465	-2.07916	0.9774
BD	0.102425	0.045002	2.28	0.031	0.009923	0.194927
INFL	-0.1342	0.065249	-2.06	0.05	-0.26832	-8.3E-05
TOT1	-0.01092	0.051198	-0.21	0.833	-0.11616	0.094319
CA	-7.47E-06	2.97E-06	-2.51	0.019	-1.4E-05	-1.36E-06
Cons	14.8862	7.974033	1.87	0.073	-1.50466	31.27706

Source: Owners Computations using Economic Surveys of Kenya Data

In analysing the relationship between the budget deficit and growth, the study aimed at estimating the following equation:

$GDP_t = \beta_0 Ln\ DE_t + \beta_1 Ln\ RE_t + \beta_2 Ln\ BD_t + \beta_3 Ln\ TD_t + \beta_4 Ln\ Inft_t + \beta_5 Ln\ Tot_t + \beta_6 Ln\ CA_t \mu_t$……..……..6

After estimating, the equation becomes

$GDP_t = 14.88 + 0.19\ Ln\ DE_t - 0.55\ Ln\ RE_t + 0.10\ Ln\ BD_t - 0.68 Ln\ TD_t - 0.13 Ln\ Inft_t - 0.10 Ln\ Tot_t - 7.47 Ln\ CA_t$ ……..…….7

Thus, the study reveals a positive relationship between the budget deficit and GDP growth rate in the Kenyan economy.

A one percent increase in the inflation rates, reduces GDP growth rates by around 0.13 per cent in Kenya while a one percent increase in Current Account leads to 7.47 per cent decrease in GDP growth rates and both variables are statistically signifiacant at 5% significance level. Nonetheless; holding all the variables under study constant, GDP growth rate is about 14.88 per cent and is statistically significant at 10 per cent. Other variables like development expenditure, recurrent expenditure and total debt have an effect to GDP growth rates but they are not statistically significant at 5 per cent. The R- statistics of 0.5085, implies the variables considered explain atleast 50.85 per cent changes in gross domestic product of Kenya, and thus a need to consider them in policy making by macroeconomic officials in Kenya. The F-statistics of 3.84 is statistically significant, implying all that the variables considered in this study are not equal to zero.

This study is consistent with the work of Odhiambo and Momanyi of a budget deficit having a positive relationship with economic growth and the findings of Akosah (2013) who found 4 per cent budget deficit as a share of GDP to be the theshold level for Ghana.

4.6 Threshold analysis

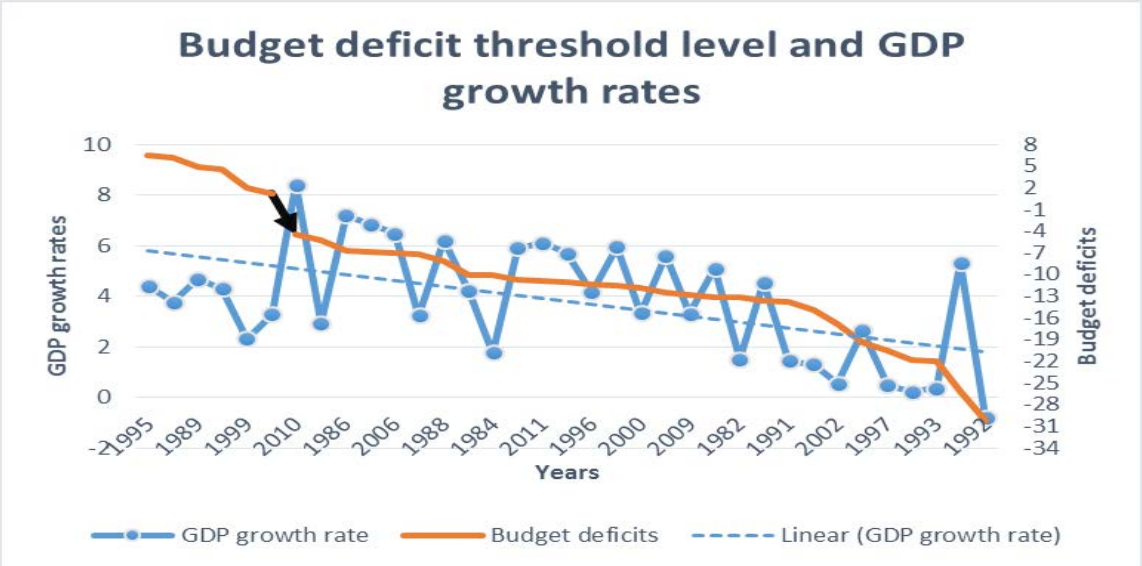
The threshold value is usually found arbitrary, as suggested by Khan, (2001). Policy makers tend to change the level of budget deficit after it has exceeded a certain level. This study therefore estimates this threshold level, adopting Khan, (2001) criteria. The mean and standard deviation for the budget deficit variable is obtained as -10.278 and 8.7776 respectively. The standard deviation is large and thus implying the budget deficit datasets are widely spread. In order to obtain a more consistent threshold level, an arbitrary ratio (0.25) of the standard deviation was taken, while setting the ranges of the threshold levels at -1 percent and -14 per cent, with a gap of 2.194 between each range value.

The estimations of the OLS regressions for the range of -1 per cent and -14 per cent were done as shown in appendix 1. From the appendix 1; economic growth seems to respond positively to

budget deficits, but only up to a level of around 8 percent. A budget deficit of 5.89 per cent (close to 6 per cent) has a positive impact on GDP, but its impact is lesser than a budget deficit level of 3.696 per cent (approximately 4 per cent). A budget surplus of 4.9 per cent was used in the analysis to verify if a surplus is significant variable in increasing economic growth in Kenya, the results show that a budget surplus has a positive impact on GDP growth, but its impact is less than a budget deficit of less than 3.696 per cent.

Following Khan, an optimum threshold level, is the one that minimizes the RSS. RSS is minimized at a threshold level of 3.696 per cent which records the lowest value of 2.262 and as such a budget deficit level of 3.696 per cent has been identified by this study as the optimal level for the Kenyan economy. The budget deficit level of 1.502 per cent has a more positive impact on GDP than the level of 3.696 per cent; nonetheless it has a larger RSS than 3.696 thus not optimal level. Thus a deficit level that is higher than 3.696 per cent can be detrimental to the economic growth of Kenya since beyond this level, the economic benefits of running a deficit will be reversed. Figure 8 shows the trend of GDP growth above and below the threshold level.

Figure 8: Trend of Budget deficit threshold with GDP growth rates



Source: Owner`s Computations

The GDP growth of around 8 per cent experienced in 2007 was accompanied by a budget deficit of around 4 per cent. From Figure 8, the trend line of GDP growth shows GDP has been increasing as the budget deficit is reducing. The BD*(threshold level) is fitted in the model:

$GDP_t = \lambda_0 + \lambda_1 Ln\ DE_t + \lambda_2 Ln\ RE_t + \lambda^* Dummy\ (LnBD - LnBD^*) + \lambda_4 Ln\ TD_t + \lambda_5 Ln\ Inft_t + \lambda_6 LnTot_t + \lambda_7 LnCA_t + BD_t + \mu_t$……..8

To be:

$GDP_t = 9.687 + 0.218 Ln\ DE_t + 0.045 Ln\ RE_t + 4.522 Dummy\ (LnBD - LnBD^*) - 0.529 Ln\ TD_t - 0.106 Ln\ Inft_t - 0.006 LnTot_t - 7.21 LnCA_t + 0.211 BD_t$ ……...9

Implying, under the budget deficit threshold level of 3.696 per cent, there is a potential growth of GDP by 4.5 per cent. At this optimum budget deficit level, total debt, inflation rates and current account deficit have a negative impact on GDP; nonetheless only inflation is statistically significant as seen in appendix 1. Holding all the variables under study constant; GDP growth rate at this threshold level is about 9.687 per cent.

Similar results are also obtained by; Onwioduokit and Bassy (2014), for Gambia, where the threshold level is 6 per cent, Akosah (2013) who found a threshold level of 4 per cent for Ghana, Wu, Wei, Yong and Hoony (2011) found a threshold of 2.5 per cent for Malaysia while Adan and Bevan (2005) found a threshold value of 1.5 per cent for developing nations. All these studies, found that budget deficits exceeding these levels were detrimental to economic growth. Similarly, a positive impact of budget deficits on economic growth was obtained (Aghion and Howitt, 1998), (Odhiambo and Momanyi, 2013), (Rahman, Nur, and Hayali, 2012) and (Acaravci and Ozturk, 2008).

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The objective of this study was to identify the impact of budget deficit on economic growth of Kenya and identify the budget deficit threshold level at which economic growth is at its optimum and sustainable then recommend to policy makers. Datasets covering a period of 1980 to 2014 from the economic surveys of Kenya was used to achieve the objectives of this paper.

Budget deficit was found to have a positive impact on the economic growth of Kenya. A 1 per cent increase in budget deficit increased GDP growth by 0.102 per cent. This result tend to follow the Keynesian economists' arguments who assume that budget deficits are good due to their multiplier effects to the economy, this positive impact of budget deficit to economic growth shows an increase in government spending in Kenya stimulates aggregate demand which leads to employment of idle resources and thus increase output. For the Kenyan economy to reap the benefits of having a budget deficit that stimulates the economy, the optimal level of 3.696 per cent budget deficit has to be maintained, beyond this level, the benefits start increasing at a reducing rate and eventually become detrimental on GDP growth hence neoclassical theory will hold. Thus, the Kenyan government should not be worried about the existence of budget deficit but the levels should be their main concern, since beyond 3.696 per cent of GDP, it becomes unsustainable to the growth of the economy.

5.2 Recommendations

Budget deficit is good for any growing economy. The study recommends that policy makers should aim at maintaining the budget deficit threshold of 3.696 per cent of GDP since at this level, it is sustainable. A budget deficit that is more than 3.696 per cent causes a detrimental effect on economic growth of Kenya. To maintain the budget deficit at sustainable levels, the study recommends exploring other options of financing expenditure especially the development expenditure like public private partnership which will create fiscal space off the

government balance sheet. Policy makers can also encourage state owned enterprises to borrow through government guarantees to execute projects with expected revenue streams e.g. Standard Gauge Railways (SGR) project. This is expected to create fiscal space and reduce the fiscal deficits to sustainable levels.

5.3 Recommendation on further areas of study

The study obtained an R-squared statistics of 50 per cent, implying the variables considered in this study only explain 50 per cent change in GDP thus another 50 per cent of changes in GDP is explained by other variables, as such the study recommends a further investigation of other variables that affect GDP, amidst this threshold value of the budget deficit.

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Appendix1: Threshold analysis

Threshold	RSS	Variables	Coefficient	Std. Erro	t-Statistic	P>t	95% confidence	
4.9 (surplus)	3.18	lntd	-0.5378814	0.582089	-0.92	0.364	-1.73672	0.660954
		lndet1	0.1526885	0.314111	0.49	0.631	-0.49423	0.799611
		lnret1	-0.5981258	0.731735	-0.82	0.421	-2.10516	0.908911
		buidgetdefi	0.1481406	0.056598	2.62	0.015	0.031575	0.264707
		infl	-0.12128	0.065097	-1.86	0.074	-0.25535	0.012789
		tott1	-0.0163057	0.051409	-0.32	0.754	-0.12218	0.089572
		ca	-7.14E-06	2.96E-06	-2.41	0.023	-1.3E-05	-1.05E-06
		bd7	2.780521	1.622737	1.71	0.099	-0.56157	6.122609
		_cons	10.77275	8.504297	1.27	0.217	-6.74218	28.28768
-1.502	2.66	lntd	-0.2327861	0.549727	-0.42	0.676	-1.36497	0.899398
		lndet1	0.1323851	0.287062	0.46	0.649	-0.45883	0.723601
		lnret1	-0.7275038	0.67185	-1.08	0.289	-2.11121	0.656197
		buidgetdefi	0.2250982	0.061982	3.63	0.001	0.097444	0.352752
		infl	-0.0805697	0.062375	-1.29	0.208	-0.20903	0.047894
		tott1	0.0025239	0.047052	0.05	0.958	-0.09438	0.099429
		ca	-7.07E-06	2.71E-06	-2.61	0.015	-1.3E-05	-1.49E-06
		bd6	4.599878	1.591717	2.89	0.008	1.321675	7.878081
		_cons	5.558262	8.088683	0.69	0.498	-11.1007	22.21722
-3.696	2.26	lntd	-0.5286128	0.476645	-1.11	0.278	-1.51028	0.453055
		lndet1	0.2184283	0.263536	0.83	0.415	-0.32433	0.76119
		lnret1	0.0457569	0.626792	0.07	0.942	-1.24515	1.33666
		buidgetdefi	0.2111927	0.047476	4.45	0	0.113413	0.308972
		infl	-0.1056996	0.054151	-1.95	0.062	-0.21722	0.005826
		tott1	-0.0063323	0.043245	-0.15	0.885	-0.0954	0.082732
		ca	-7.21E-06	2.49E-06	-2.89	0.008	-1.2E-05	-2.07E-06
		bd6	4.522255	1.199563	3.77	0.001	2.051708	6.992801
		_cons	9.687487	6.817318	1.42	0.168	-4.35304	23.72802
-5.89	2.88	lntd	-0.2811622	0.57097	-0.49	0.627	-1.4571	0.894773
		lndet1	0.2054478	0.296269	0.69	0.494	-0.40473	0.815624
		lnret1	-0.3592611	0.704106	-0.51	0.614	-1.80939	1.090872
		buidgetdefi	0.2028443	0.063546	3.19	0.004	0.071969	0.333719
		infl	-0.0925653	0.06436	-1.44	0.163	-0.22512	0.039987
		tott1	-0.0178109	0.048193	-0.37	0.715	-0.11707	0.081444
		ca	-7.06E-06	2.80E-06	-2.52	0.018	-1.3E-05	-1.29E-06
		bd5	2.426615	1.146714	2.12	0.044	0.064914	4.788315
		_cons	8.269895	8.115317	1.02	0.318	-8.44391	24.9837
-8.084	3.34	lntd	-0.7845781	0.601773	-1.3	0.204	-2.02395	0.454796
		lndet1	0.1840233	0.319441	0.58	0.57	-0.47388	0.841924
		lnret1	-0.575167	0.752846	-0.76	0.452	-2.12568	0.975348
		buidgetdefi	0.0710804	0.066365	1.07	0.294	-0.0656	0.207762
		infl	-0.1426839	0.067269	-2.12	0.044	-0.28123	-0.00414
		tott1	-0.0095646	0.051819	-0.18	0.855	-0.11629	0.09716
		ca	-7.71E-06	3.03E-06	-2.55	0.017	-1.4E-05	-1.47E-06
		bd4	-0.6956396	1.07198	-0.65	0.522	-2.90342	1.512144
		_cons	16.47502	8.427791	1.95	0.062	-0.88234	33.83238
-10.278	3.32	lntd	-0.7352968	0.582033	-1.26	0.218	-1.93402	0.463423
		lndet1	0.156807	0.321421	0.49	0.63	-0.50517	0.818786
		lnret1	-0.5381058	0.749149	-0.72	0.479	-2.08101	1.004794
		buidgetdefi	0.0699711	0.061242	1.14	0.264	-0.05616	0.196101
		infl	-0.1339221	0.06573	-2.04	0.052	-0.2693	0.001451
		tott1	-0.0115865	0.051582	-0.22	0.824	-0.11782	0.094648
		ca	-7.97E-06	3.06E-06	-2.6	0.015	-1.4E-05	-1.66E-06
		bd3	-0.7865173	0.9979	-0.79	0.438	-2.84173	1.268697
		_cons	15.67565	8.094966	1.94	0.064	-0.99625	32.34754
-12.472	2.53	lntd	-0.4688326	0.509318	-0.92	0.366	-1.51779	0.580127
		lndet1	0.1098741	0.278704	0.39	0.697	-0.46413	0.683875
		lnret1	-0.4090005	0.655179	-0.62	0.538	-1.75837	0.940366
		buidgetdefi	-0.0011597	0.052938	-0.02	0.983	-0.11019	0.107869
		infl	-0.1336523	0.057342	-2.33	0.028	-0.25175	-0.01555
		tott1	-0.0045612	0.045046	-0.1	0.92	-0.09733	0.088212
		ca	-6.04E-06	2.66E-06	-2.27	0.032	-1.2E-05	-5.70E-07
		bd2	-2.492214	0.84668	-2.94	0.007	-4.23599	-0.74844
		_cons	12.14988	7.069164	1.72	0.098	-2.40933	26.7091
-14.666	2.58	lntd	-0.2593611	0.530852	-0.49	0.629	-1.35267	0.83395
		lndet1	0.4776342	0.297417	1.61	0.121	-0.13491	1.090175
		lnret1	-1.183423	0.697147	-1.7	0.102	-2.61922	0.252378
		buidgetdefi	0.0236721	0.048727	0.49	0.631	-0.07668	0.124027
		infl	-0.0855631	0.060443	-1.42	0.169	-0.21005	0.038922
		tott1	0.0142144	0.046324	0.31	0.762	-0.08119	0.10962
		ca	-6.05E-06	2.69E-06	-2.25	0.034	-1.2E-05	-5.09E-07
		bd1	-3.056485	1.082264	-2.82	0.009	-5.28545	-0.82752
		_cons	8.822736	7.398897	1.19	0.244	-6.41558	24.06105