Sudan University of Science & Technology

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Determinants of Budget Deficits in Sudan: (1980- 2017)

محددات عجز الموازنة في السودان: (1980-2017)

A Thesis Submitted for the Award of PhD Degree in Economics

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DEDICATION

I wish to dedicate this thesis with affection to souls of my parents and my extended family.

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Abstract

Sudan has been suffering from continued budget deficit and attempts have been made by successive national governments to resolve it as a critical economic problem but inadequate understanding of the determinants budget deficits and the basis of the relationship between the budget deficit and the key macroeconomic variables on the part of policy makers might have been partly responsible for the ineffectiveness of past efforts of correcting budget deficits. Therefore, this study aims to determine empirically the extent to which budget deficit in Sudan is influenced by key macroeconomic variables during the period 1980 to 2017. The importance of the study stems from the fact that it provides analytical evidences on causes of budget deficits and accordingly suggests appropriate economic policy framework to correct the budget deficits problem in Sudan. To achieve the stated objectives, annual data was obtained from the Central Bank of Sudan (CBS and the Central Bureau of Statistic, then the model is estimated by employing the autoregressive distributed lag (ARDL) approach supported by E-Views program. The overall results of the regression analysis of testing the hypotheses indicate that there is a significant relationship between the budget deficits and the key macroeconomic variables which were proposed by this study to influence the budgets position in Sudan. Thus, the inflation rates and exports are found to be positively associated with budget deficits while real GDP growth rate and exchange rates are negatively linked to budget deficits during the study period. Finally, the study concluded that budget deficit is influenced by the key macroeconomic variables during the period 1980 to 2017. To overcome the budget deficit problems and at the same time promote a sustainable economic development in Sudan., the study provided a number of recommendations including:

Increase government revenue through tax reform, reduce government size and minimize its operational expenses, promote budgeting processes through participatory planning and budgeting system at different levels of governments, banning of monetary financing of budget deficits, boosting national exports, and liberation of foreign exchange market to correct price distortions.

المستخلص

يعاني الاقتصاد السوداني من مشكلة عجز مستمر في الميزانية العامة، وقد بذلت الحكومات الوطنية المتعاقبة محاولات لحلها بوصفها مشكلة اقتصادية حرجة ولكن الفهم غير الكافي لمحددات عجز الميزانية وأساس العلاقة بين العجز في الميزانية وهذه المتغيرات الاقتصادية الكلية الرئيسية من جانب واضعي السياسات قد يكون مسؤول جزئيا عن عدم فعالية الجهود السابقة لتصحيح العجز في الميزانية. لذا، هدفت هذه الدراسة إلى تحليل قياسياً وتحديد مدى تأثر العجز في الميزانية في السودان ببعض متغيرات الاقتصاد الكلي الرئيسية خلال الفترة من 1980 إلى 2017 تتبع أهمية الدراسة من أنها تقدم أدلة على أسباب العجز في الميزانية، وبالتالي تقترح إطارا مناسبا للسياسة الاقتصادية لتصحيح مشكلة العجز في الميزانية في السودان. ولتحقيق الأهداف المبينة، تم الحصول على بيانات سنوية من بنك السودان المركزي (CBS) ومكتب الإحصاء المركزي، ثم تم تقدير النموذج من خلال استخدام منهج (ARDL) بدعم من برنامج E-views 10. وتشير النتائج تحليل الانحدار واختبار الفرضيات إلى وجود علاقة معنوية بين العجز في الميزانية محدداتها . وفقا لنتائج هذه الدراسة أن معدلات التضخم والصادرات ترتبط ارتباطا إيجابيا بالعجز في الميزانية، في حين يرتبط معدل النمو الحقيقي للناتج المحلي الإجمالي وأسعار الصرف ارتباطا سلبيا بالعجز في الميزانية خلال فترة الدراسة. وأخيرا، خلصت الدراسة إلى أن العجز في الميزانية يتأثر بمتغيرات الاقتصاد الكلي الرئيسية خلال الفترة من 1980 إلى 2017. وللتغلب على مشاكل العجز في الميزانية، وفي الوقت نفسه تعزيز التنمية الاقتصادية المستدامة في السودان، قدمت الدراسة العديد من التوصيات منها:

زيادة الإيرادات الحكومية من خلال الإصلاح الضريبي، وخفض حجم الحكومة وتقليل نفقاتها التشغيلية، وتعزيز وترقية عمليات اعداد الموازنات من خلال نظام التخطيط واعداد الموازنات القائم على المشاركة على مختلف مستويات الحكومات، وحظر تمويل عجز الميزانية من خلال التمويل التضخمي وتعزيز الصادرات الوطنية، وتحرير سوق الصرف الأجنبي لتصحيح تشوهات الأسعار.

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CHAPTER ONE

INTRODUCTION

1.0 Preface:

Economists define government budget deficit in different approaches. It is the gap between the government's total spending and the sum of its revenue receipts and non-debts capital receipts. It represents the total amount of borrowed funds required by the government to completely meet its expenditure. It could also be defined as the excess of total expenditure including loans net of payments over revenue receipts and non-debt capital receipts. It also indicates the total borrowing of the government, and the increment to its outstanding debt. That's the amount that the government spends each year more than what its tax, tariff, and fee revenues bring in. The government then must borrow to make up the difference. It's the accumulation of deficits year after year that makes up the total national debt.

Given the above-mentioned definitions, studies on the budget deficits run in two general directions. Some studies look at the impact of government budget deficits on key macroeconomic variables. While others look at the reverse direction, that is, what macroeconomic and fiscal variables affect and determine fiscal deficits. Consequently, different schools of thought have demonstrated their opinions based on budget deficits. Most common are the Keynesian and the Ricardian school of thought. While the Keynesian argue that budget deficit affects main macroeconomic variables, Ricardian School refutes the proposition (by the Keynesian school) and postulate that budget deficits does not affect main macroeconomic variables.

Easterly[1] and –Hebbel (1993) argued that "although fiscal adjustment was urged on developing countries during the 1980s to lead them out of economic ills, considerable uncertainty remains about the relations between fiscal policy and macroeconomic performance." The relationship between budget deficits and macroeconomic variables (such as growth, interest rates, trade deficit, exchange rate, among others) represents one of the most widely debated topics among economists and policy makers in both developed and developing countries (Saleh, 2003).[2]

While (Wosowei[3] 2013) empirically showed that fiscal deficits even though it agrees with economic theory in terms of its negative coefficients yet, did not significantly affect macroeconomic output. The result also shows a bilateral causality relationship between government deficit and gross domestic product, government tax, and unemployment, while there is an independent relationship between government deficit and government expenditure and inflation.

"Given the dominant view that persistent deficits are bad, the need to reduce them has become imperative for most countries. Fiscal crises seem to have upset both the developing and the developed countries simultaneously. Deficits have led to high and moderate inflation, debt crises, or to low inflation with or without crowding out of private investment in some countries, whereas in others, studies have shown that deficits have not affected the basic balance in the economy (surplus or deficit for balance of payment) (Easterly and Schmidt- Hebbel, 1993). In

[1] Easterly, W. and Schmidt-Hebbal, K."*Fiscal Deficit and Macroeconomic Performance in Developing Countries*." World Bank Research Observer, Vol. 8 No.2.

[2] Saleh, Ali Salman *The Budget Deficit and Economic Performance*: A survey", University of Wollongng, Economics working paper series.

[3] Fiscal Deficit and Macroeconomic Aggregates in Nigeria" Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 2, No.9; May, 2013.

Sudan, since early 1978, particularly after adoption of the structural adjustment policies run by IMF and the World Bank, weak and unstable macroeconomic performance has been the most serious economic problem that constrained economic development.

(Ali & Elbadawi 2002)[1] argued that "Sudan has experienced a destructive macroeconomic phenomenon associated with low or negative growth, severe budgetary imbalances, volatile and unpredictable exchange rate, high and unpredictable inflation rates and underlying external adjustment problems Against this background, therefore, the objective of this study is to analyze the determinants of budget deficit in Sudan for the period of 1980- 2017.

1.1 Statement of the problem:

As the case in many developing economies, in Sudan, the post-independence governments, motivated by the need to achieve development had spent excessively on economic, and new social projects; unfortunately, this expansion in public expenditure and the resulting increase in the size of the government were not matched by a similar increase in public revenue either through taxation or from direct return on investment which consequently led to a continued government budget deficit.

With this sustained budget deficits, Sudan has been attempting to resolve series of economic problems but inadequate understanding of the determinants budget deficits and basis of the relationship between deficit and the key macroeconomic variables on the part of policy makers might have been partly responsible for the ineffectiveness of past efforts of achieving growth that induces fiscal balance. The identification of the key macroeconomic variables that influences budget deficits

[1] Ali A. AG, and Elbadawi, Ibrahim A. "*Explaining Sudan's Economic Growth Performance*", unpublished study for AERC Collaborative Research Project on Explaining Africa's Growth Performance

and their magnitudes is expected to help policy makers in Sudan to subscribe appropriate solutions for the economic problems hence implement growth inducing policies.

Basically, the central problem of this research is, what are the key variables that determine budget deficit in Sudan and their magnitudes? With a particular focus on following macroeconomic variables; economic growth rates, inflation rates, exchange rates and exports.

1.2 The importance of the study:

The importance of this study stems from the fact that it will link budget deficits in Sudan to key variables such as economic growth rate, inflation rate, , exchange rates and exports and provides an in-depth analysis on the impacts of these variables on budget deficits. The study will allow an adequate discussion of the tools utilized for fiscal deficit reduction and accordingly it is expected to suggest an appropriate economic policy framework that could be implemented to maintain a favorable environment for economic growth , stable prices, stable fiscal position with efficiently allocated expenditures and equitable government revenues (tax), stable exchange rates and foreign debts with less burden, promote sustainable long-run economic performance and development in the Sudan.

It is apparent that several economic research questions appear to have been well studied, and in some cases settled in the literature, so that any new attempt to conduct reach on them is possibly to be considered as a repetition of the same old research questions. However, this is not true of the case of determinants of budget deficits in Sudan as there is a big gap in the literature on this field of study due to lack of academic reach devoted to understanding of the determinants of budget deficit and its impacts on economic growth performance in the Sudan. Hence this research undertaking attempts to fill this gap by analyzing root causes of the sustained budget deficits in Sudan. Besides this, study has been encouraged by a

previous study undertaken by the researcher (Ibrahim, Mohamed 2006) entitled "Impact of Government Deficit on Economic Growth in the Sudan". The study attempted to identify the magnitude of impact of budget deficit on economic growth in the Sudan for the period (1970-2003), by estimating the linear relationship between saving and budget deficit, and the relationship between the saving ratio and the GDP growth rate, and the relation between GDP growth rate and the ratio of the budget deficit. However, based on the result of the regression analysis, the study established that budget deficits did not play significant role in poor economic performance in Sudan. Once more, based on the empirical result of the study and the findings of previous literature on issue of poor performance of Sudan's economy the study concluded that the budget deficit in Sudan in itself is caused by poor economic performance; the poor economic performance is in turn caused by: poor economic governance, particularly the poor infrastructure both institutional and physical infrastructure, political instability, vulnerability of the Sudan's economy to adverse climatic changes, irrelevant economic policies, civil wars and social unrest. Consequently, the Board of Research at University of Khartoum had recommended its title to be, instead, changed to Determinants of the Government Deficits in Sudan. Since then the idea of undertaking further reach work on the major variables that influence budget deficit in Sudan remained appealing and thus motivated for further empirical examination on determinants of budget deficits in Sudan. Additionally, the findings of this study will enrich economic literature on determinants of budget deficits and economic growth for researchers and policy makers.

1.3. Objectives of the research:

2. To identify the major determinants of budget deficit in Sudan.

3. To provide an analytical (empirical) linkage between budget deficits and a set of macroeconomic variables such as Growth of Real Gross Domestic Product, inflation rates, budget deficits, exchange rates, and exports.
4. To investigate the nature of the relationship between these macroeconomic variables, government deficit and economic development in Sudan from1980 to 2017.
5. Propose a suitable policy implication that could overcome the budget deficit problems and at the same time promote sustainable economic development in the Sudan

1.4 Research Methodology:

To achieve the objective of this research, the study will use both descriptive and analytical techniques to measure and assess the effect of key variables on budget deficits in Sudan. The objectives of this will be realized by utilizing co-integration and Autoregressive Distributive Lag (ARDL) approach on a set of macroeconomic variables to estimate parameters and identify their magnitudes and the link between these variables and the budget deficit in Sudan over the period 1980 - 2017. Thus, the study will explain the fiscal profile and the determinants of fiscal deficit of Sudan over the study period and show the channels through which the key variables influence budget deficits. Therefore, come up with specific policy recommendations that will realize fiscal balances and promote sustainable economic growth in Sudan.

1.5 The Hypotheses of the research:

The hypotheses of this research are:

1. That the budget deficits in Sudan were determined by key macroeconomic variables during the period 1980 and 2017.
2. That economic growth rate, inflation rate, exchange rate, and exports play major roles in the budget position in Sudan during 1980 to 2017.

3. Budget Deficit influences Economic Development in Sudan.
4. Inadequate understanding of the determinants of budget deficits and of the relationship between deficit and the key macroeconomic variables on the part of policy makers have been responsible for the ineffectiveness of past efforts devoted towards achieving growth and fiscal balance in Sudan.

1.6 The scope of the research:

In investigating the key variables that influence budget deficits in Sudan over the period 1980-2017, maximum effort will be made to come up with results that will help policy makers to adopt appropriate economic policies to maintain stable budget and promote a sustainable economic development. However, the study will not be free from shortcomings. The first anticipated shortcoming will be the deficiency of the data and its uniformity over the study period, limitedness of empirical literature on determinants of budget deficits in Sudan. Another limitation of this study arises from lack of clear agreement on the causes and impact of budget deficit.

The motivation behind selecting the year 1980 as starting period for the time scope is due to the fact the Sudan as the case in many developing countries, adopted the Structural Adjustment Policies of International Monetary Fund IMF and the World Bank in 1978 however the negative effects of these policies were felt in the beginning of 1980s. During the 1980s, the programs of reform were implemented with the IMF/World Bank support. However, Sudan's economic performance deteriorated sharply, and the average current account deficit was about 10 percent of GDP in this decade. In the 1990s, the government adopted the reforms without external assistance. The economic performance improved, and the current account

deficit has been reduced to less than 2 percent of GDP by the end of the 1990s (IM[12]F, 2000;).

For example (Onwioduo[3]kit, 1999) argued that in less developed countries fiscal deficits have been blamed for much of the economics crises that beset them since the 1980; over indebtedness and the debt crises; high inflation; poor investment performance and sluggish growth (Onwioduokit, 1999).

Once more ,on Structural Adjustment Policies (Stein, 1992 argued that the specifics of SAPs may vary from one country to another, however some of the policies adopted included price liberalization, privatization, the removal of government subsides, significant devaluation, cuts in public expenditures with deep public sector cuts, relaxation of foreign exchange controls, an increase of interest rates to real levels, the withdrawal of protectionism measures, the introduction of user fees, tight control of credit, and an increase in agricultural producer prices).

1.7 The sources of data:

To quantify the impact of key macroeconomic variables on budget deficits, the study will use secondary data from Sudan's official statistical publications, Journals, books, working papers, and other sources of secondary data such as International Monetary Fund IMF, the World Bank publications and other relevant sources.

1.8 The organization of the study:

This research will be presented as per o the following Chapters: Chapter one will be an introduction to the study consisting of Preface, the statement of the problem, the importance of the study, objectives of the study, research

[1] IMF. 2000. Sudan: Staff Report for the 2000 Article IV Consultation and Fourth Review of the First Annual Program Under the Medium-Term Staff Monitored Program. Report No. EBS/00/83, International Monetary Fund, Washington, D.C.

[3] Fiscal Deficits and Inflation Dynamics in Nigeria. An Empirical Investigation of causal Relationship. CBN Economic and Financial Review Vol 37 No. 2.

methodology, hypotheses of the research, the scope of the research, the sources of data, the organization of the study and previous studies. This Chapter is designed to give a basic idea on the study. Chapter two will review economic theory on fiscal policy, the government budget ,its definitions and different views on it, budget deficit measurement problems and it's causes, methods of financing deficits and their economic consequences .Chapter three will review the theoretical and empirical literature on definition of macroeconomic performance and economic growth and stability , the relationship between budget deficits and macroeconomic variables, and governance, institution and economic growth. Chapter four will present the corrective macroeconomic policies adopted over the study period in Sudan to correct budget deficits, promote economic growth and implication of these policies. Chapter five is devoted identification and specification of the key macroeconomic variables that determine budget deficits in Sudan. The last chapter will be devoted to summary of findings, conclusion and policy implications and recommendations.

1.9 The Previous studies:

Ibrahim, Mohamed Y. A. (2006), M Sc. thesis, attempted to identify the impact of budget deficits on economic growth in the Sudan for the period (1970-2003). Using the Ordinary Least Squares OLS method, it estimated the linear relationship between saving as a ratio of Gross National Product GNP and budget deficit as ratio of Gross Domestic Product GDP, and the relationship between the saving ratio and the GDP growth rate, and the relation between GDP growth rate and the ratio of the budget deficit. The study indicated that, none of the relations were found to be statistically significant, hence, it implied that budget deficits did not play any significant role in Sudan's poor economic performance during the period under study. Based on the empirical results of this study and the descriptive analysis, the

study made two concluding remarks: First, the budget deficit in Sudan was caused by poor economic performance. Second, the poor economic performance is in turn caused by: poor economic governance, particularly the poor infrastructure both institutional and physical infrastructure, political instability, vulnerability of the Sudan's economy to adverse climatic changes, irrelevant economic policies, civil wars and social unrest. The policy implication emphasized on the role of solid physical and institutional infrastructures, and that investment in human capital must concentrate on the quality of education and training and finally dissemination of peace culture and find way out of conflict factors.

Javid, Attiya Y., Arif ,Umaima and Arif, Asma(2011), "Economic, Political and Institutional Determinants of Budget Deficits Volatility in Selected Asian Countries", Publication of Pakistan Institute of Development Economics. This study analyzed the economic, political and institutional sources of budgets deficits for two regions South Asia and ASEAN countries for the period 1984 to 2010. The results revealed that high income, rising inflation and large budget to GDP ratio were associated with budget instability, where as a strong inertia in budget deficit volatility exists. The exposure of more external shocks makes the budget deficit more volatile, however, countries with high population growth have less volatile budget deficits. The results indicated that high level of political stability and democracy and improvement in social and economic condition reduces the budget deficit volatility. High corruption and low institutional quality lead to more fluctuations in the budget deficit. The results suggest that political and institutional factors have a direct impact on fiscal instability beyond the economic reasons to effect fluctuations. The results of the current study lead to important implication that by improving the quality of institutions, creating situations for economic stability and moving towards democratic regimes would ensure more stable fiscal deficits and resultantly positive effect on the long term economic growth.

Ibrahim A/S Mohammed (-2011),Ph. thesis entitled "Sources and Impact of Government Deficit on the Economy 1970-2006"It aimed to identify sources and impacts of government budget deficits on the Sudan's economy for the period (1970-2006). The study period was divided into two sub-periods; the first extended from1970 to 19989 while the second covered the period from 1990 to 2006. The study reviewed the framework, concepts of government expenditure, taxation and budgeting in addition to a brief presentation of the main development strategies and macroeconomic policies on budgeting practices in Sudan. It also descriptively analyzed the government revenues and expenditures in relation to government budget deficits and employed an econometric model to estimate the impacts of ,government revenues and government expenditures on budget deficits , used Augmented dickey-Fuller ADF to test the stationary of the data. The study concluded that during the first sub-period government revenue was the main detrimental factor for budget deficits, and foreign borrowing was the main source of financing the deficits which in turn resulted into accumulation of external debts and it services. In the second sub-period government expenditures was the major determinant of budget deficits and bond financing was the main source of financing the deficits. The Study further concluded that the government budget deficits indirectly influenced exchange rate and GDP growth. Thus, during the first sub-period budget deficits were positively related to exchange rate while; during the second sub-period budget deficits had positive impact on GDP growth.

Mubarak A.W Karrar.(1995) M Sc. Thesis entitled "Do Budget Deficits Matters? A Case Study of Sudan ", empirically investigated the economic effects of budget deficit on macro-economic variables namely, saving investment, the balance of trade and inflation in the Sudan for the period 1977-1991. The study empirically showed that there were positive relationships between budget deficit and investment; savings and inflation as well as a positive relation between budget

deficit and balance of trade. Here he further argued that the positive impact of budget deficit on saving and investment strongly supported the Keynesian view that the effect of budget deficit is expansionary since it stimulates saving and investment demands. While the positive impacts of budget deficit on inflation and budget deficit leads to increase in trade deficit and increase in inflation rate. According to the study none of the results of the study supported the Ricardian view that budget deficit effect is neutral. To mitigate the unfavorable impacts of budget deficit and improve the economic performance, the study recommended that the government should adopt polices leads to proper management of public sector resources and focus on productive sectors , privatization of unprofitable public enterprise, encourage private sector and adopt stimulatory monetary policy with aim of increasing investment demand.

Wugdan Mahdi Ahmed (2009) Ph. D Thesis entitled "The policy of Initiating Deficit Financing in the General Government Budget (in Arabic). The study, based on the Keynesian economic policy framework, attempted to investigate the efficiency of initiating deficit financing on Sudan economic performance as well its impact on key macroeconomic variables during the period 1976/78-02005. The study, using a case study and statistical methods as tool of analysis argued that deficit financing :- 1) negatively impacts economic activities; 2) Its Success as an economic policy tool requires a flexible production system which is not a characteristic of economies of the developing countries and therefore the study advised that such policy should be applied only in cases of viable and short cycled investment projects. 3) Deficit financing does not favor a fare distribution of the national income .4) Bank of Sudan is not fully autonomous institution as evidenced by frequent amendment of article No.(57) which regulated the of granting credits to the government and the high turnover rate of Bank of Sudan Governors ; 5) The deficit financing is mainly directed to nonproductive

activities and current government spending as evidenced by the very low figure of development spending as a percentage of deficit financing .

Mohamed Elhassan Mohamed Ahmed(2001) M Sc. entitled " the Consequences of the Budget Deficit on Money Supply and Inflation in the Sudan During 1981/82-1999" The study attempted to investigate empirically the problem of banking finance of budget deficits and their consequences on money supply and inflation by using multiple linear regression equation system to estimate the quantitative responsiveness of change in money supply , banking finance of the budget deficit , real GDP and exchange rate to the total variation in the domestic rate of inflation. The result of the analysis concluded the domestic rate of inflation was highly responsive to the changes in the explanatory. Variables. thus indicating that expansion in money supply due to increase in the government borrowing from banking system was a major contributing factor to the change in the domestic rate of inflation The study suggested a package of fiscal and monetary policy mix to deal with the inflation resulting from financing of budget deficit by monetary expansion. Among measures recommended were: public sector financial resources should allocated to enhance productivity and economic growth; reduction of less productive forms of the government expenditures; privatization of inefficient public enterprises, introduction of income elastic form of tax system, expansion of banking on outreach basis and development of financial market in the Sudan.

Sabah Ahmed Fadlal-Moula(2014) M Sc. Thesis is entitled "Impact of Fiscal Policy in Achieving Economic Balance on the Government Budget in the Sudan During (2008 -2014).01. The reach question was on the effectiveness of the fiscal policy tools in increasing investment and employment; hence results into reduction of inflationary pressure and unemployment thus leading to improvement in government budget position. Using descriptive method , it concluded that the fiscal policy applied during the study period positively impacted the productive activities

, income distribution , tax and reduction in government expenditures which in turn attracted foreign and domestic investment and increased per capita income in the country during the period . The study recommend reduction of nonproductive public expenditures and undertake studies to identify the cause of low tax revenues , also how to reduce the impact of external shocks on the Sudan economy . The study recommended for creation of a conducive environment for growth of investment and export.

Abdul Razak Al Faris (1997) Government, Poor People and Public Spending: A Case Study on Government Budget Deficit , its Economic and Social Impacts in Arabic Courtiers (book in Arabic).The Study was an attempt to evaluate fiscal policies in Arab countries in their relation to government budgets and their impacts on inflation , private investment and how these policies were appropriate in promoting economic growth that realize fare distribution of income in these countries during the period 1970 -1993. The study concluded that most of these countries did not optimally use fiscal policy instruments in achieving development targets due to institutional and political constraints. Further it argued that the analysis of budget details indicated that in most of these countries political and current spending were given priority over development spending. Similarly, if there should be any cut in government spending aimed to reduce budget deficit the development spending is reduced rather than current spending. The study showed that, on the revenue side, most of these countries depended on oil revenue either as oil producers or non-oil producing countries which depended on loans or assistances from the oil producing countries. The excessive dependency on oil revenues has isolated the role of local tax as an efficient economic policy tools to achieve development objectives. Thus, the study concluded that in most of these countries revenues systems remained weak and basically depended on nontax revenues except for very few countries. Again; it maintained that when taxes are

levied; they tend to be indirect taxes are considered to have a significant negative impact on the mode of income distribution. Also, it was argued that due to higher dependency of nonoil producing countries on foreign trade taxes, both on export and import, the fluctuations in foreign trade are transmitted into fiscal and the economic instability in these countries. Further, compared to the oil producing countries, theatrically the nonoil producing countries are characterized by broader tax bases systems, however political and administrative factors remained constraints to best use of the tax systems in these countries. On analysis impact of deficit on inflation and private investment, the study established that a budget deficit significantly increases inflation directly and indirectly when deficit is financed through printing money. The inflation too also showed to increase budget deficit through increasing public spending as goods and services are in their real values while there is no corresponding increase in tax revenues, which remain in their nominal values, due collection lags. The established impact of budget deficit is found to be partial depending on the way deficit is financed. The study advocated for the important role of fiscal policy in tailoring the method financing deficit in order to mitigate the negatives effect of deficit on the economy.

Murwirapachena, Maredza and Choga [1](2013) the study entitled "The Economic Determinants of Budget Deficits in South Africa" argued that Since 1980, South Africa recorded massive budget deficits except in 2007 and 2008 when the budget surpluses as a percentage of GDP respectively stood at 0.3 per cent and 0.7 per cent. According to this study budget position stimulated a great debate on whether budget deficits in South Africa a result of poor governance were or was due to the magnitude of the economic problems that the government sought to alleviate. To answer question raised on causes of budget deficits, the study examined the

[1] Murwirapachena, Maredza and Choga, *The Economic Determinants of Budget Deficits in South Africa*, Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy, Vol 4 No 13 November 2013

economic determinants of budget deficits in South Africa for the period 1980 – 2010. Specifically, the study attempted to ascertain if budget deficits in South Africa are a result of the fight against economic problems. The Vector Error Correction Model (VECM) was used to determine the impact of selected macroeconomic variables on budget deficits in South Africa. The results revealed that all the determinants had a positive impact on budget deficits except for foreign debt. However, foreign reserves explained the largest component variation of budget deficit followed by foreign debt, unemployment, economic growth and government investment, in that order.

Mum[1]taz Anwar & Munazza Ahmad (2012) Political Determinants of Budget Deficit in Pakistan: An Empirical (WP). This study was an attempt to ascertain some political factors determining budget deficit in Pakistan. It examined the short and long-run relationship between the budget deficit, democracy and cabinet size for Pakistan's economy. The bounds testing approach to co-integration and (ECM) error-correction models, developed within an autoregressive distributed lag (ARDL) framework was applied to annual data for the period 1976 to 2009 in order to investigate whether a long-run equilibrium relationship exists between the budget deficit and these factors. The result of the bounds test indicated that there exists long-run relationship between the budget deficit and political variables. The results provided strong evidence that large government size significantly adds to the budget deficit. The democracy can help in reducing budget deficit but showed a weaker influence in case of Pakistan for the sample period.

Luca Angelo and Ricardo M. Sou[2]sa (2009). Determinants of Public Deficit Volatility: The major goal of the paper was to empirically assess the sources of

[1] Mum taz Anwar & Munazza Ahmad , *Political Determinants of Budget Deficit in Pakistan*: An Empirical (WP investigation, Hamburg Institute of International Economics (HWWI) November 2012

[2] Luca Angelo and Ricardo M. Sousa , *The Determinants of Public Deficit of Volatility*, European Central Bank, WORKING PAPER SERIES NO 1042 / APRIL 2009

public deficit volatility, in particular, by focusing on the role played by political, institutional and economic determinants. Using a Generalized Method of Moment-GMM estimator for linear dynamic panel data models on a sample covering 125 countries from 1980 to 2006. They showed that a higher level of political instability leads to an increase in public deficit volatility. Moreover, the empirical findings suggested that the political regime and the country size are other important sources of public deficit instability. In addition, they found that a higher level of inflation and a larger deficit (in percentage of GDP) led to an increase of deficit volatility. Finally, richer countries were well characterized by stable deficits. They further believed that the paper's analysis and its implications were a valuable contribution to academics and policymakers. They perceived that by improving the quality of their institutions, creating conditions for government stability and moving towards democratic regimes, countries can make substantial progress towards the achievement of long-term economic prosperity.

Easterly[1], William and Schmidt-Hebbel,Klaus (1993) "Fiscal Deficits and Macroeconomic Performance in Developing Countries", Working Paper, they argued that although fiscal adjustment was urged on developing countries during the 1980s to lead them out of economic illness, considerable uncertainty remains about the relations between fiscal policy and macroeconomic performance. To illustrate how financial markets, private spending, and the external sector react to fiscal policies, the behavior of holdings of money and public debt, private consumption and investment, the trade balance, and the real exchange rate was modeled for a sample of ten developing countries. The studies found strong evidence that over the medium term, money financing of the deficit leads to higher inflation, while debt financing leads to higher real interest rates or increased repression of financial markets, with the fiscal gains coming at increasingly

[1] Ibid 2

unfavorable terms. Consumers respond differently to conventional taxes, unconventional taxes (through inflation or interest and credit controls), and debt financing, in ways that make fiscal adjustment the most effective means of increasing national saving. Private investment-but not private consumption-is sensitive to the real interest rate, which rises under domestic borrowing to finance the deficit. Contrary to the popular presumption, in some countries private investment increases when public investment decreases. Again, the study argued that there was a strong evidence that fiscal deficits spill over into external deficits, leading to appreciation of the real exchange rate. Fiscal deficits and growth are self-reinforcing: good fiscal management preserves access to foreign lending and avoids the crowding out of private investment, while growth stabilizes the budget and improves the fiscal position. The virtuous circle of growth and good fiscal management is one of the strongest arguments for a policy of low and stable fiscal deficits.

Vuyyur[1]i, Srivyal and Seshaiah, S. Venkata (2004) Budget Deficit and other Microeconomic Variables in India. This Working paper was an attempt to study the interaction of budget deficit of India with other macroeconomic variables such as nominal effective exchange rate, GDP, Consumer Price Index and money supply (M3) giving special emphasis on the budget deficit-exchange rate relationship using co-integration approach and Variance Error Correction Models (VECM) for the period 1970-2002. The results revealed that the variables under study were co-integrated and there was a bi-directional causality between budget deficit and nominal effective exchange rates during the period under study. However, the researchers argued that they did not observe any significant relationship between budget deficit and GDP, Money supply & consumer price index. Also, they result

[1] 90. Budget Deficits and Other Macroeconomic variables in India : Applied Econometrics and International Development. AEEADE. Vol. 4-1 (2004)

revealed that the GDP Granger caused budget deficit whereas budget deficit did not.

Wosowei Elizabet[1]h, (2013) "Fiscal Deficits and Macroeconomic Aggregates in Nigeria" The study was carried out to determine the impact of fiscal deficit on macroeconomic aggregate in Nigeria over the period 1980 to 2010, to examine whether fiscal deficit had led to economic growth in Nigeria, and to find out the nature of relationship between fiscal deficits and macroeconomic aggregates in Nigeria using data from secondary sources. The study employed the Ordinary Least Square method in estimating the equation. Preliminary test of stationarity and co-integration of variables using the Augmented Dickey Fuller (ADF) test and the co-integration test using the Engle Granger procedure were conducted respectively. However, the empirical findings showed that fiscal deficits even though that it met the economic a prior in terms of its negative coefficients yet, did not significantly affect macroeconomic output. The result also showed a bilateral causality relationship between government deficit and gross domestic product, government tax, and unemployment, while there is an independent relationship between government deficit and government expenditure and inflation. Based on these findings, the following recommendations were made.

1. Government should minimize the level of deficit because increase in fiscal deficit increases money supply which negatively affects output growth.
2. Government should adopt fiscal management actions that aim at minimizing borrowing.
3. Fiscal deficit financed principally via the Central Bank and external debt with high service rate should be discouraged.

[1] *"Fiscal Deficit and Macroeconomic Aggregates in Nigeria"* Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 2, No.9; May, 2013.

4. Government must adopt fiscal adjustment mechanism that increases revenue through improved taxes rather than borrowing to finance deficit and dependence on crude oil.
5. Government has to manage the level of deficits for effective control of the economy to enhance sustainable economic growth in the country.

Robert D. Korsu, [1](2010) "Fiscal Deficit and the External Sector Performance of Sierra Leone: A Simulation Approach" This paper investigated the effects of fiscal deficit on the external sector of Sierra Leone. The study utilized aggregate annual data from 1971 to 2005. Equations for money supply, price level, real exchange rate and the overall balance of payments were estimated simultaneously, using Three Stage Least Squares (3SLS). Counterfactual policy simulation was then performed. The result showed that fiscal limitation improves the external sector of Sierra Leone by reducing money supply and the price level. The result also points to the need for a sustained reduction in the budget deficit of Sierra Leone as this helps in achieving monetary restraint and low-price level, which has real exchange rate depreciation and improvement in the balance of payments as ultimate external sector benefits. This requires sound fiscal policy from the point of view of both revenue generation and expenditure.

Usman Moses Okpanac[2]hi (2004), "Government Deficit and Inflationary Process in Nigeria During 1986-1998" M Sc. Thesis, investigated empirically the relationship between government deficit and inflation in Nigeria. The study aimed at determining the nature of causality between deficit and inflation; the dynamics of inflation; and the role of deficit in the process of inflation, among others. The model of the study was estimated using the Two-Stage Least Squares (2SLS). Two-

[1] *Fiscal Deficit and the External Sector Performance of Sierra Leone*: A Simulation Approach, Journal of Economic and Monterey Integration , Vol. 9 No. 1.

[2] *Government Deficit and the Inflationary Process in Nigeria*, 1986-1998Unpublished Ph. D. Thesis, University of JOS, Nigeria.

way causality was found between the variables mentioned earlier. Inflation was found to be a contributory factor to the deficits and tended to be self-generating, due to its effects on government expenditures and revenues. Expenditures adjusted to changes in domestic price level faster than did revenues, and so government revenues persistently lagged behind expenditures, making deficit a recurring feature of government's fiscal operations. In addition, the surges in money supply during the period were found to be partly due to the loss of control over expenditures. In financing the excess expenditure, government over relied on money creation (especially CBN Monetary accommodation), which increased base money and consequently, inflation. One implication of these findings is that anti-inflation policy must target in part, government expenditures, to be effective. Past inflation stabilization plans failed partly because they could not achieve this. In order to improve, the adjustment of revenues to income and price, early retrieval of revenues, indexation and overall improvement of revenue collection machinery of government are obvious necessities. To regain macroeconomic balance the government should strive to balance its budgets or restrict deficits to magnitudes that are amenable to less inflationary financing.

Hassan, [1]Shahid, and Kalim , Rukhsana (2012) "The Role of Key Macroeconomic Variables in Fiscal Deficit of Pakistan: An Empirical Analysis" The study aimed to explore some of the important factors contributing to the fiscal deficit in Pakistan. GDP per capita, total debt servicing as percentage of GDP, volume of trade as share of GDP, and monetary asset (proxy for money supply) as share of GDP are considered major factors affecting fiscal deficit in Pakistan. The period taken for analysis ranges from 1976 to 2009. The study applies ADF and Phillip Perron tests to investigate stationarity; Johansen Maximum Likelihood technique to explore the

[1] *The Role of Key Macroeconomic Variables in Fiscal Deficit of Pakistan*: An Empirical AnalysisAn Empirical Analysis"2nd International Conference on Business Management, Lahore University of Management and Technology.

existence of long run relationship among the running actors of the study, Fully Modified Ordinary Least Square Method to estimate the long run coefficients., Error Correction Mechanism to inspect the short run coefficients and finally, Granger Causality test to investigate the direction of causality among the operating variables of the present study for Pakistan. The empirical evidence shows that GDP per capita and money supply are significantly squeezing fiscal deficit in Pakistan in both the short run and long run span of time. The total debt servicing lagged by one year declines fiscal deficit in the long run. However, volume of trade; total debt servicing and time trend are positively and significantly contributing to the fiscal deficit in Pakistan in the both long run and short run time span. 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. Finally, the present study diagnoses the existence of bivariate Granger causality between volume of trade and fiscal deficit in Pakistan.

Ahmed[1], Mosllem (2007), "Macroeconomic Policies and Economic Performance in Sudan: An Analytical Review for the Period 1960-2006." Using econometric and an analytic approach for data processing, he empirically evaluated the role of macroeconomic policies stance in explaining economic performance divergence in Sudan. He discussed the major elements of a policy framework that could be implemented to maintain a favorable environment for private investment and promote sustainable long-run economic performance. He argued that Sudan's economic performance experience was extremely varied and irregular. However, it has shown a strong economic performance since 1998, reaching the fastest average rate of growth it has seen for decades. This economic recovery was based, among

[1] *Macroeconomic Policies and Economic Performance in Sudan*": An Analytical Review for the Period 1960-2006 "Unpublished Ph. D. Thesis, University of Khartoum.

other things, on an improved policy environment (stability) and policy outcomes (quality), which created a low risk economic environment. Arguing that sound economic policies are a necessary step for macroeconomic stability, ultimately, attaining a considerable macroeconomic achievement by creating a more conducive environment for private sector investment decisions. However, good macroeconomic policies, while necessary, are not sufficient for outstanding economic performance. In order to maintain macroeconomic stability and promote sustainable economic growth in Sudan; the study recommended the following elements of a policy framework to be implemented: -

Sudan should seek to boost the accumulation of physical capital aimed to create a more favorable economic environment to private sector.

Increase basic infrastructure and social services, as well as promoting human resource and social development. This emphasizes the importance of the public budget allocations again as a key instrument to promote private investment and sustain stable economic performance.

Implement sound macroeconomic policies to fully restore and consolidate macroeconomic stability, which would likely encourage private investment and help economic growth.

Trade liberation; aimed to strengthen the competitiveness of domestic producers and speeding up Sudan's integration into the global economy.

Financial sector reform can help to enhance growth by building an efficient financial sector, mobilizing domestic credit to private sector, and financing productive investments.

In summary, the previous studies reviewed here, concentrated mainly on the impacts of government budget deficits on key macroeconomic variables, impacts

and co[1]sequences of financing budget deficit, effectiveness of fiscal policy tools in improving budget position and how the sustainability of the economic growth performance is affected. Also, there are some studies on international context which examined the economic and political sources or determinants of budget deficit. However, in the Sudan, there is lack of studies dedicated to determinants of budget deficit. In this regard, a study by Ibrahim A/S Mohammed (-2011), entitled "Sources and Impact of Government Deficit on the Economy during1970-2006" has undertaken but it is limited to estimation of the impacts of government revenues and expenditures on budget deficits hence the study did not include the direct impact of other key macroeconomic variables such economic growth rate, inflation rate , budget deficits itself , exchange rate and export.

The this thesis, by developing an economic model that captures the impact of the key macroeconomic variables such as economic growth rate, inflation rate , exports, and exchange rate will contribute to the filling of the empirical literature gab on the determinant of budget deficit in the Sudan.

[1] *Sources and Impact of government Budget Deficits on the Economy* 1970-2006" Unpublished Ph. D Thesis, Sudan University of Science and Technology.

CHAPTER TWO

THE LITERATURE REVIEW

Chapter Two

The Literature Review

2.1 Introduction:

The causes of government budget deficit [1]and its impact on the economic life of people has been subject of interest and questioning. Different economic schools of thought held different views about the budget deficits, its causes and its specific impact on economic variables. To understand what causes budget deficit as well as how budget deficit could have its impact on economic activities of a country one should consider the nature of the fiscal operations and policies.

2.1 Fiscal policy and Fiscal Operations:

Fiscal policy refers to the choice by the government of (1) its levels of spending on goods and services, (2) its transfers to households, and (3) the tax rates it sets on households and firms. Most countries have different levels of government, so some tax and spending decisions are made for the whole country, whereas others are made at the local or regional levels. In principle, we can include all levels of government in our discussion. This means that, in the Sudan for example, "government" can refer to the totality of the central (federal) government, State government, and the government at the locality level. There are two aspects of fiscal policy: government spending and tax/transfer policy. These fiscal policy choices determine the deficit. In section 2.7 of this chapter we will clarify how the government spending affects the aggregate demand or as argued by Keynesian economists how changes in government spending can sometimes be used to stimulate the overall economy. Alternatively, fiscal policy is how a government adjusts its spending levels and tax rates to monitor and influence a nation's

[1]Budget deficit means the excess of government expenditure over its revenue for a particular year or budget. On the other hand, fiscal deficit is the accumulation of yearly deficits of past all years. Basically it takes into account or is the summation of budget deficits of past years.

economy. It is an alternative strategy to monetary policy through which a central bank influences a nation's money supply. Also, fiscal policy can be viewed as the use of government expenditure G, which is a component of aggregate demand, or taxes policy tools for achieving macroeconomic goals. Therefore, the change in government expenditure changes aggregate demand. Also change in taxes is said to change disposable income, thereby, changes consumption and thus aggregate demand and gross domestic product, GDP.

While **fiscal operations** are also actions taken by the government to implement budgetary policies, such as revenue and expenditure measures, as well as issuance of public debt instruments and public debt management. According to Kularni [1](1966), fiscal operation, firstly, involves transfer of purchasing power from people to government in the form of taxes, fees, loans and any other device used by public authorities to raise revenues and secondly, transfer of direct and indirect benefits by government to the people. The government budget is said to be in surplus when its revenues receipts exceed its expenditures charged against the revenues. And the budget is said to be in deficit when the transfer of benefits by the government exceeds the purchasing power obtained by the government or transferred by the people to the government. When the government purposely plans for budget deficit it is called active or planned budget deficit. On the other hand, when budget deficit is not planned but economic poor performance causes deficit it is called positive budget deficit.

Consequently, when the government increases its spending and/or reduces taxes, this will shift the government budget toward a deficit. If the government runs a deficit, it will have to borrow funds, print money or rundown foreign reserve to cover the excess of its spending relative to revenue. Larger budget deficits and increased borrowing are indicative of expansionary fiscal policy. In contrast, if the

[1] Inspections in Government Administration, Indian Journal of Public Administration, 1966 - journals.sagepub.com.

government reduces its spending and/or increases taxes, this would shift the budget toward a surplus. The budget surplus would reduce the government's outstanding debt. Shifts toward budget surpluses and less borrowing are indicative of restrictive fiscal policy.

Economic literature tells us that a large part of macroeconomic problems of the less developed countries are attributed to problems associated with their fiscal deficits, especially in 1980s and 1990s. While budget deficit is blamed for many economic problems of these countries, like, over indebtedness, poor capital accumulation, poor saving, poor economic growth, however, there are a lot of debates over the specific impacts of the budget position on the economy, the question of whether is it appropriate to run a deficit or surplus, believed to depend on the specific economic circumstance of the country under consideration.

After this brief introduction about the idea of fiscal policy and budget deficit, the remaining contents of this chapter will also briefly present the following subheadings: -

The government budget, components of government budget, government revenue, reason for low government revenue, public expenditure, reason for increases in government expenditure, various definitions of the budget deficit, problems in measuring government budget deficits, , different views of budget deficit, causes and determinants of budget deficits, different methods of financing budget deficit and their consequences on economic growth performance.

2.2 The Government Budget:

The word "budget" comes from budget, a Middle English word for the king's bag containing the money necessary for public expenditure. Budgets evolved in two directions. At first, Parliaments fought to take control of the budget and make governments accountable for the use of resources. In democratic societies, for instance, approval of the budget (the "power of the purse") is the main form of

parliamentary control of the executive. The budget authorizes to the executive to spend and collect revenues. In later years, the scope of government activities expanded considerably, and the role of the government budget became more complex. Today, government budget is aimed at a variety of objectives, including economic development, and social goals, or redistribution objectives. Hence, governments need sound fiscal policies, i.e., policies concerning government revenues, expenditures, and borrowing to achieve macroeconomic stability and other government objectives. The budget is the most powerful tool of the government in carrying out its policies. In countries with representative governance systems, the budget is the financial mirror of society's choices. Public money should be spent only under the law. (WB: Anwa[1]r Shah (ed.) 2007).

Also the national budget is considered as the main instrument through which governments collect resources from the economy, in a sufficient and appropriate manner; and optimally allocate and use those resources responsively, efficiently and effectively. Implementation of government budget in this manner will only be possible under good governance and well managed public expenditure. That why good public expenditure management (PEM) is one instrument of government policy. The basic goals (principles) of public expenditure management are accomplishing macro financial discipline, strategically priorities (productive source allocation) and functional application (technical productivity). These three objectives are complementary and interdependent. Public Expenditure Management approach was put into practice in the early 1980s by World Bank.

Recall that a central government budget is a government document presenting the government's proposed revenues and spending for a financial year that is often passed by the legislature, approved by the chief executive or president and

[1] Budgeting and Budgetary Institutions: The Budget and Its Coverage "The International Bank for Reconstruction and Development / The World Bank.

presented by the Finance Minister to the nation. The budget is also known as the Annual Financial Statement of the country. This document estimates the expected expenditure of the government and the sources of financing these expenditures during a financial year. The governments at all levels, central, state or local, undertake preparation of their budget smooch before the financial year starts. Government usually take budget decisions on behalf of the people. It is therefore, accountable to the people through legislatures, parliament, civic body's etc. implementation of government policies through budget formulation is termed as fiscal policy or budgetary policy> explanation of the components of government budget, government revenue and expenditure will be made briefly presented in the next section.

In general, as noted before, the budget should the financial mirror of government policies. Thus, to be an effective instrument, the budget should be as comprehensive as possible. Here, two major issues are involved here: First, if the budget excludes major expenditures, there can be no assurance that scarce resources are allocated optimally or according to priority programs and that legal control and public accountability are properly enforced. Second, the amount of expenditures not included in the budget is itself often uncertain and may not meet transparency criterion. In turn, this makes macroeconomic programming more difficult and increases the risk of corruption and waste of public resources. Yet again, budget comprehensiveness does not mean that all expenditures should be managed according to the same set of procedures. For efficiency, specific arrangements for administering some programs may be established, if they do not lead to a fragmented approach to budgeting and expenditure policy formulation.

2.2.1 Components of Government Budget:

The basic structure of the government budget is nearly the same at all levels of the government. The items of expenditure, the weight given to different items and the

sources of finance may differ from budget to another budget. In this section we will explain the basic structure of the budget as prepared by the central government in most of the countries in the world. Budget has two main parts: revenue and expenditure. The receipts of the government are of two types: revenue receipts and capital receipts. Revenue receipts are current income receipts from all sources. The main forms of such receipts are taxes, profits of public enterprises, grants etc. Capital receipts constitute borrowing of the government.

There is an important difference between revenue and capital receipts. In revenue receipts government is under no future obligation to return the amount. Capital receipts, on the other hand, being borrowings, the government is under obligation to return the amount along with interest. All capital receipts create liabilities or reduce assets. There is similarity in financing by an individual and financing by government. An individual first tries to finance current expenditure from his current income. In case he finds that his current income is not sufficient he tries to finance the deficit by borrowing. In this regard what is true about an individual is also true about the government. There is also dissimilarity between an individual and government on decisions on expenditure and sources of financing it. The individual first estimates his expected income and then plans expenditure accordingly. While the government, generally estimates the expenditure and then plans the sources needed to finance these expenditures.

2.2.2 Government Revenue:

Taxes have been the main sources of government's income since ancient time. However, government most raises income from different sources. Examples of other sources government revenue include rental revenues, fees for licenses and government services, profits and revenues from the public enterprises and companies, and proceeds from the sale of the state's assets. Government may also get grants and borrowings as income from foreign countries. Generally speaking all

the sources of government revenue receipts can be classified as tax revenues and non-tax revenues.

For example, Wikipedia defines government revenue as "money received by a government. It is an important tool of the fiscal policy of the government and is the opposite factor of government spending. Revenues earned by the government are received from sources such as taxes levied on the incomes and wealth accumulation of individuals and corporations and on the goods and services produced, exports and imports, non-taxable sources such as government-owned corporations' incomes, central bank revenue and capital receipts in the form of external loans and debts from international financial institutions. The sources of finance used by the central government are taxes paid by the public."

2.2.3 Reasons for Low Government Revenue in Developing Countries DCs:

1. Extremely low level of economic growth rate and development indicating low taxable income.
2. A large dominance of very large informal sector implying a narrow tax base. This factor complicates government's effort to mobilize revenues.
3. The dominance of agricultural sector which is hard to tax;
4. Poor administrative capacity to enforce the taxes; this capacity constraints hinder the ability of the government to collect taxes and of taxpayers to comply with tax regulations
5. Also, explicit and intentional tax evasion and resistance from taxpayers;
6. Corruption, including misappropriation of revenues; and

(See, for instance, Keen, 2010), corrupt revenue administrations would be expected to collect less official revenue; and a poor quality of the public sector can increase resistance to taxation that expresses itself in avoidance or evasion. There is

evidence too that political instability is associated with low tax ratios, and that legal origins also have an impact, with civil law countries generally raising more.

7. Disregard of government agencies to pay taxes.
8. Heavy reliance on aid funds and assistance that are exempt from taxation. This particularly true in many parts of Sudan where very large segment of the community members depends on humanitarian assistance from national government and international community.

On reasons for low tax revenue Crandall, William, and Jean-Paul Bodin, (2005) [1]argued that weak revenue administrations, low taxpayer morale, and poor governance—closely linked—though not unique to lower-income countries, are especially entrenched there. Corruption indicators are strongly associated with low revenue—indeed corruption functions like a tax itself, and likely a particularly regressive one—as are other governance indicators (weak rule of law, political instability). Causation can run both ways, and governance problems are not unique to revenue administrations and nor can they be fully addressed in isolation from, for example, judicial reform. Nevertheless, the centrality of tax collection as an exercise of state power gives governance issues in tax collection a special importance.

2.2.4 Public Expenditure

Public expenditure refers to the expenses which Government incurs in the performance of its operations. With increasing State activities, it may be difficult to judge what portion of public expenditure can be ascribed to the maintenance of Government itself and what portion to the benefit of the society and the national economy . The Government expenses are incurred by Central, State and Local governments of a country. Public expenditure can include items such as, "The expenditure incurred by public authorities like central, state and local governments

[1] : Revenue Administration Reform in Middle Eastern Countries, 1994-2004, IMF Working Paper No. 05 /203

to satisfy the collective social wants of the people is known as public expenditure. Alternatively, economists classify government expenditures into three main types. Government purchases of goods and services for current use are classed as government consumption. Government purchases of goods and services intended to create future benefits such as infrastructure investment or research spending are classed as government investment. Government expenditures that are not purchases of goods and services, and instead just represent transfers of money such as social security payments or studies are a kind of transfer payments.

According to Wikipedia public expenditure is spending made by the government of a country on collective needs and wants such as pension, provision, infrastructure, etc. until the 19th century, public expenditure was limited as laissez faire philosophies believed that money left in private hands could bring better returns? In the 20th century, John Maynard Keynes argued the role of public expenditure in determining levels of income and distribution in the economy. Since then government expenditures has shown an increasing trend.

Fiscal Policy (FP) is the economic term that defines the set of principles and decisions of government in setting the level of public expenditure and how the expenditure is funded. Fiscal policy and monetary policy (MP) are the macroeconomic tools that governments have. About fiscal policy it is observed that Less Developed Countries LDCs are characterized by underdeveloped financial markets that governments could borrow little or nothing from the public. In some countries, however, deposit- taking banks were forced to buy government papers at low interest rates thereby depriving private sector of the available fund. But this was not a matter of deep concern since public investment was believed to be most important for development. Mainly the categories of public investment that provides production infrastructure hence boosts the nation's production environment. Thus, borrowing from the central bank mainly financed budget

deficit that could not be financed by foreign borrowing. As such fiscal policy largely consisted of the determination of the size of the government deficit that would have to be financed domestically. This in turn would determine the required increases in the quantity of money and its effect.

Policy makers are divided as to whether government expansion helps or hinders economic growth. Advocators of bigger government argued that government programs provide valuable (public goods) such as education and infrastructure. They also claim that increases in government spending can bolster economic growth by putting money into people's pockets. Proponents of smaller government have the opposite view. They explain that government is too big, and that higher spending undermines economic growth by transferring additional resources from productive sector of the economy to government, which uses them less efficiently. They also warn that an expanding public sector complicates efforts to pro-growth policies-such as fundamental tax reform and personal retirement account- because critics can use the personal existence of a budget deficit as a reason to oppose policies that strengthen the economy (Mitchell[1], 2005).

2.2.5 Reasons for Increase in Government Expenditure.

There are several factors have been as certainly leading to growth in government spending in many countries over time. Some of these factors are general, and apply to all countries, while others are specific to some developing countries, such as Sudan. The major reasons that lead to expansion in government expenditure include the following:

1. The traditional functions of government such as defense, maintenance of law and order, are becoming extensively difficult. For example, defense and security issues in context of civil unrest and tribal conflicts are becoming expensive more than

[1] The Crowding out of Private Expenditures by Fiscal Actions. In: W.E. Mitchell (ed) Readings in Macroeconomics, N/York: McGraw-Hill, pp156-173. (Book).

ever before. Again, the contemporary state administrative set up is also increasing both in size and intensity. For example, Government machinery must be staffed by experts in their respective fields. In addition, various complexities of economic and social measures develop which make efficient administration complex and expensive.

2. Apart from the traditional functions of the state, there is the growing awareness of additional responsibilities. Government is expanding its activities in various areas which include the need to enrich the cultural life of the society and those designed to provide social securities to the people, such as pensions and other social care activities.

3. Increasing population is also a determinant of public expenditure growth. The scale of public goods and basic social services have to rise in conformity with the growth of the population. The need for more schools, hospitals, security etc. cannot be over-emphasized in the light of increasing population.

4. It has been suggested that urbanization and the resulting congestion have increased the need for more infrastructure, public goods and services. Moreover, quite many incidental services as those connected with traffic, roads, pedestrian bridge must be provided.

1. The tendency for prices to go up to due to inflation has equally contributed to the growth of public expenditure. The increase in the prices of inputs and other goods purchased by the public has resulted in an increase in public expenditure. It is the responsibility of government to protect the citizenry against the problems of price mechanism. Consequently, anti-cyclical and other regulatory measures are put in place. Efforts are made to reduce income inequalities and wealth variations and bring about social and economic justice. Hence such measures increase government expenditure and leads to budget deficit.

2.Increasing public expenditure can also be explained in terms of increasing cost of debt servicing. Since States are related to one another through various economic transactions, there are tendencies to run into debts which have to be settled.

2. Efforts of Government to redistribute income and wealth inequalities, bring about social and economic justice and protect the economy from market failures entail the adoption of anticyclical and other regulatory measures which invariably increase public expenditure.

3. Subsidies and other mandatory commitments also contribute to increase in public expenditure. In view of the size and nature of public services increasing specializations are required.

4. Improved quality services and higher qualified administrators, engineers, technicians, teachers, medical personnel, and other capacity building activities imply higher cost of public services which will also bring about increased public expenditure.

5. Dominance of poor Public Expenditure Management and poor economic governance many LDCs.

2.3 Various Definitions of Budget Deficit:

How to define and measure fiscal adjustment is a questionable issue in economic literature. What are the most meaningful measures of public sector deficit is also equally a debatable question. For instance, the IMF's approach to fiscal adjustment focuses on the role that sound and sustainable government finances play in promoting macroeconomic stability and growth. Achieving and maintaining such a fiscal position often requires adjusting fiscal policy, as well as strengthening fiscal institutions. Fiscal adjustment may involve either tightening or loosening the fiscal stance, depending on each country's circumstances.

According to economic literature and the practices by international institutions, such as the World Bank, the International Monetary Fund IMF, there are different

ways of measuring the budget deficit, the most commonly accepted measure used by governments worldwide to define the conventional budget balance is the criterion of resources utilized by the government in the fiscal year that needed to be financed after resources were deducted from the total expenditure. It is the difference between the current revenue and the current expenditure of the government. This reflects the financing gaps that need to be closed by way of net lending, including lending from the central bank, it could be regarded as the resources needed during a fiscal year after government income has been deducted from the total expenditure. Here one must distinguish between the concept of deficit and debt. The debt at a given time is the sum of all past budget deficits. It is the accumulative excess of past spending over past receipts. In the language of economics, the debt is a stock variable, measured at a point in time, while deficit is flow variable measured during a period.

Vito Tanzi[1] (1988) use a definition of the deficit as follows: "Fiscal deficits, as conventionally defined on a cash basis, measure the difference between total government cash outlays, including interest outlays but excluding amortization payments on the outstanding stock of public debt, and total cash receipts, including tax and nontax revenue and grants but excluding borrowing proceeds. In other words, not all outlays related to public debt servicing are included in the measure of the deficit: interest payments are added to non-debt-related expenditures but **amortization**[2]payments are excluded. On the other hand, current revenues are recorded as government income while proceeds from borrowing are not. In this

[1] "Inflation, Lags in Collection, and the Real Value of Tax Revenue," Int. Monet. Fund Staff.

[2]In lending, amortization is the distribution of loan repayments into multiple cash flow instalments, as determined by an amortization schedule. Unlike other repayment models, each repayment instalment consists of both principal and interest. Amortization is chiefly used in loan repayments (a common example being a mortgage loan) and in sinking funds. Payments are divided into equal amounts for the duration of the loan, making it the simplest repayment model. A greater amount of the payment is applied to interest at the beginning of the amortization schedule, while more money is applied to principal at the end. Commonly it is known as EMI or Equated Monthly Instalment.

manner, fiscal deficits reflect the gap to be covered by net government borrowing, including direct borrowing from the central bank."

Agénor and Montiel[1] (1999) argued that the measurement of budget balances also raises a host of conceptual and practical issues, which are compounded by the lack of uniformity in usage among countries. For instance, the conventional budget balance can be measured on a cash basis or an accrual [2](or payment order) basis. In the first case, the balance equals the difference between total cash flow expenditure and fiscal revenue. In the second case, the balance reflects accrued income and spending flows, regardless of whether they involve cash payments or not. Accumulation of arrears on payments or revenue is reflected by higher balances when measured on an accrual basis compared with a cash-based measure.

The World Bank (WB), for example defines the conventional budget balance as the difference between expenditure items such as salaries, and wages, expenditure on goods and services including capital expenditure, interest on public debts, transfers and subsidies and revenue items including taxes user changes, grants received, profit of non-financial public enterprises and sales of assets (Blejer[3] and Cheasty (1993)

Because of these different views in measuring fiscal deficit many questions are raised on the successes and failures of fiscal adjustment. Not the least of these is how to define and measure fiscal adjustment. What are the most meaningful

[1] Macroeconomic Fluctuations in Developing Countries: Some Stylized Facts: IMF working paper/ 99/35 .

[2]They are principles of financial account and the main difference between accrual and cash basis of accounting is the timing of when revenue and expenses are recognized. The cash method is mostly used by small businesses and for personal finances. The cash method accounts for revenue only when the money is received and for expenses only when the money is paid out. On the other hand, the accrual method accounts for revenue when it is earned and expenses goods and services when they are incurred. The revenue is recorded even if cash has not been received or if expenses have been incurred but no cash has been paid. Accrual accounting is the most common method used by businesses.

[3] How to Measure the Fiscal Deficit: Analytical and Methodological Issues. Washington, D.C.: International Monetary Fund.

Measures of public sector deficits.? How should one assess fiscal stance, public sector solvency[1], and sustainability of deficits? As presented above, the budget deficit is therefore often subjected to intense interest and examination. Unless interpreted with caution however, the conventionally defined budget deficit could give rise to misleading conclusions of fiscal policy stance and possibly adoption of mistaken policy prescriptions (Abedian[2] and Biggs 1998).

The conventional budget balance was originally developed in an effort to provide a measure of the government's contribution to aggregate demand in the economy and the lack of equilibrium on the current account of the balance of payments, or to measure the crowding out of the private sector in the financial markets. Another definition of the conventional budget balance could be the measurement of the extent to which government expenditures (for policy purposes) exceed government revenues without incurring new liabilities, as proposed by Leviathan in Blejer[3] and Cheasty (1993). Also, an additional significant factor in measuring fiscal deficit is question of what constitutes public sector.

According to Easterly[4] and Hebbel (1993) the public sector can be defined in three alternative ways: central government only, consolidated non-financial sector, which adds local governments, social security and non-financial public enterprises and consolidated total public sector, which adds the Central Bank and sometimes public commercial banks.

In practice, fiscal policies may be applied improperly because conventional measures of the fiscal deficit miscalculate the public sector's true budget constraint

[1] Solvency is the ability of a company to meet its long-term financial obligations. Solvency is essential to staying in business as it asserts a company's ability to continue operations into the foreseeable future. While a company also needs liquidity to thrive, liquidity should not be confused with solvency. A company that is insolvent must often enter bankruptcy. ((https://en.wikipedia.org/wiki/ Solnency)

[2] 1. Economic Globalization and Fiscal Policy, Cape Town: Oxford University Press.

[3] Ibid 38.

[4] Ibid 2.

and give a misleading picture of the economy's fiscal stance. For diagnosing economic problems and finding appropriate fiscal policies to address these problems. Thus, the correct measurement of the public sector's net requirements is a vital precondition. But, to understand a country's fiscal stance, it may be necessary to view the budget from several approaches. And, from one country to the next, the considerations that need recognition in budgetary analysis (for instance, level of development and openness) may vary widely. Hence, it argued that the search for a single perfect deficit measure may be unsuccessful.

The following are alternatives definitions of budget balance as cited by Jacobs [1](2002):

1. Conventional budget balance = expenditure minus income.

As defined in the previous paragraph, the conventional budget balance on a cash basis is also defined as the difference between total government expenditure (including interest payments on public debt but excluding any amortization payments) and total cash receipts (including taxes and non-tax revenues plus grants, without loans. It does not, however, provide a direct measure of monetary expansion nor of the pressure because of increased demand for financial instruments in the short-term markets. This definition of a conventional budget balance is therefore independent from the maturity schedules of outstanding domestic public debt and the reasons related to monetary policy. But it also poses a problem: public debt management and open market transactions can, in the end, greatly influence the size of the budget balance.

2. Total budget balance without grants = conventional budget balance minus grants.

External grants represent financing without liability, the government debt criterion would include it with other government revenues. However, by the public policy

[1] Alternative Definitions of the Budget Deficit and its Impact on the Sustainability of Fiscal Policy in South Africa, Journal of Economics. Feb 2002

criterion, grants are added to other foreign financing-below the line-on the argument that no government policy decision can cause these grants, and, therefore, that the current expenditure that they finance could not take place if the grants are not forthcoming (Raja[1] Chelliah 1973)

3. External budget balance = government expenditure minus receipt (externally financed).

4. Domestic budget balance = total balance minus the external balance.

5. Primary budget balance = total balance minus interest payments.

The primary deficit is defined as the difference between current government spending on goods and services and total current revenue from all types of taxes net of transfer payments. The total deficit (which is often called the fiscal deficit or just the 'deficit') is the primary deficit plus interest payments on the debt.

6. Operational budget balance = primary balance plus real interest payments.

7. Current budget balance = current revenue minus current expenditure.

8. Consolidated budget balance = central government balance plus decentralized balance.

Consolidated budget or "unified budget", is the presentation of the budget in which revenues from all sources and spending for all activities are included. In countries where the budget is divided into pieces (for instance, where there are separate budgets for "current" and "capital" expenditures) the consolidated budget combines these pieces. It may also include extra-budgetary institutions. In some cases, the term may also refer to combining budgets of different levels of government (federal, state and local).

8. Cyclically neutral balance = expenditure minus cyclically adjusted revenue.

9. Cyclically adjusted budget balance = total balance cyclical neutral balance.

[1] he Measurement of Tax Effort of State Governments, 1973-1976. Raja J. Chelliah. SWP523. Narain Sinha. VOL.3. WORLD BANK STAFF WORKING PAPERS

It is worth noting that, the structural deficit is the deficit that remains across the business cycle, because the general level of government spending exceeds prevailing tax levels. The observed total budget deficit is equal to the sum of the structural deficit with the cyclical deficit or surplus. Some economists have criticized the distinction between cyclical and structural deficits, contending that the business cycle is too difficult to measure to make cyclical analysis worthwhile.

10. Bench mark budget balance = normative year balance (as predetermined).

11. Structural budget balance = cyclically effect of budget plus bench mark balance.

Blejer and Cheasty[1] (1993) pronounced the structural or full employment deficit as the deficit that can be used to remove the effects of fluctuations in economic activity on the budget. This is the deficit that is adjusted for cyclical movements in the economy and Cheasty (1993) point out that, in the same manner that budget deficit affects and are affected by aggregate demand, the budget deficit is also affected by the business cycle and policy implementation may have varying impact depending on the stage of business cycle at the time of implementation.

12. Liquidity budget balance = total balance minus net loans.

13. Full employment budget balance = full employment expenditure minus full employment revenue.

14. Weighted budget balance = weights allocated according to the importance of operational variables.

Thus, countries use different definitions of budget deficit mainly because of the structure of their budget, the relationship with other levels of government and conventional reasons. However, the most important determining factor in the choice of budget deficit should consider whether the fiscal policy would be sustainable in the longer term. This measure should focus on interpretation and

[1] Ibid 39

management of fiscal policy. Hence, the most appropriate measure of budget deficit depends upon the purpose of the analysis. This means that no single measure of budget deficit is superior to the other Wetzel and Roumeen, (1991) and Jacobs, Schoeman and Heerden[1], (2002).

The above-mentioned analysis shows that there is a number of alternative definitions of the budget deficit for analyzing the impact of fiscal policies. However, the choice among these alternatives depends mainly on the purpose for which it is intended.

2.5 Sectorial Budget Balances:

The principle of the approach of sectorial budget balances could be summarized as follows:

The sum of the deficits run by one or more sectors must equal the surpluses run by the other sector(s). We can restate this principle in the form of a simple identity:

Domestic Private Balance + Domestic Government Balance + Foreign Balance = 0

Using conventional definitions, the aggregate identity looks like this:

$$(S - I) + (T - G) + (M - X) = 0$$

(S = saving, I = investment, T = taxes, G = government, M = imports, X = exports)

We can rearrange the equation as: $(S - I) = (G - T) + (X - M)$.

$(S - I)$ is the net saving of the private sector—that is households plus firms.

$(G - T)$ is simply the general government's balance, including national and provincial or state and local governments. When the government is running a deficit ($G>T$), this term is positive. $(X - M)$ is the current account balance. When the current account is in surplus, this term is positive.

It is apparent that if one sector is going to run a budget surplus, at least one other sector must run a budget deficit as the three balances must be equal to zero. A

[1] Is Ghana's Budget Deficits Sustainable ? etzel and Roumeen,. 1991: 8; Jacobs, Schoeman and Heerden, 2002: 3-4].

sector can spend more than its income, but that means another spends less. Establishing causation requires theory, informed by logic and data.

The normal assumption is that while at the micro level income largely determines household spending, at the macro level for the private sector as a whole it is spending that largely determines income, at least over the shorter run. While this derives largely from Keynesian theory, it is also grounded in empirical research as well as logic: we can decide to spend more (through borrowing) but we cannot decide to have more income. In any case, it is important to understand that to the degree that we believe the private sector has discretion in choosing its budgetary outcome, then to that degree we accept that the government sector does not have discretion over its budgetary outcome (holding the foreign balance constant).The government's balance depends on policy but also on tax revenues that in turn depends on economic performance and the structure of the tax system. While we can take government spending as more-or-less discretionary, government tax revenue (government's equivalent to its income) depends largely on economic performance. In practice, tax revenue growth is highly variable, moving pro-cyclically (growing rapidly in boom and collapsing in slump), which makes the ex-post budget balance also variable, with deficits increasing in a slump and falling during robust economic growth. Sovereign government can always decide to spend more (although it is politically constrained), and it can always decide to raise tax rates (again, given political constraints), but it cannot decide what its tax revenue will be because they apply a tax rate to variables like income, sales, and wealth that are outside government control. And that means the budgetary outcome—whether surplus, balanced, or deficit—is not discretionary.

Turning to the foreign sector, exports are largely outside control of a nation (they are exogenous or autonomous to domestic income). They depend on various factors, including growth in the rest of the world, exchange rates, trade policy, and

relative prices and wages (efforts to increase exports will likely lead to responses abroad, so it is not necessarily effective to push down domestic wages or to tax imports). It is true that domestic economic outcomes can influence exports but impacts of policy on exports are loose. On the other hand, imports depend largely on domestic income (plus exchange rates, relative wages and prices, and trade policy). Hence, if domestic policy tries to reduce imports this would almost certainly lead to responses by trading partners that are pursuing trade-led growth. Imports are largely pro-cyclical, too. Again, the current account outcome—whether deficit, surplus, or balanced—is also largely nondiscretionary.

Finally, the domestic private sector balance is composed of the balances of firms and households. Causality is admittedly complex; firms largely determine the level of production and employment, thus, income. However, households have discretion over their spending out of income (plus the decision to finance spending through borrowing). At the aggregate level, spending largely determines income. We normally expect that the private sector wants to run a surplus (save), which adds to its accumulation of assets, but also depresses aggregate income (creating a demand gap). Given a balanced foreign account, a private sector surplus means that the government will run a deficit. As the private sector saves, it accumulates claims on the government (including cash, reserves, and bonds), representing a net accumulation of financial assets. Again, if we believe the private sector has some discretion to run surpluses, then we believe that the government sector does not have complete discretion over its own budgetary outcome.

Ultimately, what is discretionary? Domestic spending by households, firms, and government is largely discretionary. Sectoral balances, however, should be taken as mostly nondiscretionary because they depend in very complex ways on the discretionary variables plus the nondiscretionary variables, and on the constraints imposed by the macro identity. For that reason, it makes most sense to promote

spending that will utilize domestic resources close to capacity, and then let sectoral balances fall where they may. In other words, we can use policy to promote spending at the right—full employment—level but we should not try to predetermine the balances across sectors. If the domestic private sector wants to spend less than its income (save) in excess of the foreign sector's desire to spend more than its income (meaning the foreign sector runs a current account deficit that is too small to offset domestic saving), then the government sector must run a deficit. We would expect that if the government tried to balance its budget in these conditions (reducing government spending or increasing tax rates), then the private sector would try to reduce spending even further below its income, creating a larger demand gap. Exactly how the balances would turn out is indeterminate, but the problem would be insufficient aggregate demand and thus unemployment.

2.6 Problems in Measuring Government Budget Deficit.

As described in the previous paragraphs, the government budget deficit equals government spending minus government revenue, which in turn equals the amount of new debt commitment the government needs to secure in order to finance its development and current operations. This definition may sound simple enough, but, again, in fact debates over fiscal policy sometimes arise over how the budget deficit should be measured. Some economists believe that the deficit as currently measured is not a good indicator of the position of fiscal policy. That is, they believe that the budget deficit does not accurately measure either the impact of fiscal policy on different sectors of the economy or the burden being placed on future generations of taxpayers. Likewise, economists differ in the importance they place on these measurement problems. Some believe that the problems are so severe that the budget deficit as normally measured is almost meaningless. Even though most of the economist take these measurement problems seriously but still view the measured budget deficit as a useful indicator of fiscal policy. The

undisputed lesson is that to evaluate fully what fiscal policy is doing, economists and policymakers must look at more than just the measured budget deficit. And, in fact, they do. The budget documents prepared annually by the budget authorities contain much detailed information about the government's finances, including data on capital expenditures and credit programs. No economic statistic is perfect. Whenever economists see budget figures reported in the media, they want to know what it is measuring and what it is leaving out. This is especially true for data on government debt and budget deficits. It argued the sources of inaccuracy in reported figures of budget deficit and debts is mainly due to four factors. Firstly, the problem of overstatement of the budget figures by rate of inflation. Secondly the problem owing to failure to calculate the overall indebtedness of the government by considering the total assets and liabilities of the government. Thirdly problem related failure to correct the change in deficit for future government liabilities (deferred payments). Fourthly, measure problem related to correction of changes in budget deficit in response to fluctuation in the economy. Therefore, to arrive at correct government budget figure, Mankiw[1] (1997) and Easterly[2] and Hebbel (1993) and Ficsher[3] (1990) among others argued that the government budget position should be corrected for inflation, government capital as The Economics of Government Budget Constraint", the World Bank Research Observer Vo. 5 (1990).sets, future liabilities and business cycle. In this section we briefly discuss four the problems associated with the usual measure of the budget deficit.

In practice, fiscal policies may be applied inappropriately because conventional measures of the fiscal deficit miscalculate the public sector's true budget constraint and give a misleading picture of the economy's fiscal stance. For diagnosing

[1] Macroeconomics 2nd ed. Worth Publishers, New York 1997.
[2] Ibid 39
[3] The Economics of Government Budget Constraint", the World Bank Research Observer Vo. 5 (1990).

economic problems and finding appropriate fiscal policies to address them, the correct measurement of the public sector's net requirements is a vital prerequisite. But, to understand a country's fiscal stance, it may be necessary to view the budget from several angles. And, from one country to the next, the considerations that need recognition in budgetary analysis (for instance, level of development and openness) may vary widely. Hence, the search for the single perfect deficit measure may be futile. (Bleje[1]r and Cheasty (1993).

2.6.1 Correcting Budget Deficit for Inflation:

Inflation has been defined as a situation of persistent rise in the rate of change of the general price level. The mechanisms or processes of inflation are quite diverse. The process of inflation has therefore been explained differently to reflect the various sources of price change. Defined as such, nearly all economists agree that the government's indebtedness should be measured in real terms, not in nominal terms. The measured deficit should equal the change in the government's real debt, not the change in its nominal debt. The budget deficit as commonly measured, however, does not correct for inflation. To see how large an error this induces, consider the following example. Suppose that the real government debt is not changing; in other words, in real terms, the budget is balanced. In this case, the nominal debt must be rising at the rate of inflation. That is explained by the below identity: -

$$\Delta D/D = \pi$$

Where π is the inflation rate and D is the stock of government debt. This implies that:

$$\Delta D = \pi D.$$

[1] Ibid

The government would look at the change in the nominal debt ΔD and would report a budget deficit of πD. Hence, most economists believe that the reported budget deficit is overstated by the amount πD.

The same argument can be made in another way. The deficit is government expenditure minus government revenue. Part of expenditure is the interest paid on the government debt. Expenditure should include only the real interest paid on the debt rD not the nominal interest paid iD. Because the difference between the nominal interests' rate i and the real interest rate r is the inflation rate p, the budget deficit is overstated by πD. This correction for inflation can be large, especially when inflation is high, and it can often change economic evaluation of fiscal policy. Inflation affects the budget in many ways. Besides its distortionary effects on real revenues and its effects on the real value of government assets and liabilities (dealt with in previous Section) inflation, while reducing the real value of the outstanding stock of unindexed public debt, may compensate creditors for such erosion in their real assets through higher nominal interest rates. In other words, some of the government's interest payments on its debt are part of the amortization of that debt. If the inflationary component of interest rates is not removed from the interest bill, the deficit will be overstated by the size of the amortization element included (Tanzi[1] 1977).

2.6.2 Calculating Government Capital Assets:

Many economists believe that to arrive at precise government budget position requires considering the government's assets as well as its liabilities. Specifically, when calculating the government's overall indebtedness, we must subtract government assets from government debt. Therefore, the budget deficit should be measured as the change in debt minus the change in assets. Certainly, individuals and firms treat assets and liabilities equally. When a person borrows to buy a farm

[1] Ibid 37

land, we do not say that he is running a budget deficit. Instead, we offset the increase in assets (the land) against the increase in debt (the mortgage) and record no change in net wealth. Perhaps we should treat the government's finances the same way. A budget procedure that accounts for assets as well as liabilities is called capital budgeting, because it considers changes in capital. For example, suppose that the government sells one of its office buildings or some of its land and uses the earnings to reduce the government debt. Under current budget procedures, the reported deficit would be lower. Under capital budgeting, the revenue received from the sale would not lower the deficit, because the reduction in debt would be offset by a reduction in assets. Similarly, under capital budgeting, government borrowing to finance the purchase of a capital good would not raise the deficit.

Boskin[1] (1982). Argued that If we maintained a separate and conceptually correct current and capital account system, the deficit on current account would be the true deficit, [. . . because] for capital items, any excess of expenditures over receipts on capital account does not change the net asset position of the government, since the new debt is matched by a new government asset.

2.6.3 Corrections of Budget Deficit for Future liabilities (Deferred Payment):

Similarly, it is argued that the government budget deficit will not reflect the reality if it ignores the deferred liabilities. Hence to arrive at acceptable budget figure it must be corrected for such factors. For example, consider the pensions of government workers. These workers provide labor services to the government today, but part of their compensation is deferred to the future. In principle, these workers are providing a loan to the government. Their future pension benefits represent a government liability not very different from government debt. Yet this

[1] Boskin (1982). Federal Government Deficits: Some Myths and Realities, The American Economic Review Vol. 72, No. 2,

liability is not included as part of the government debt, and the accumulation of this liability is not included as part of the budget deficit.

The primary deficit measures how current actions improve or worsen the public sector's net indebtedness, and it is important for evaluating the sustainability of government deficits. Although fiscal deficits can be run indefinitely, the primary balance must eventually become positive to cover at least part of the interest on current debt. If public revenue and the economy as a whole grow faster than the real interest rate, then even the primary balance can remain in deficit. However, it is generally not possible in the long run to always grow faster than the interest rate.

2.6.4 Correction of Budget Deficit for Business Cycle:

Changes in budget deficit might be attributable to the fact that many changes in the government's budget deficit occur automatically in response to a fluctuation in the economy. When the economy goes into a recession, incomes fall consequently, so people pay less in personal income taxes. Also profits fall, so business activities pay less in business income taxes. Fewer people are employed, so payroll tax revenue declines. More people become qualified for government assistance and support, such as welfare and unemployment benefits, insurance, so government spending rises. In such cases even without any change in the laws that governs taxation and government spending, the budget deficit increases. These automatic changes in the deficit are not errors resulting from budget measurement, because the government truly borrows more when a recession reduces tax revenue and increases government spending. But these changes do make it more difficult to use the deficit to monitor changes in fiscal policy. That is, the deficit can rise or fall either because the government has changed policy or because the economy has changed direction. For some purposes, it would be good to know which is occurring.

To construct a cyclically adjusted budget, the essential steps are (1) choosing a reference trend for GNP free from short-run fluctuations, (2) determining the responsiveness of each category of receipts and expenditures to short-run movements in GNP (e.g., cyclical tax elasticity), (3) applying these responses to gaps between trend GNP and actual GNP, and (4) adding the expenditures and receipts "gross-ups" from step 3 to the actual budget to obtain a cyclically adjusted budget. The first step, selecting a GNP reference trend, is the most important and controversial. Other things being equal, the higher the level of the reference trend, the smaller the cyclically adjusted deficit. (de Leeuw[1] and Holloway 1985,).

Alan Blinder[2] and Robert Solow 1974) argued that "While the budget deficit affects aggregate demand, aggregate demand also affects the budget deficit. Inter alia, income tax revenues will usually be lower, and benefit transfers higher when unemployment is high. In other words, the budget deficit is affected by the business cycle, and the impact of discretionary policy changes may differ depending on stage of the business cycle at which they are implemented. Since the 1940s, but mainly in the 1970s, deficits abstracting from the impact of the business cycle have been calculated. These measures have, in their heyday, been surveyed comprehensively.

To solve this problem, the government calculates a cyclically adjusted budget deficit (sometimes called the full-employment budget deficit). The cyclically adjusted deficit is based on estimates of what government spending and tax revenue would be if the economy were operating at its natural level of output and employment. The cyclically adjusted deficit is a useful measure because it reflects policy changes but not the current stage of the business cycle (see section 2.4 for the details).

[1] De Leeuw, Frank & Holloway, Thomas M, 1985. "The Measurement and Significance of the Cyclically Adjusted Federal Budget and Debt," Journal of Money and Banking lackwell Publishing, vol. 17(2), pages 232-242, May.

[2] Alan Blinder and Robert Solow · Does fiscal policy matter, Journal of Public Economics, 1973, vol.

2.7 Different Views of Budget Deficit:

Theories of budget deficits run in two general directions. Some theories look on the effect of fiscal deficits on economic variables. While others look on the reverse direction, that is, what macroeconomic and fiscal variables (including budget rules and institutions) affect and determine fiscal deficits**.** There are three schools of thought concerning the economic effects of budget deficits: Neoclassical, Keynesian, and Ricardian Before proceeding further, it is useful to review the basic structure and implications of each paradigm. Bern[1]hein (1989) provides a summary of the three paradigms.

There are different views regarding the budget deficit and the role of the government in stabilizing the economy. Some economists like the Keynesians, and those who believe in adaptive expectations call for active role of government in stabilizing the economy while others, like monetarists, classical, and neoclassical economists believe in letting the market forces to answer them out, that is, the government does not need to plan budget deficits, the economy automatically takes budget deficit in counter cyclical direction. According to those who believe that market forces correct the economy, there are certain automatic stabilizers in the economy that without government intervention, take the budget deficit in counter cyclical direction (see Easterl[2]y and Schmidt-Hebbal 1993). During recessions, for example, unemployment will get higher, causing higher expenditure on unemployment benefits, also incomes are low during recessions resulting into lower tax revenue, from personal income taxes, tax revenues may decrease as income of some households may fall to lower brackets: During recession corporate profit tax also falls, these factors together increase budget deficit.

[1] A Neoclassical perspective on Budget Deficits", Journal of Economic Perspective, vol.3.
[2] Ibid 2

In the next section we will present the views of three school of thoughts regarding the budget deficit and the role of the government in stabilizing the economy. The Neoclassical economists assume that there is a negative relationship between the key macroeconomic variables and budget deficits while Keynesian argue that there is a positive relationship between budget deficit and the macroeconomic variables. The Ricardian economists on the other hand propose that budget deficits have no influence on the macroeconomic variables hence budget deficit does not influence the total level of the demand in the economy.

2.7.1The Neoclassical View of Budget:

The Neoclassical school proposes an adverse relationship between budget deficits and macroeconomic variables. They argue that budget deficits lead to higher interest rates, discourages the issue of private bonds, private investments, and private spending, increases inflation level, and cause a similar increase in the current account deficits and finally slows the growth of the economy through resources crowding out. The standard neoclassical model has three central features. First, the consumption of everyone is determined as the solution to an inter-temporal optimization problem, where both borrowing, and lending are permitted at the market rate of interest. Second, individuals have finite life spans. Each consumer belongs to a specific cohort or generation, and the life spans of successive generations overlap. Third, market clearing is generally assumed in all periods. Diamond'[1]s (1965) seminal paper was the first effort to study formally the effects of budget deficits in the context of such models. Diamond argued that a permanent increase in the ratio of domestically held debt to national income depresses the steady state capital– labour ratio. At the original rate of interest, consumers are unwilling to hold the original volume of physical capital and bonds, plus the new bonds. Rising interest rates stimulate additional saving and reduce

[1] "National Debt and Neoclassical Economic Growth," American Economic Review.

investment until market equilibrium is re–established. Thus, persistent government deficits crowd out private capital accumulation. Diamond's analysis focuses on permanent changes in deficits and does not shed light on the effects of temporary changes. Auerbach and Kotlikoff[1] (1986) conducted policy stimulation in a much more complex neoclassical model. Their analysis emphasizes that the immediate impact of a temporary budget deficit may be extremely small, and possibly perverse (a temporary deficit might stimulate saving in the short run). Otherwise, budget deficit even if it avoids inflation will lead to reduction in the production and the rate of progress in the society (see Kularni[2] 1966).

2.7.2 The Keynesian View of Budget:

While the classical economists advised for minimum government intervention in economic affairs, the Keynesians suggested on active role by the government in managing the economy, also instead of viewing unbalanced budget as wrong, Keynesians advocated what has been called counter cyclical policies, i.e. policies which act against the tides of business cycles. Deficit spending when the national economy suffers from recession or when the economic growth is delayed, and unemployment is persistently high and suppression of inflation in boom time by either increasing taxes or cutting back on government expenditure, for Keynesians the budget should be balanced on average over the business cycle, in surplus during the booms and in deficit during the recessions.

The traditional Keynesian view differs from the standard neoclassical paradigm in two fundamental ways. First, it allows for the possibility that some economic resources are unemployed. Second, it presupposes the existence of many **myopic**

[1] Budget deficits and government accounting https://www.sciencedirect.com/science/journal/01672231
[2] Ibid 25

liquidities[1]constrained individuals. This second assumption guarantees that aggregate consumption is very sensitive to changes in disposable income. The Keynesian economists propose a positive relationship between budget deficits and macroeconomic variables

Also contrary to the classical economists, Keynesians argued that the government should solve short term problems rather than waiting for market forces to do it, because in the long run we are all dead. For Keynes also increase in aggregate demand brought about by increase in government expenditure or reduction taxation would encourage private sector investment because firms would more likely to be optimistic about their ability to sell their output if aggregate demand was high and growing. This is said to be formalized in the acceleration principle. For Keynes financing deficit will not be a problem because savings would increase as a result of the increase in aggregate demand. The mechanism of effect of deficit spending on an economy goes as follows: increase in deficit will lead to increase in aggregate demand for consumption; thereby the total savings in the economy is reduced. The increase in the interest rate will lead to crowding out of some of the private investment. For Keynesians fiscal policy is only appropriate when unemployment is persistently high, above what is termed the natural rate of unemployment, (non-accelerating inflation rate of unemployment **N**AIRU, according to them, in the case NAIRU the crowding out is minimal. Also, private investment could be crowded in. Fiscal stimulus improves the market for business output raising cash flow and profitability, increasing business optimism. To Keynes this acceleration effect means that government and business activities could be

[1] A liquidity constraint in economic theory is a form of imperfection in the capital market. It causes difficulties for models based on intertemporal consumption. The existence of liquidity constraint affects the ability of households to transfer resources across time periods, as well as across uncertain states of nature, relative to income.
Under myopia, consumers consume a fixed share of current income. Therefore, consumption should respond symmetrically to the increases and decreases of expected income. While, under liquidity constraints, individual consumption should respond more strongly to increase of expected income than decrease of expected income. This asymmetrical behaviour is because under the liquidity constraints, individuals cannot borrow but save freely.(.

complements rather than substitutes. In this situation also as the stimulus occurs, GDP increases, raising the amount of savings helping to finance the increase in the fixed investment. Keynes says that government expenditure need not always be wasteful as opposed by the classical economists. This is the Keynesian view of budget deficit, however, according to Fischer[1] (1989) these are well –known refinement and modification to the concept of Keynesian policy. In the first instance the balanced multiplier shows that the deficit is not ambiguous measure of the impact of the fiscal policy on aggregate demand; given the budget deficit, an equal increase in the government spending and revenues increases aggregate demand, second, the budget deficit is itself endogenous variable affected by the economic condition, also it affects the economic condition. As a result, the notion of the full employment, or high employment or structural deficit was developed which estimates the size of the budget deficit as it would be if output were at the full employment level.

2.7.3 The Ricardian View of Budget Deficit:

The central Ricardian observation is that deficits merely postpone taxes. This contrary approach was advanced by f known as the Ricardian Equivalence Hypothesis (REH). Ricardian equivalence or the Barro – Ricardo Equivalence proposition, is an economic theory which suggests that government budget deficits do not affect the total level of demand in an economy. It was initially proposed by the 19th century economist David Ricardo. In simple terms, the theory can be described as follows. Governments may either finance their spending by taxing current taxpayers, or they may borrow money. However, they must eventually repay this borrowing by raising taxes above what they would otherwise have been in future. The choice is therefore between ‘’tax now’’ and ‘’tax later’’. Suppose

[1] The Economics of the Government Budget Constraint”, Policy, Planning and Research, WP No. 224, the World Bank, May.

that the government finances some extra spending through deficits– i.e. tax later. Ricardo argued that although taxpayers would have more money now, they would realize that they would have to pay higher tax in future and therefore save the extra money to pay the future tax. The extra saving by consumers would exactly offset the extra spending by government, so overall demand would remain unchanged. More recently, economists such as Robert Barro have developed more sophisticated variations on the same idea, particularly using the theory of rational expectations. Ricardian Equivalence suggests that government attempts to influence demand using fiscal policy will prove fruitless. He argues that an increase in budget deficits, due to an increase in government spending, must be paid for either now or later, with total present value of receipts fixed by the total present value of spending. Thus, a cut in today's taxes must be matched by an increase in future taxes, leaving real interest rates and thus private investment, and the current account balance, exchange rate and domestic production unchanged. Therefore, budget deficits do not crowd– in nor crowd– out macroeconomic variables i.e. no positive or negative relationship exists.

According to the new classical school, fiscal policy is completely ineffective. Current government borrowing implies higher future taxes to pay the borrowing. According to the new classical economists, tax payers immediately form expectations of higher future taxes and increase their savings by the amount equivalent to government borrowing. Such increase in savings for example, decreases consumption, which will also reduce aggregate demand which will also make ineffective the proposed expansion of aggregate demand by increasing the budget deficit. This is sometimes called the Ricardian equivalence (see Mankiw[1] 1997). Tobin[2] (1985) stated that the Ricardian equivalence hypothesizes two

[1] "*ibid 47*.

[2] *Modelling and Testing Ricardian Equivalence*: A Survey International, Monetary Fund

theoretical considerations called the permanent income hypothesizes and the ex-ante crowding out. According to this view, consumption expenditures are function of permanent income, consequently, variation in savings and saving relative to GNP have a large cyclical component. The permanent income hypothesizes also entails government budget constraints, which indicates that the present value of the current and future government expenditures must equal the present value of the current and future taxes. This constraint implies that the method of financing the government expenditures is irrelevant, that is, whether current expenditures financed through taxation or borrowing (future taxes with an equivalent present value) have no influence on the economy. The second consideration is that, government expenditure is, to some extend substitutes private expenditures". The examples of public expenditure being substitutes for private expenditures are many. An increase in government spending in the schooling may reduce the private sector spending in this field. Similarly, the increase in government spending in transport sector could reduce the private sector spending in the field too. Also increase in government spending on subsidy assistances may serve as a substitute for private savings and investment.

Unlike the Keynesian, the classical and the neoclassical economists do not believe that the government intervention in the economy would be of any benefits to the society. And they say that the government could be dominated by special interest group, including the government bureaucracy, thus they use their political theory to reject the Keynesian economic theory. Pursuing the same arguments, Barro[1] (1974) showed that under a few specific sets of assumptions lump sum change in taxes would have no impact on consumer spending. Likewise, he argued that tax financed, and bond financed deficits are equivalent.

[1] *Are Government Bonds Net Wealth*"? Journal of Political Economy 82 (6).

Also, Fischer[1] (1989) argued that, if the Ricardian equivalence hypothesis holds, then budget deficit does not affect national savings or interest rate or the balance of payments and nor does the method of financing the social security affects capital accumulation. This hypothesis indicates that tax payers adjust their savings behaviour to offset exactly the impact of a bond financed fiscal deficit on the tax burden of future generation. While Hemming and Daniel[2] (1995) argues that the "Ricardian equivalence is unlikely to hold in its extreme form even in advanced countries. To hold, it requires a set of conditions like ultra-rationally, absence of liquidity constraints etc. And it is unlikely to hold in developing economies, where there are additional barriers to smoothing consumption a cross generations, such as: low income, weak capital market and other constraints.

2.8 Causes and Determinants of Budget Deficit.

Changes in budget deficit is mainly due to changes in government spending or sources of revenues or both. Government receives revenue in its daily transactions and on capital items in the form of taxes, interests and from other sources of public revenue. On the other hand, government pays for daily activities and capital items such as administrative expenses, loans and grants. Thus, budget deficit increases when government spending persistently exceeds its revenue. If expenditure continue to increase throughout the years at the same time sources of revenues especially taxes are poorly collected, it widens the budget deficit position of the country. In this case, the accumulated value of past deficits creates increase debts which must be financed together with the accompanying interest payments.

When public expenditures exceed public revenues, the resulting deficit can be interpreted as a means of financing additional government expenditures. If such

[1] Ibid 57.

[2] Hemming, Richard, and James Daniel, 1995, "When Is a Fiscal Surplus Appropriate? MF Working Paper ... H

expenditures are considered growth enhancing, then a government deficit shows an indirect effect on long-term economic growth (Carneiro[1] (2005).

However, the amount of budget deficit in an economy is determined by macroeconomic factors such as expected inflation, cyclical position of the economy which influences revenues and changes in expenditure. Theory predicts that cyclical fluctuations in output which is caused by economic boom and/or recession impact significant on budget deficit. In periods of recession when output is low, budgets tend to be in deficit because direct taxes fall sharply due to contraction in tax base. Also, certain categories of government spending become countercyclical and rise during business cycle downturn. Yet, such fluctuations in output growth are endemic in free market economies, Gebhard and Silika[2], (2006)

2.9 Sustainability of Budget Deficit.

Government budget deficit has attracted a considerable attention in macroeconomic theory due to its effect on macroeconomic performance and the proceeding debt dynamics. The size of budget deficit and ways of financing it determines the fiscal constraints that a country will be subject to in the long term. It is maintained that a sound fiscal policy is mandatory for macroeconomic stability and sustainable growth which is a major goal of most emerging market countries such as Sudan. Yet, the size of budget deficit and ways of financing it determines the fiscal constraint of the country in the long term. In this sense, sustainable budget deficit becomes an important factor for which government authorities should pay attention [Kustepeli[3] and Onel, 2004]. The government ‘s ability to borrow is constrained by the size of its permanent income just like an individual, even if it

[1] Government Revenues and Expenditures in Guinea-Bissau: Causality and Cointegration,” Journal of Economic Development, 30(1).

[2] “Sustainability of Swiss Fiscal Policy”, CESIFO Working Paper 1689 (1), Switzerland, University of St. Gallen.

[3] Consequential Effects of Budget Deficit on Economic Growth: Empirical Evidence from Ghana, Consequential Effects of Budget Deficit on Economic Growth: Empirical Evidence from Ghana. International Journal of Economics and Finance. 5. 10.5539/ijef.v5n3p90.

remains in authority infinitely. This implies that whatever debt it accumulates must be repaid in the future.

Sustainability of budget deficit has been defined in several ways. Generally, it is referred to the ability of government to maintain a given budget deficit in the future despite shocks to the system. This translates into a situation where current deficit policy by government can be continued indefinitely with a stable debt-to-GDP ratio. This means that government can raise the necessary funds by borrowing or balance its budget in present value terms: Kustepeli[1] In line with this, the IMF defines budget deficit as sustainable if government can continue to service its debts which accumulates from budget deficit without large future correction to the balance of income and expenditure. Therefore, the main priority of a sustainable deficit relates to whether a continuation of the present policy stance as expressed in the present relation between the levels of expenditure and revenue causes the debt/GDP ratio to explode, implode or remains stable Considering this, budget deficit becomes sustainable if it leads to solvency of the budget constraint such that the future path of spending and revenue satisfy the intertemporal budget constraint of government. However, solvency is only a necessary condition for budget deficit sustainability because it can be achieved with large and costly future adjustments. Yet, sustainability requires the achievement of solvency with unchanged policies. This means that sustainable budget deficit must fulfil two conditions. First, government should satisfy its current period budget constraint without resorting to default or excessive debt monetization. In this case, the flow of government revenue and expenditure must equal changes in the stock of debt and monetary base. Hence, it shows how budget deficit is financed.

1

Díaz, Izquierdo and Ugo, (2004) [1]debated that "the controversies regarding conditions of inter-temporal budget constraint and the shift to long-term horizon has expanded the way governments and international organizations think about budget deficit sustainability. Although it has retained its original meaning as a measure of the solvency of government, it has acquired several dimensions in relation to governments that have no difficulty in meeting present obligations. Current sustainability analysis focuses on fiscal conditions that may retard economic growth, increase tax burdens or transfer significant costs to future taxpayers. These dimensions reflect concerns that governments accumulate Long-term liabilities that do not appear in current budgets but may disadvantage future generations when they are due.

Anyanwu[2] (1993) noted that one method of determining sustainable budget deficit is to check whether government revenue and expenditure are co-integrated. This implies that there may be significant long-term economic relationship between these two variables. There are four hypotheses that examine the influence of revenue and expenditure on budget deficit. The tax-spend hypothesis postulates that raising taxes to reduce deficit also causes expenditure to rise. It means that government raises tax revenue ahead of engaging in new expenditure. Contrary, the spend-tax hypothesis predicts that government initially incurs expenditure and then increases tax revenue to finance the deficit.

2.10 Different Methods of Financing Budget Deficits and their Consequences:

Fiscal deficits and their financing are the major problem and source of concern for politicians and policy makers in developing countries. Large fiscal deficits have adverse effects on the economy arising from large current account imbalances, and a high dependence on an unstable oil price and exports of raw materials implies

[1] Fiscal Sustainability in Emerging Market Countries with an Application to Ecuador", IADB. Bussiére, M. and C. Mulder (1999) Page 28

[2] Monetary Economics: Theory, Policy and Institutions. Onitsha: Hybrid Publishers.

greater vulnerability of these African economies to adverse external shocks and the consequent economic disruption. Also, in these countries, budgetary administration has been characterized by irregular release of budgeted funds and poor monitoring of government expenditure.

Both economic theory and empirical evidences tell us that large and persistent budget deficits pose very real threat to macroeconomic stability and therefore, economic growth and development. But how challenging are the deficits and their consequences depends on how they are financed it can be said, according to Easterly[1] (1993) and Fischer[2] (1989) that each type of financing the budget deficits, if used excessively, results into a specific macroeconomic imbalance. There are four ways of financing public sector deficit: by money printing (seignorage), running down foreign exchange reserves, borrowing from abroad and borrowing from the domestic market.

2.10.1Money Issuing:

If money is issued, to finance deficits, at a rate that exceeds the demand for it at the current price level, creates excess cash balance in the hands of the public. The public attempts to reduce the excess cash in its hands hence it bids prices up (inflation). This inflation is supposed to be a short run phenomenon. Because in the long run, the newly issued money when goes into the hands of the public, given the economy is under full employment, is supposed to be utilized in productive economic activities so that the total output in the economy increases to bring down the general price level. However, the supply side of the economy does not respond because in most cases the issued money is used to finance expenditure of current nature and not directed to development projects. Hence the money financing of government budget deficit causes inflation.

[1] Ibid 2
[2] Ibid 57

The increase of the level of prices, at a given level of the individuals and organizations' nominal income, will cause the reduction of their real income, in other words a decrease in the purchasing power of these persons. It is enlightened, this way, an important effect of money issuing for financing the budget deficit: it redistributes a part of the purchasing power of the income holders, both individuals and legal entities, at the government's disposal, which makes use of the additional stock of money to buy goods and services or to make payments for public consumption. According to Fischer and Dornbusch[1], „this way, the government can spend more resources and the population less, exactly as if the government would increase taxes to finance further spending" Fischer[2] (1997).

Regardless of the real conditions of its employment, the monetary financing of budget deficit will initially result into increase in prices. However, under certain conditions of use, this can determine an inflationary, long term increase, depending on the destination of the resources collected by governments in this way. If the resources resulting from the additional money issuing in order to cover the budget deficit are employed to finance investment projects, which induce a raising output, the original increase in the money stock available to circulation will have as equivalent an raising quantity of goods and services object to transactions, in other words of the supply on the real market, and the increase in the level of prices will not become permanent. On the other hand, if the additional resources are employed to finance final consumption expenses, which do not determine a subsequent grow of GDP, the increase in the price level will be of long standing and the monetary financing of budget deficit will be inflationary.

[1]

[2] The Economics of Government Budget Constraint", the World Bank Research Observer Vo. 5 (1997).

As governments generally use new money issuing to finance unproductive expenses, it is generalized the appreciation that financing budget deficits by money issuing certainly results into inflation.

"Inflation can lead to uncertainty about the future profitability of investment projects (especially when high inflation is also associated with increased price variability). This leads to more conservative investment strategies than would otherwise be the case, ultimately leading to lower levels of investment and economic growth. Inflation may also reduce country's international competitiveness, by making its exports relatively more expensive, thus impacting on the balance of payments. Moreover, inflation can interact with the tax system to distort borrowing and lending decisions. Firms may have to devote more resources to dealing with the effects of inflation (for example, more vigilant monitoring of their competitors' prices to see if any increases are part of a general inflationary trend in the economy or due to more industry specific causes).V. Gokal and S. Hanif[1] (2004).

2.10.2 Running down Foreign Reserves:

If the government runs down foreign reserve instead of issuing money, in hope for reducing inflation, this policy will result into appreciation of exchange rate. The government cannot continue financing deficits by running down foreign reserve, because such policy is limited by the stock of the available reserve, also the public could anticipate the time at which the foreign reserve will be exhausted. Hence such policy will encourage capital flight and could cause balance of payment crisis. Fisher[2] (1991) identified that one of the means of financing the government budget deficit is to run down foreign exchange reserves. By running down reserves instead of printing money, the government can hope for a time to mitigate the inflationary

[1] Relationship between Inflation and Economic Growth" Working Paper , Reserve Bank of Fiji.
[2] Growth Macroeconomics and Development, NBRE, Macroeconomic Manual 1991, Vol. 6, the MIT Press.

effects of a deficit. This policy appreciates the exchange rate relative to the level it would otherwise have had. The policy of slowing the rate of exchange depreciation to slow down inflation (carried out not only through reserve use but also through increased foreign borrowing) is one that has been tried time and again, and one that cannot be maintained unless the essentials, namely fiscal policy, are made compatible with the lower inflation. Use of international reserves to finance the deficit has a clear limit. Private sector anticipation that the limit is about to be reached can provoke capital flight and a balance of payments crisis, since exhaustion of reserves will be associated with currency devaluation. The devaluation that takes place in response to a run on the currency may be blamed on speculators but is most likely an entirely rational private sector response to unsustainable public policies, Krugman[1] (1979).

2.10.3 Foreign Borrowing;

As the case in financing budget deficit through running down foreign reserves, the resort to foreign borrowing will also appreciate exchange rates, damage exports, and increase imports and creates balance of payments problem. The danger of excessive external borrowing is debt crisis. High indebtedness due to excessive borrowing will lead the country to the position of un-credit-worthiness this is likely to the case in many developing countries. Hence future foreign borrowing facilities will not be readily available to such countries.

It is argued that the overall impact of government deficits on the external sector can be clearly seen through its (deficit) effect on key external sector variables such as the real exchange rate, the trade and current accounts and the level of foreign indebtedness. These variables are quite sensitive to the composition of government spending and the means of financing such expenditure. Ndung'u[2] (1998) examined

[1] A Model of Balance-of-Payments Crises, Journal of Money, Credit and Banking, 11(3)..
[2] A Dynamic Model of Inflation for Kenya 1974-1996; IMF WP.

the dynamic impact of external debt accumulation on private investment and growth in Africa. He argued that the external debt problem in Africa has led to an investment pause and has reduced growth performance substantially. In another study, Iyoha (1999)[1] adopted a simulation approach to investigate the impact of external debt on economic growth in sub-Saharan African countries. An important finding in this study was the significance of debt overhang variables in the investment equation, effect and a "crowding out" effect.

2.10.4 Domestic Borrowing:

This source of finance is very limited in developing countries due to absence of well-developed financial markets. Domestic financing, where the interest rates are controlled by the public sector will lead to credit rationing and crowds out private investment. Unlike the foreign borrowing, domestic borrowing does not involve foreign debt crisis. The liability of such financing goes to private sector who accepted the security issued by the public sector, hence it has redistributive impact.

There are two essential characteristics describing this form of raising extraordinary revenues. First of all, the resources collected this way are on a temporary basis, the state giving back the respective amount of money to the right owners, after a certain period of time. Those who lend money to governments give up only the right to temporary use the disposable financial resources and the purchasing power they represent, but they keep the property right and the possibility of recovering the resources after some time, to satisfy their own needs. Secondly, the public loan, as all other loans, is costly: it supposes that states pay interest to their creditors as a prices for using the temporary available resources.

On the other hand, being based on attracting free financial resources from the participants in economic relations, the public loan basically expresses "temporary

[1] The effect of external debt on economic growth in Sub Saharan African countries: International Journal of Economics and Business Studies 3 (1) Spring 2013.

redistribution processes of disposable cash belonging to different physical and legal entities, in order to cover public expenditures". Filip[1] (1999)]. So, the public loan does not lead to the unjustified increase of the number of financial signs which are in circulation and it does not generally have an inflationary character. Therefore, it usually is accepted as a source to finance budget deficits in contemporary society.

According to the monetarists, government deficits financed by debt (domestic) constitute merely a transfer of resources from the private sector to the public sector with little or no net effect on output. But, since the private sector is seen as being more efficient than the government, such a transfer could have a negative effect on output. They however believe that increased government expenditure financed by monetary expansion has a strong stimulative effect on the economy, and as such raises aggregate demand (Mitchell[2], 1974).

Fry[3] (1996) sees that the negative impact of budget deficit will be of less magnitude if the finance of the government deficit is to be from domestic voluntary sources. He argued that while a larger government deficit is associated with lower savings, and lower growth, the actual magnitude of the effect of deficits on growth likely depends on how deficits are financed, to the extent that this occurs through money issuing which is inflationary or financial repression, deficits reduce savings and growth by considerably more than they do when financed by voluntary domestic purchases of government debts. Given the relative superiority of this sources of finance compared to the other sources, it is not available to most of the developing economies due to absence of well-developed financial markets.

[1] Inflationary effects of budget deficit financing in contemporary economies. Analele Stiintifice ale Universitatii "Alexandru Ioan Cuza" din Iasi - Stiinte Economice. 54. 77-82.

[2] The Crowding out of Private Expenditures by Fiscal Actions. In: W.E. Mitchell (ed) Readings in Macroeconomics, N/York: McGraw-Hill, pp156-173. (Book).

[3] 1. Financing Economic Reform: Mobilizing Domestic Resource and Attracting the Right Kind of External Resources, OECD, Development Center Seminars.

Furthermore, Premchand[1] (1984) asserts that financing the budget deficit by borrowing from the public implies an increase in the supply of government bonds. To improve the attractiveness of these bonds the government offers them at a lower price, which leads to higher interest rates. The increase in interest rates discourages the issue of private bonds, private investment, and private spending. In turn, this contributes to the financial crowding out of the private sector.

[1] "Government Budgeting and Expenditure Controls: Theory and Practice", IMF, Washington, D.C.

CHAPTER THREE

BUDGET DEFICIT AND THE ECONOMIC PERFORMANCE

Chapter Three

Budget Deficit and the Economic Performance

3.1 Introduction:

Thestudies on economic growth have provided insights into why countries grow at different rates over time. As presented in chapter two of this study, Classical economists argue that economic growth is largely influenced by factors of production, particularly labour and capital. The proponents of the Classical school assert that the effect of government spending is temporary and not effective, particularly in the long-run, when prices adjust, and output and employment are at their optimum levels. On the contrary, the Keynesian economists are of view that public consumption has a positive effect on the economy. Most recently, endogenous growth economists assert that government expenditure and taxation will have both temporary and permanent effects on economic growth. The debate on the effectiveness of fiscal policy as a tool for promoting growth and development remains inconclusive given the above positions as well as conflicting results of recent studies. Thus, the controversy is yet to be settled.

Against this background, therefore, this chapter aims to present both theoretical and empirical link between budget deficit and economic growth. The relationship between the budget deficit and macroeconomic variables (such as, economic growth, interest rate, investment, saving, exchange rate and among other) represents one of the most widely debated issues among economists and policy makers in both developed and the developing countries.

Again, the purpose of this section is to review some of the major theoretical and empirical arguments regarding the linkage between the budget deficit and the economic growth. The various impacts of budget deficit on these economic variables can feed on each other to create mutually reinforcing cycle, for example,

increase in **interest rate**[1]and diminished economic activities may further worsen the fiscal imbalance, which can then create a further loss of confidence and possibly induce another round of negative feedback effect on the output growth. Increase in the interest rate may also exerts negative impact on aggregate demand through serial channels, first, the increase in the interest rate may reduce investment, which is a component of aggregate demand, second, the increase in the interest rate may directly reduce interest rate sensitive consumption, such as credit –financed durable goods, third the increase in the interest rate may indirectly reduce consumption by reducing asset values and therefore reduces household net wealth.

Economic theory does not automatically generate conclusions about the impact of government budget deficit on economic growth performance. Economists would agree that in some circumstances lower government expenditure would enhance economic growth while in other situations larger government spending will induce economic growth and development.

Similarly, policymakers are divided as to whether government expenditure expansion helps or hinders economic growth. Advocates of bigger government, the Keynesian economists, argue that government programs provide valuable "public goods" such as education and infrastructure. They also claim that increases in government spending can increase economic growth by putting money into people's pockets.

Supporters of smaller government, like the classical economists, have the opposite view. They are of view that government is too big, and that higher spending

[1] Interest rate is cost of borrowing The banking and financial institution in Sudan implements the Islamic forms finance. The word "riba" literally means "excess" or "addition", and has been translated as interest, usury, excess, increase or addition. According to Shariah terminology, it implies any excess compensation without due consideration (consideration does not include time value of money).[19]According to Islamic economists Choudhury and Malik[20] by the time of Caliph Umar, the prohibition of interest was a well-established working principle integrated into the Islamic economic system.

undermines economic growth by transferring additional resources from the productive sector of the economy to government, which uses them less efficiently. They also warn that an expanding public sector complicates efforts to implement pro-growth policies—such as fundamental tax reform and personal retirement accounts— because critics can use the existence of budget deficits as a reason to oppose policies that would strengthen the economy (Mitchell[1] 2005).

3.2 Macroeconomic performance.

Alamir ,Mosllem Ahmed[2] (2007) argued that the degree of economic performance in a country is an unobservable factor, and thus, is not an easily quantifiable concept. However, the concept of economic performance contains a range of policy variables that have many overlapping relationships, which could be used as proxies of the degree of economic performance in the empirical analysis.

These interdependent policy variables might be grouped into four factors: high and sustained growth; low and predictable prices instability; stable and sustainable fiscal balance; as well as competitive and predictable exchange rate.

An impressive macroeconomic performance exists when these cited key policy variables are in stability and balance. Noteworthy, there is no unique starting point for an acceptable impressive economic performance.

Nonetheless, there is a continuum of various combinations of levels and movements of these key cited policy variables (e.g. high and sustained growth; low and predictable prices instability; stable and sustainable fiscal balance; as well as competitive and predictable exchange rate).Sustained long-run output growth matter not just because it affects living standard or welfare, but also because it

[1] Ibid 70
[2] Ibid 23

reflects an efficient production process that takes place within a certain economy that might act as a sign of good macroeconomic performance (Gerson[1] 1998).

3.3 Budget Deficits and Macroeconomic Variables.

This section examines theoretical and empirical arguments regarding the relation between budget deficits and a selected macroeconomic variable. Deficits are known to display an unclear range of effects going by country case studies from enhancing output and employment to crowding- out of domestic private investment. In any economic system, there is always the need for government to undertake very useful measures aimed at shaping various developmental aspirations. One of such measures is fiscal/budget deficit. The relationship between budget deficits and macroeconomic variables (such as growth, interest rates, trade deficit, exchange rate, among others) represents one of the most widely debated topics among economists and policy makers in both developed and developing countries (Saleh,[2] 2003). This relationship can either be negative, positive or a no positive or negative relationship. The differences on the nature of the relationship between budget deficits and these macroeconomic variables as found in economic literatures according to Chitua[3] (2010), could be explained by the methodology the country and the nature of the data used by the different researchers. Most of the studies regress a selected macroeconomic variable on the deficit or the deficit on the macroeconomic variables. This study will regress key macroeconomic variables as explanatory variables on budget deficit (a dependent variable) and then regress economic growth (as dependent variable) on budget deficit as (an explanatory variable). Both theory and empirical research reports seem to suggest that deficits are unambiguously bad for growth. For instance, Easterly W (1993) and others in an overview of eight country case studies concluded that:

[1] The Impact of Fiscal Policy Variables on the World Output Growth" IMF Working Paper WP/98/1.
[2] Ibid 2
[3] Bidi 2

1. Deficits display very weak correlation with any one indicator of macroeconomic imbalance (Such as inflation, real exchange rates, market-determined exchange rate) in most of the countries studied

2. The existence of negative effects of deficits on private investment and growth, irrespective of the sources of finance.

3. Large deficits were driven by conscious policy choice rather than external shocks or feedbacks from domestic economic environment.

4. Deficits were a major source of current account deficits and over-valued currencies in some of the countries studied.

Stanley Fischer[1] (1989) highlighting the harmful impact of deficit on the economy, argued that "excessive budget deficit can lead to inflation, exchange rate crises, external debt crises, and high real interest rate – with implications for the real exchange, the trade account, and investment. But the links are not automatic, for there are choices in the sources of financing - and lags in the effects of money printing and borrowing on inflation and interest rate.

In the following section we will present further examination of economic theory and empirical findings on relation of budget deficits with each macroeconomic variable separately:

3.3.1 Budget Deficits and Inflation.

The relationship between government budget deficits and inflation has attracted a lot of debate over the years. The major channels of interaction between budget deficits and inflation are;

1. A direct impact through aggregate demand, an increase in aggregate demand leads to inflation (Patinkin 1965).

[1] Ibid 57

2. A direct impact through the money supply, large budget deficits lead to increases in the money supply which in turn increase the price level (Sargent and Wallace 1981).

3. An impact through interest rates, increases in budget deficits lead to higher interest rates which crowd out private investment, and hence reduce aggregate supply, which leads to price increases (Miller 1983).

4. Higher inflation expectations lead to higher real interest rates and higher debt-service costs which leads to increases in budget deficits (Barro[1] 1978, 1979).

The first and the most direct relationship is the aggregate demand approach of Patinkin (1965) and Friedman (1968). Patinkin (1965) argues that a rise in the real value of the stock of bonds increases perceived private wealth, and therefore, spending leading to inflation. Friedman (1968), argues that if the economy is at its full employment level, an increase in aggregate demand will be reflected in increases in the general price level.

The second link is proposed by Sargent and Wallace[2] (1981). They argue that seigniorage (government revenue generated from money creation without imposing conventional taxes) is central to deficit finance; the central bank will be obliged to monetize the budget deficits. Such a monetization results in an increase in the money supply and the rate of inflation. Thus, Sargent and Wallace (1981) believe that the direction of causation is from budget deficits to money supply and then from the money supply to inflation.

The third connection is expounded by Miller (1983). He argues that government budget deficits are necessarily inflationary irrespective of whether the budget deficits are monetised or not because there are different channels through which

[1] Comment from an Unreconstructed Ricardian. "Journal of Monetary Economics.

[2] "Some unpleasant monetarist arithmetic". Quarterly Review, Federal Reserve Bank of Minneapolis, 5(1), pp.1-17.

budget deficits leads to inflation. He argues that even if the Central Bank does not monetise the budget deficits through printing of money, deficits are still inflationary through crowding out effects. This is because non-monetised deficits lead to higher interest rates. Higher interest rates crowd out private investment, and thus reduce the rate of growth of real output, which leads to price increase. A fourth link put forward by Barro[1] (1978, 1979) suggests reverse causation. He argues that budget deficits are a result of inflation. The deficit is the change in the nominal value of outstanding government bonds. If the anticipated inflation rate increases, then the nominal value of bonds must also increase, that is the government will run a deficit to keep the same anticipated real amount of bonds. Patinkin (1993) argues that the relationship between budget deficit and inflation might be negative, because of indexation and postponement of wages and salaries of workers. He argues that during periods of inflation governments delay payment of wages and salaries and this delay then produces a substantial decline in government expenditure.

Abizadeh[2] (1986) in their studies focus on the link between deficits and inflation. They argue that one way of resolving the controversy over deficits and inflation is "to test the possibility of a causal link between the growth of government expenditures and inflation. This should be done in light of the fact that governments can grow without necessarily generating deficits". The authors' study led them to conclude that "the hypothesis of a direct link between the size of the deficit and the size of government is maintained". An implication was that large deficits are caused by increased government expenditures. If increased government expenditures result in higher deficits, and higher deficits in turn causes inflation, then increased government expenditure can cause inflation.

[1] 74

[2] Political Parties, Deficits, and the Rate of Inflation: A Comparative Study", Journal of Social, Political and Economic Studies, Vol. 11.

Easterly[1] and Schmidt-Hebbel (1993) estimated the relationship between inflation and fiscal deficits. Across countries, the decision to print money to finance deficits (i.e. seignorage) would depend on the extent to which other means of financing are available. In their cross-section estimation, they found no simple relationship between fiscal deficits leading to inflation. For case studies using time series data, revenue-maximizing inflation rates seem to rise with actual average inflation. In addition, money demand and inflation are nonlinearly related. It was found that money demand has decreasing semi-elasticity with respect to inflation. This implies that as inflation rises, money demand becomes less semi-elastic.

They concluded that seignorage is unimportant as a steady state phenomenon, but it can be important as a temporary source of revenue in times of crisis. Furthermore, large surges of money creation are not closely linked to accelerated inflation. Easterly William 1994 postulated that "of all the consequences attributed to government deficit spending, its effect on domestic prices appears to be more complex. The traditional notion that deficit and inflation display a simple relationship of deficits causing inflation could be misleading. In some countries inflation has been empirically shown as a major source of deficit via its negative effect on tax revenue. Easterly (1993)"

In conclusion, the inflationary effect of government deficits depends upon how the deficit is financed and the impact of the deficit on aggregate demand. If the government attempts to finance budget deficits through bond issues, it could lead to inflation if tight monetary policy is used and otherwise. If seigniorage revenue is used to finance budget deficits, the implication is that budget deficits will lead to inflation. From the analysis discussed above, we can conclude that at the theoretical level, there is a close link between budget deficits and monetary growth on one hand and inflation on the other.

[1] 2

3.3.2 Budget Deficit and Private Investment

Adam Smith[1] (1776) had argued that government labour was unproductive and therefore condemned the transfer of resources from the private sector to the government. To him such transfers amounted to destruction of capital. Other classical economists Like J.S. Mill and J.B. Say later saw the light in Adam smith's view and argued further, that government spending was not necessary as a stabilization tool, because private investment was enough to utilize the funds provided by private savings. The Say's law, which states that: "supply creates its own demand" has some rudimentary crowding out notion implied in it. In a typical Say's economy, increased government spending via tax increase or domestic debt merely induces relative price changes to locate the same level of real output as would still be achieved automatically in the absence of the government through adjustments in prices (Mitchell[2], 1974).

An increase in the budget deficit reduces national saving unless it is fully offset by an increase in private saving. If national saving falls, then national investment and future national income must fall as well, all else equal. In other words, to the extent that budget deficits reduce national saving, they reduce future national income. This reduction in future national income occurs even if the reduction in national saving associated with budget deficits manifests itself solely in increased borrowing from abroad (as under the small open economy view), with no increase in domestic interest rates.

If national saving falls, a second question is how the elements of the identity that national saving equals national investment come back into alignment. The possibilities are limited: either domestic investment falls and/or net foreign investment falls. These changes in investment quantities can occur through

[1] The Wealth of Nations. New York: Random House, Inc.,. (Book).
[2] Ibid 70

different combinations of changes in prices (interest rates and exchange rates), but they must occur even if one of the prices does not move. This is the sense in which the effect of deficits on interest rates and exchange rates (the distinction between the small open economy view and the conventional one) is subsidiary to the question of the effects on national saving (the Ricardian view versus the other two). Fiscal policies affect private investment through four major channels: They include:

1. Public investment (or public capital),
2. Public deficits,
3. Corporate tax and investment incentives,
4. The user cost of capital or real interest rate.

Public capital could be a close substitute for private capital and will drive down the rate of return on private investment. Governments also invest in activities that don not attract private sector investment like infrastructure for which it is difficult to charge user fees, but that raise the return of other private projects. Thus, the higher the complementarily of public and private capital, the more likely that public investment directly affect private investment. Again, if there is domestic financial repression of interest rates with the public sector given preferential access to credit to finance its deficits, the implication is that the later will crowd out private investment directly. This is because higher credit to the government may mean fewer funds available for private sector. With the lack of access to credit by many investors, investment has to be financed by retained earnings. Net profit therefore, plays a vital role in growth of private investment.

Public investment might have an additional effect on private investment depending on whether it is a substitute or complement to public investment. The argument here is that, if the government invests in areas that the private sector would not invest in any way, or if the government undertakes investment activities that would

make private investment unprofitable, then higher public investment would tend to lower private investment. On the other hand, if public investment consists of activities that raise private investment and which the private sector does not find profitable to engage in (example: road construction, rail transportation) then higher public investment may raise private investment. The other factors that are expected to be significant in determining private investment levels are corporate tax rates, investment incentives (subsidies), and the general investment climate, caused by uncertainty regarding future government economic policy, political instability, etc. Therefore, fiscal deficit is seen as government borrowing competition with the private sector, which will result in fewer funds available for private sector investments as interest rates will rise. According to Albatel[1] (2004), the debate on the "crowding out" effect of private investment focuses on the impact of the method of financing of deficits which affects the composition of private wealth. In Sudan budget deficits, were generally financed by excessive resort to central bank money financing.

3.3.3 Budget Deficit and Exchange Rate.

The difficulty in determining the impact of exchange rates on the rate of economic growth is because most of the macroeconomic effects are indirect. The interaction among the exchange rate (the local price of foreign exchange), inflation (the change in domestic prices), and economic growth (the change in real income) are especially important. A typical problem is created by high and rising inflation (due, most often, to widening budget deficits) within the context of a slowly adjusting nominal exchange rate, which is being "managed" by the central bank to "maintain price stability". The resulting real over-valuation of the exchange rate

[1] Government Budget Deficits and the Crowding out of Private Sector Investment in Sandi Arabia Journal king Saud University, Administrative Science Vol. 1.

delays export growth and creates uncertainty about potential future movements in the exchange rate.

In both theory and practice, there is a close relationship between movements in the exchange rate and the rate of inflation. The Purchasing Power Parity theory of exchange rate determination, which is based on the law of one price, expresses the change in the exchange rate as a function of the difference between the (appropriately weighted) change in "world" prices and the change in domestic prices. The monetary theory of the balance of payments, which relates movements in international reserves (if exchange rates are fixed) or the exchange rate (if it is floating) to shifts in the relative demand for and supply of money, yields a similar functional relationship.

Similarly, macroeconomic literature offers various explanations on how fiscal deficit affects the exchange rate. Hence the relationship between budget deficit and exchange rates has caused a lot of debates among policy makers and economists. While there is general agreement that cutting budget deficits and debt will lower interest rates, debate persists over the effects of budget deficit on a country's exchange rate. It is not surprising that the empirical relationship between deficit reduction and the exchange rate is unclear because the theoretical relationship is ambiguous. Deficit reduction has several different effects on the exchange rate, with some effects leading to a stronger exchange rate and other effects leading to a weaker exchange rate. Deficit reduction can lead to a weaker exchange rate.

Economists know that poorly managed exchange rate can have a negative effect in economic growth (Rodrik[1], 2008). Exchange rate is determined by the demand and supply for foreign exchange from the households, firms, and financial institutions that buy and sell foreign currencies to make international payments. Since the value of real exchange rate is important especially in the international trade and in

[1] "The Real Exchange Rate and Economic Growth", Brookings Papers on Economic Activity

determining the competitiveness of a country, it should be important to maintain its equilibrium rate to create effective policies especially in a developing country.

Deficit reduction directly affects interest rates and exchange rates because it reduces the demand for loanable funds. In the developed countries, when the government runs a budget deficit, it generally enters financial markets and borrows funds to pay for the excess of spending over taxes. If the budget deficit falls, therefore, the government needs to borrow less, causing the demand for funds and thus domestic interest rates to decline. As interest rates decline, so does the exchange rate. When domestic assets pay lower returns, investors tend to sell lower yielding domestic securities and buy higher yielding foreign securities.

The decreased demand for domestic assets and increased demand for foreign assets both affect the market for foreign currency. When an investor wants to sell a domestic security and buy a foreign security, he does not actually exchange a domestic security for a foreign security. Rather, the investor sells the domestic security for domestic currency, uses the domestic currency to buy foreign currency, and finally uses the foreign currency to buy the foreign security. The middle transaction—selling domestic currency and buying foreign currency—causes the exchange rate to depreciate.

In other words, a fall in interest rates reduces the demand for the domestic currency in the market for foreign exchange, causing the exchange rate to depreciate. Deficit reduction can lead to a stronger exchange rate. While deficit reduction leads directly to a decrease in the demand for funds by the government, it may also indirectly lead to an increase in the demand for funds by private investors. The increase in the demand for funds may be brought about by one of the following three effects: -

1. lower expected inflation,
2. lower foreign exchange risk premium, and

3. Greater expected rate of return on domestic securities.

These indirect effects induce private investors to increase their demand for domestic securities relative to foreign securities. As investors switch from foreign to domestic securities, the exchange rate would tend to rise.

1. First, deficit reduction might reduce expected inflation. Since some governments finance their budget deficits simply by printing money or having the deficit "monetized" by the monetary authority, many analysts believe that a projected string of budget deficits eventually leads to higher inflation. Therefore, if a country reduces its budget deficit, long-term inflation expectations could decline. Hakkio[1] (1996) maintains that a fall in long-term inflation expectations could have different effects on the exchange rate. A fall in expected inflation could reduce the inflation premium in long-term interest rates, thereby reducing long-term rates. And since a fall in long-term interest rates would reduce the attractiveness of U.S. securities, the exchange rate would tend to fall. But the tendency for the exchange rate to fall may be partly offset. Typically, long-term interest rates do not fall one-for-one with decreases in expected inflation. For example, if expected inflation falls 100 basis points, the nominal long-term interest rate may fall only 80 basis points. In such a case, the real, or inflation adjusted, interest rate would rise by 20 basis points. Therefore, since the real interest rate typically rises when expected inflation falls, the increased attractiveness of U.S. securities could cause the exchange rate to rise. Which of these two offsetting effects of falling long-term inflation expectations has a greater effect on the exchange rate is an empirical question. Most analysts believe lower expected inflation causes the exchange rate to rise simply put, they believe that reducing expected inflation increases investor confidence in monetary policy, which ultimately leads to a stronger exchange rate.

[1] The Effect of Budget Deficit Reduction on the Exchange rate: Federal Reserve Bank of Kansas City.

2. Second, deficit reduction might reduce the riskiness of domestic securities relative to foreign securities. Just as interest rates contain an inflation premium to compensate for expected inflation, domestic interest rates also contain a foreign exchange risk premium to compensate for the riskiness of domestic securities relative to foreign securities. According to one theory of the determinants of exchange rates, the foreign exchange risk premium depends on the relative stock of domestically issued debt (Melvin,[1] (1989) When the budget deficit falls, government borrowing falls, reducing the stock of domestic government securities, which in turn causes the foreign exchange risk premium to fall. When the foreign exchange risk premium falls, the demand for domestic securities rises and the currency strengthens. Simply put, as long as investors want to hold a diversified portfolio of domestic and foreign securities, a reduction in the stock of domestically issued debt causes investors to rebalance their portfolio by bidding for domestic securities, thereby bidding up the exchange rate. Deficit reduction could also lower the foreign exchange risk premium by diminishing the probability of default. While default is unlikely for most industrial countries, even a remote chance of a default could still affect the demand for domestic securities. Moreover, even if a country does not default literally, it could impose restrictions on capital mobility by preventing capital outflows, or it could impose taxes on interest income or financial wealth. By reducing such deterrents to investment, deficit reduction increases the demand for domestic securities, leading to an appreciation of the exchange rate.

3. Third, deficit reduction may increase the expected return on domestic assets. Deficit reduction can be achieved by cutting government spending or increasing tax rates. The way the government chooses to use these tools may have important effects on the expected rate of return of domestic assets, thereby leading to changes in the demand for domestic assets and in turn to changes in the exchange rate. By

[1] International Money and Finance, 2nd ed. New York: Harper Collins Publishers. pp. 166-67).

cutting government spending, deficit reduction shifts resources from the government sector to the private sector. Consequently, productivity and long-run potential economic growth could increase. In addition, if deficit reduction is accompanied by a shift in spending from public and private consumption to investment, productivity and long-run potential economic growth could again increase.

Since government policymakers want to know whether deficit reduction will cause their currency to rise or fall, it is necessary to know the relative size of these different effects. In other words, when do the indirect effects, which increase the exchange rate, dominate the direct effect, which decreases the exchange rate?

The indirect effects are more likely to dominate the direct effect if deficit reduction is credible, long term, and sustainable. Only in this case is deficit reduction likely to have an important effect on expected inflation, the risk premium, and the expected rate of return on domestic securities. Thus, deficit reduction that is credible, long term, and sustainable will lead private investors to increase their holding of domestic securities, thereby leading to a stronger exchange rate.

The indirect effects are also likely to dominate the direct effect when the risk of monetization is large, the risk of default is large, or the expected return on domestic assets increases significantly. These conditions are likely to hold for three reasons. The risk of monetization is greater for a country with a high rate of inflation because the country tolerates a high rate of inflation. The risk of default rises with the level of debt. The expected return on domestic assets increases when the deficit is cut significantly by reducing a high level of government spending. Unfortunately, it is not easy to determine when these effects are larger.

In conclusion, budget deficit reduction has both direct and indirect effects on the demand for funds, which lead to different effects on the exchange rate. Deficit reduction can lead to a weaker exchange rate by reducing the demand for funds by

the government, or it can lead to a stronger exchange rate either by reducing expected inflation, reducing the foreign exchange risk premium, or increasing the expected after-tax rate of return on domestic assets. Because of these different effects, it is not surprising that deficit reduction leads to a weaker exchange rate for some countries and to a stronger exchange rate for other countries.

3.3 .4 Budget Deficit and the External Sector.

Sustained economic growth, low and stable price level and healthy external sector are key macroeconomic policy objectives of every economy. The importance of the external sector lies in the fact that every nation engages in trade and payments and the external sector performance measures the performance of an economy with respect to the rest of the world. In the light of this, the International Monetary Fund (IMF) gives both financial assistance and policy advice to countries that have experienced chronic external deficit problem.

The real exchange rate, a measure of the competitiveness of an economy in international trade, depreciated in most developed economies at least in the last two decades, but appreciation of the real exchange rate was the common case in the developing economies. Hence, overvaluation of the real exchange rates of most developing countries, especially in sub-Sahara Africa, was the case in the 1980s and 1990s. This contributed to their poor performance on the balance of payments (Ghura[1] and Grennes, 1993).

The theoretical literature on the effects of budget deficit on the external sector is mixed. The theory can be traced back to the Mundell-Fleming model (Fleming; 1962 and Mundell[2]; 1963). The Mundell-Fleming model, which is an open-economy version of the IS-LM model, posits that an increase in budget deficit

[1] The Real Exchange Rate and Macroeconomic Performance in sub-Saharan Africa," Journal of Development Economics, 43(1):155-174.

[2]. Robert D. Korsu (Ph.D) , Fiscal Deficit and the External Sector Performance of Sierra Leone : A Simulation Approach, Journal of Economic and Monetary Integration , Volume 9, N0. !.

increases consumer spending as it increases disposable income and hence, financial wealth. This increase import since expenditure increases on not only domestically produced goods but also on imported goods. However, an increase in the demand for import depreciates the exchange rate since it increases the demand for foreign currency. The depreciation of the exchange rate increases export. Since both import and export increase, the net effect on the trade balance is ambiguous.

The relationship between the budget deficits and the current account balances can be explained using the national income identities. For, an open economy, gross domestic product (Y), is the sum of private consumption expenditures (C), gross private domestic investment expenditures (I), government expenditures (G), and exports (X), less imports (M);

$$Y = C + I + G + X - M \qquad (2.1)$$

Alternatively, Y equals private consumption expenditures, C, savings, S, and taxes, T:

$$Y = C + S + T \qquad (2.2)$$

Substituting (2.2) in (2.1) and rearranging terms yields:

$$(X - M) = (S - I) + (T - G) \qquad (2.3)$$

Equation (2.3) states that net exports equal private and public savings. Assuming there is a balanced budget (T-G = 0) and balanced trade (X-M= 0), then equation (2.3) suggests that private domestic saving equals private domestic investment. This is necessarily the case in a closed economy where domestic investment is constrained by domestic saving. However, in an open economy, such a relationship may not always exist. An economy with a foreign sector has access to international financial markets. From equation (2.3), the current account deficit is the sum of excess of savings over investment and the government budget deficits. When the budget deficits is the cause of the current account deficit, domestic absorption exceeds domestic output. Governments can achieve external balance through a

reduction in its expenditures or raises taxes. In most developing countries, budget cutting is difficult for political reasons. Also, the scope of substantially raising taxes is very limited due to the prevalence of poverty and problems of tax collection (Egwaikhide[1], 1999).

Egwaikhide (1999) argued that most developing countries rely on bank credit to finance their budget deficits and gives two effects of budgetary policy: -

1. The first effect is that an expansion of government expenditure caused by bank credit to the government has a positive effect on aggregate demand; as increases in government expenditure affect private sector income through the multiplier effect.
2. The second effect works through the money supply. The central bank credit to the government is a component of high-powered money, and thus, the growth in bank credit directly expands the domestic money supply.

Based on the well-known Keynesian absorption theory that an increase in the budget deficit will lead to an increase in the current account deficits. The theory suggests that an increase in the budget deficit would increase domestic absorption and hence import expansion, causing a current account deficit. Another theoretical rationale is the Mundell. Fleming framework. The Keynesian proposition is that an increase in the budget deficit would place upward pressure on interest rates, causing capital inflows and the exchange rate to appreciate. The appreciated exchange rate would make exports less attractive and increase the attractiveness of imports, subsequently worsening the current account. From the above, the Keynesian proposition can be summarized that there exists a unidirectional Granger causality that runs from to current budget deficit to account deficit.

According to the Keynesian absorption theory, an increase in budget deficit increases domestic absorption and import increases. Thus, the current account goes

[1] Effeects of Budget Deficit on Trade Balance in Nigeria:A Simulation Exercise. African Development Review 2..

into deficit, from an initial equilibrium position. This contrasts with the prediction of the Mundell- Fleming model, which predicts inconclusive effect.

According to the Recardian Equivalence hypothesis, (Barro[1]; 1989), shifts between taxes and budget deficits have no effect on real interest rate, investment and hence the current account. Thus, there is no link between budget deficit and external sector performance. The Ricardian equivalence considers consumers to be forward looking. They therefore save any increase in expenditure made by the government so that they pay their expected future taxes when government eventually taxes them. This implies that deficit and taxes are equivalent in their effect on consumption, investment and hence current account. Thus, the Ricardian equivalence implies that fiscal deficit has no effect on the external sector.

However, causality from the current account to budget deficits also may exist. This outcome occurs from deterioration in the current account that leads to the budget deficit increases. This is especially true for small open economies that highly depend on foreign direct investment to boost their economic growth. In other words, the budgetary position of a country will be negatively affected by large capital inflows or through debt accumulation. This reverse causality running from current account deficits to budget deficits is termed as Current Account Targeting Hypothesis (CATH) by Summers [2](1988).

However, there are other hypotheses on the twin deficits noted in the literature. These includes; the investment hypothesis, the productivity hypothesis and the risk premium hypothesis. The investment hypothesis is credited to Sachs[3] (1982) who explains "that if the home country is an attractive source of foreign investment because of expected high returns due to favourable business atmosphere, political

[1] Ibid 70

[2] Tax Policy and International Competitiveness. In International Aspects of Fiscal Policies. NBER Chapters National Bureau of Economic Research, Inc.

[3] Vietnam's Lesson for China: An Examination of the Sachs–Woo Hypothesis: ietnam's Lesson for China: An Examination of the Sachs–Woo Hypothesis. Comparative Economic Studies. 50. 111-157.

stability, technological changes or an overall increase in productivity, the investment inflows produce a financial account surplus which is associated with current account deficits".

Lovett[1] (1988) developed the productivity hypothesis because the United States current account deficits and budget deficit moved into different directions during the1980s. The hypothesis states "that productivity gains in the economy attract foreign investors which triggered investment and later induced a current account deficit". The risk premium hypothesis is due to Bachman[2] (1992). It argues that an appreciation of the real exchange rate increases the purchasing power of domestic incomes in terms of imported goods, increases the relative value of financial, real estate and other assets held by domestic residents, which tend to reduce domestic savings and increase consumption, reduce competitiveness of a country's export in international markets, thereby causing current account deficits. This implies that the exchange rate can also impact the twin deficits by changing the relative price of non-tradable. Large government spending on non-tradable such as services or real estate sector can induce a real appreciation which in turn increases consumption toward tradable thereby leading to current account deficits.

Korsu[3] (2009) also argued that budget deficits affect the current account deficits through the monetary sector. He argues that increase in budget deficit increase the supply of money when the deficits is financed by means of seigniorage. Increase in money supply increases the price level, which in turn appreciates the real exchange rate and deteriorates the current account.

[1] Solving the U.S. Trade DeÖcit and Competitiveness Problem. Journal of Economic Issues 22(2):459ñ467

[2] Why is the U. S. Current Account Deficit so Large? Evidence from Vector Auto regressions..Southern Economic Journal 59.

[3] Fiscal Deficit and The External Sector Performance of Sierra Leone : A Simulation Approach, Journal of Economic and Monterey Integration , Vol. 9 No. 1.

In contrast to the traditional Keynesian view, recall the Ricardian Equivalence Hypothesis of Barro[1] (1974, 1989) argues that the budget deficit and the current account balance are not related. The hypothesis states that, "for a given expenditure path, the substitution of debt for taxes has no effect on aggregate demand nor on interest rates. As a result, it implies that a tax increase would reduce the budget deficits but would not alter the external deficits since altering the means that the government uses to finance its expenditures does not affect private spending nor national savings" (Marinheiro[2], 2008). In other words, the REH negates any link between budget deficit and trade deficits which imply the absence of any Granger causality relationship between the two deficits.

Mohamad Alslam Chaudhary and Ghulam Shabbir[3] (2005) in a study entitled "Macroeconomic Impact of Budget Deficit on Pakistan's Foreign Sector" concluded that fiscal and monetary variables are important to determine economic stability in the foreign sector of Pakistan. They showed that money supply was positively related to foreign reserves, bank credit and borrowing 'of the public sector to finance deficit. It is negatively related to interest rate. They also established that the money demand was also negatively related to interest rate but positively related to income. The output was positively affected to credit extended to the private sector, international reserves and real expenditures of the public sector for the development of social sectors. They argued that increase in money supply due to excessive credit, affects trade balance through output, which resultantly brings changes in foreign reserves. The increase in government budget deficit, financed through excessive expansion in domestic credit, created excessive supply of money over demand, and therefore, led to foreign reserve outflows. To

[1] Ibid 70

[2] Ricardian equivalence, twin deficits, and the Feldstein-Horioka puzzle in Egypt. Journal of Policy Modeling 30:1041-1056.

[3] Macroeconomic Impact of Budget Deficit on Pakistan's Foreign Sector": Pakistan Economic and Social Review , Volume XLIII, No. 5.

control the sharp swings in money supply, prices and reserves, they advised that the government should avoid the short-run devaluation and stabilize the external value of its currency. The credit obtained by the public sector from the banking system and utilized for current expenditures leads private credit to crowd out. They further showed that the export supply function indicated that exports are positively related to real income, relative prices and nominal exchange rate. The elasticity of exports with respect to income was greater than one, which indicates that an increase in income enhances exports more than the growth of income. The imports were also positively related to income, and foreign reserves, and negatively to relative prices of imports and foreign exchange rate the monetary policy actions were heavily dependent on the fiscal. They thought that, a close link between monetary and fiscal policies is necessary. In order to achieve the internal and external balance, the implication of monetary and fiscal policies must be consistent. To reduce the balance of payments deficit and to restore stability, they recommended that the monetary authorities should control the excessive domestic credit expansion. And they believed that the controlling of excessive credit will not be possible unless government reduces the size of its budget deficit.

Kearney and Monadjemi[1] (1990) utilised the vector autoregressive (VAR) technique to examine international evidence from eight countries (Australia, Britain, Canada, France, Germany, Ireland, Italy, and the United States) using quarterly data over the period of floating exchange rates from 1972:1-1987:4. They estimated five variable VARs for these countries. They did not include the government budget deficit as a separate variable, choosing instead to include government expenditures and tax revenues. Their VAR equations include "monetary creation" and the (real, effective) exchange rate but not income or an

[1] Fiscal Policy and Current Account Performance: International Evidence on the Twin Deficits", Journal of Macroeconomics, Vol. 12, pp. 197-220

interest rate. The findings that emerge from their empirical analysis of eight countries can be summarised as indicating the existence of a temporary twin deficits relationship between the stance of fiscal policy and performance on the current account of the balance of payments, which does not persist overtime.

Examination of the **impulse response functions** [1]confirms that fiscal expansions will lead to prolonged periods of improved current account performance as the economy adjusts towards its long run equilibrium. They concluded that the twin deficits relationship varies internationally in magnitude and duration, and it is not independent of the government's financing decision (Kearney and Monadjemi[2], 1990).

From the above, the following are the major channels through which budget deficit affects the current account deficits;

1. Direct impact through demand that is large budget deficit induces domestic absorption and hence import expansion, causing a current account deficit.

2. Impact through the interest rate, increase in the budget deficit induce an upward pressure on interest rates, causing capital inflows and exchange rates to appreciate thereby worsening the current account.

3. Impact through the exchange rate, the budget deficit affect the current account by changing the relative price of non-tradable. Large government spending on non-tradable such as services or real estate sector can induce a real appreciation which in turn increases consumption toward tradable thereby leading to current account deficits.

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[1] Signal processing, the impulse response, or impulse response function (IRF), of a dynamic system is its output when presented with a brief input signal, called an impulse. More generally, an impulse response is the reaction of any dynamic system in response to some external change. In both cases, the impulse response describes the reaction of the system as a function of time (or possibly as a function of some other independent variable that parameterizes the dynamic behaviour of the system). In all these cases, the dynamic system and its impulse response may be actual physical objects or may be mathematical systems of equations describing such objects.

Since the impulse function contains all frequencies, the impulse response defines the response of a linear time-invariant system for all frequencies.

[2] Ibid 97

4. Direct impact through money supply, large leads to increase in money supply increases the price level, which in turn appreciates the real exchange rate and deteriorates the current account.

3.4 Budget Deficit and Economic Growth.

As it is mentioned in section (1.9) of chapter one , sections (2.5), (2.6) and (2.9) of chapter two, the theoretical literature expressed contrasting views on the relationship between budget deficit and economic growth performances.

Saleh (2003) provides a summary on the impact of budget deficit on economic growth of the views of the three schools of thought in economics:

The Neoclassical school considers individuals plan their consumption over their entire life cycle, by shifting taxes to future generations by an amount equal to budget deficit increase. By assuming full employment of resources, the neoclassical school argues that increased consumption implies a decreased saving, interest rate must be raised to bring about equilibrium in the capital market, interest rates increase because excess supply of bonds by the government reduces bonds price. Due to reluctance by the public to purchase the ever-increasing quantities of bonds issued by the government; to make the bonds look attractive, the government must reduce the prices of its bonds. This bond price reduction will increase the interest rate: this increase in the interest rate will reduce the investment by the private sector, (the private sector will not be able to compete with government in the fund market to finance its activities): hence the government expenditure might crowd out private investment, hence reduce output growth of the concerned economy.

The Keynesians argue that usually budget deficits result in an increase in domestic production, which in turn makes the private investors more optimistic about the future course of the economy and giving more stimuli to invest more. This is known as crowding in effect. It is worth mentioning that the traditional Keynesian view differs from the standard neoclassical school in two fundamental ways. First it

permits that some economic resources are not unemployed, hence expansion in government spending will induce growth of output. Second, it presupposed the existence of liquidity constraints of individuals; this assumption indicates that the aggregate demand is very sensitive to change in disposable income.

Unlike the classical economists, many traditional Keynesian argue that budget deficit need not to crowd out private investment, Fischer[1] (1989) for example, suggested that increased aggregate demand enhances the profitability of private investment and leads to higher level of investment at any given rate of interest and he concluded that "the evidence is that deficits have not crowded out investment, there has rather been crowding in".

Concerning the problem of whether the public spending crowds out or crowds in private capital depends on the relative strength of two opposing forces.

1. When public spending is substitute for private capital; public investment tends to crowd out private investment.

2. When public capital expenditure raises the return to private capital, public investment tends to crowd in private capital.

Therefore, the public spending crowds out or crowds in private investment depends on whether public and private capital is gross substitutes or gross compliments.

Along the same line Arrau[2] (1990) maintains that "higher public investment raises the national rate of capital accumulation above the level chosen (in a presumed rational fashion) by the private sector agents, therefore, public capital spending may crowd out private expenditure on capital goods on ex-ante basis as individuals see to reestablish an optimal inter-temporal allocation of resources. In the other hand, public spending, practically, infrastructure capital, such as highways, water

[1] Ibid 57

[2] "How Does the Debt Crisis Affect Investment and Economic Growth: A Neoclassical Growth Model Applied to Mexico", WPS 378, World Bank, International Economic Department, April.

system, sewers, and airports, is likely to bear a complementary relationship with private capital.

A report by IMF[1] (1990) argued that if the budget can distort private prices in the economy through demand (resulted from deficit spending) the budget will not facilitate sustained growth. The excess demand for goods by the public sectors distorts relative prices lending to misallocation of resources, furthermore, the Fund argues that the budget deficit will also effect sustained growth by crowding out private investment". This is particularly true when the government competes with the private sector for loans to finance its budget. In such situations, the government could use its power to increase interest rate in face of the private sector. Hence causes crowding out of private investment.

In addressing the issue of complementarity and substitutability of the government capital expenditure to private investment in a neoclassical growth framework of study Badawi[2] (2003) concluded that both private and public capital spending are growth stimulating however, the public capital spending has negatively impacted the contribution of the private capital to the national economy: he argued that " both private and public capital spending have stimulated economic growth in the Sudan over the period (1970-98) . The impact of private investment on real growth has been more pronounced than that of public sector investment, public sector investment appears to have destructively impacted private sector physical capital expansion, implying that the impact of crowding out categories of public sector investment has been large enough to offset any crowding in effects, such crowding out effect has weakened the favorable positive effects that public sectors investment has exerted on growth by jeopardizing private capital undertakings .

[1] Sudan: Recent Economic Developments; Washington, DC.

[2] Private Capital Formation and Public Investment in Sudan: Testing the substitutability and Complementarity hypotheses in a growth framework" Institute for development policy and management IDPM, University of Manchester

Finally, there is the Ricardian equivalence approach advanced by Barro[1] (1989) who argues that an increase in budget deficits, say due to an increase in government spending, must be paid for either now or later, with the total present value of receipts fixed by the total present value of spending. Thus, cut in today's taxes must be matched by an increase in future taxes, leaving interest rates, and private investment unchanged.

Many economists argue that government budget deficit retards economic growth either by not enabling the concerned economy to accumulate physical or human capital.

In an empirical evidence for a sample of countries, Prunera M. Carme[2] (2000) argued that "there is evidence on an inverse relationship between deficit and human capital accumulation and presence of strong negative association between the quantity of the budget deficit in the economy and the state of growth ". Also, he added that a possible route through which budget deficits may offset growth could be by reducing human capital accumulation.

Heng[3] (1997) for example argues that public capital expenditure crowds in private capital through two channels, namely via its impact on the marginal productivity of labor or saving, and via gross complementarity and substitutability between the public and private capital.

Likewise, there are some economists who believe that the complementarity between the public and private capital is an important factor for economic growth, especially in developing countries, where the basic infrastructure is lacking.

Kelly[4] (1997) believes that the complementary between private and public investment is crucial for developing nation economy since such complementarity

[1] "On the Determination of the Public Debt," Journal of Political Economy, 87, October 1979, 940-971

[2] Prunera, Maria. (2000). A ROLE FOR DEFICIT IN ECONOMIC GROWTH.

[3]. "1. Public Capital and Crowding in ", The Singapore Economic Review, Vol. 42 No. 2.

[4] 43. Public Expenditure and Growth", Journal of Development Studies, Vol. 34, No. 1.

will create conducive environment for economic growth performance. He argued that the complementarity of public and private action is likely to be important in developing nations, where such factors are in severe disparity, assets concentration, the disparate nature of production in the agriculture and in the industrial sectors, and fragmented financial markets which characterized most developing countries. Increase in such investments may warrant substantial public investment programs. He further argues that, "in such instances public investment is likely to be a central determinant of successful private sector activities and economic growth: example of it is (infrastructure capital, and social expenditure). He moreover adds that "these direct effects may be cancelled to private investment and national output; public investment may directly raise growth by adding to the stock of total capital. Also, public investment may indirectly enhance growth by improving the climate for investment through public goods provision.

In contrast to those recognize the positive effect of government spending on private investment and overall growth of an economy, there are some economists, Heng (1997), Kelly[1] (1997) among others believe that budget deficit harms long run growth of output by reducing the economy's capacity to produce, which is determined by the rate of capital accumulation: Makiw[2] (1997) argues that when deficits reduce private investment the capital stock grows more slowly than it otherwise would. Over a year or two, this crowding out of investment has a negligible effect on the capital stock. But if deficits continue for a decade or more, they can substantially reduce the economy's capacity to produce goods and services, moreover recall that budget deficit by reducing national savings must reduce either investment or net export. We can recall the national income identities

[1] IBID 102
[2] Ibid 57

presented in section (2.9.4) of chapter two. Let's reformulate national saving and national investment identity as:

$$Y=C+S+T+M$$

$$=C+I+G+NX$$

$$S+(T-G) = I+(X- M) .$$

The left side of the identity S+(T-G) is the national saving which consists of private and public saving. The right side of the identity is sum of domestic and foreign investment which could be called the national investment. The above identity indicates that national saving equals national investment.

If the government saving falls (T-G) three things could happen, private saving may rise to keep the equality, if the private saving does not rise, then domestic investment falls and /or net foreign investment falls. As long as less than 100% of the adjustment occurs via changes in private sector, both components of the national investment, domestic investment and net foreign investment, could fall as the deficits rise. A decline in either domestic investment or net foreign investment will reduce future national income.

As a result, they must lead to some combination of smaller capital stock and greater foreign ownership of domestic assets. If the budget deficits crowds out private capital national income falls, because less is produced, if budget deficit lead to trade deficits, just as much is produced, but less of the income from production occurs to domestic residents .

In addition to affecting through reducing production, Mankiw[1] (1997) argues that deficits also affect factor prices, for example, in economic theory wages are determined by marginal product of labor and profits are determined by marginal product of capital: when deficits reduce the stock of capital as supposed by some economists, then the labor has less capital to work with this will lead to reduction

[1] IBID 57

in the marginal productivity of labor, at the same time the marginal product of capital rises due to scarcity of capital, its marginal unit get more valuable, hence increases the profits. The result of budget deficit in this case is lower wages and higher profits. Hence the budget deficit affects the economy's output and wealth. As shown in various arguments in the previous sections of the study, economists are divided as to the specific impact of budget deficit on economic growth, but most economists support the damaging effects of budget deficits on the economy.

In analyzing the economic problems of the developing economies in the classical and the Keynesian school's framework the following facts should be put into consideration: -

In the classical school, in the case of unemployment disequilibrium the real wages must fall to restore full employment. This would mean bringing labor demand and supply into the equilibrium. In case of a developing country like Sudan; this mechanism of restoring unemployment through real wage reduction will be effective as real wages are already low due to numerous economic difficulties including low productivity of the labor itself which lead to poor performance of the economy hence including consequently the labor receive poor remunerations (wages).

In the Keynesian school, the deficit spending becomes the only policy prescription when the economy falls into disequilibrium of unemployment. Increasing aggregate demand through deficit spending to solve unemployment problem could lead to inflation without any positive effect on the supply side of the national economy. This is particularly true when the expansion in the public spending is not directed to production of new goods or the resources are chiefly used to expand the size of the government without leading to increase in the production capacity of the economy. The expansion in size of the government for political settlement of the conflicts is likely to be the case in many developing countries. For example,

creation of new ministerial positions and political jobs to please political parties and opposition groups who sign peace accord with government. Hence economic policies addressing the poor growth performance in developing countries should not be predetermined policies but should address the problem with reference to the circumstance of the country under consideration.

Furthermore, there is common fear among the classical school that expansion in government spending would give rise budget deficit and leads to economic difficulties and accordingly call for cut in public spending. This is not always true in case of countries like Sudan where there is a desperate need for public investments that provide public goods like economic and community basic service and production infrastructures without which there will be no favorable environment for investment whether such investment is to be inform of private sector investment or foreign direct investment. Likewise, one must note that the analysis of the budget deficits will remain incomplete if it does not discuss the root causes of budget deficits. For example, what are the political factors that could give rise budget deficits and the favorable effects that public spending could have on income distribution if public resources are allocated efficiently. Because unfair distribution of income could retard growth process. The inequality could translate itself into political, tribal and civil unrest, which means that more resources will be needed for political settlement and civilian protection. The political and social unrest which in turn reduce the amount of the resources that could have otherwise been devoted to economic growth projects. It also retards utilization of the available economic due to higher cost and insecurity.

L. Mohamed Aslam[1] (2015) in a study entitled "Budget Deficit and Economic Growth in Sri Lanka" tested the dynamic relationship between the budget deficit

[1] Macroeconomic Impact of Budget Deficit on Pakistan's Foreign Sector": Pakistan Economic and Social Review , Volume XLIII, No. 5.

and the economic growth of Sri Lanka using annual time series data from 1959 to 2013.The study used the budget deficit of Sri Lanka as main independent variable and the gross domestic product in constant prices as dependent variable. The exports earnings, exchange rate, inflation rate was used supportive independent variables of this study. Employing the Johansen counteraction technique and Vector Error Correction Model the study tested the long and short - run dynamic relationship between the budget deficit and the economic growth and found that all variables were co-integrated at 1st difference form. In the meantime, the budget deficit and economic growth of Sri Lanka had preserved a long- run dynamic relationship during the study period but no short- run dynamic relationship. In addition, the budget deficit found to have a positive relationship with economic growth of Sri Lanka.

Sachs and Larrain 1993:299-301; claimed that the demand for money can be written as domestic prices multiplied by a function of real income and interest rates. For a fixed exchange rate, any excess demand for (supply of) money will be reflected as the accumulation (depletion) of international reserves. For a floating exchange rate, any excess demand for (supply of) money will lead to an appreciation (depreciation) of the exchange rate. These portfolio changes directly influence domestic prices. Under a fixed exchange rate, excess demand for (supply of) money reduces domestic demand thereby reducing (increasing) the rate of inflation. These changes in prices will, respectively, under-value (over-value) the real exchange rate. With a floating exchange rate, the domestic price changes will lead to movements in the exchange rate. Due to the existence of lags, uncertainty as to the permanence of policy changes, credibility effects, and so on, the above adjustments will not occur smoothly in practice. The above effects, however, are relatively consistent over the medium.

Malcolm F. McPherson and Tzvetana Rakovski[1] (2000), analyzed the relationship between exchange rate and economic growth in Kenya showed that there is no evidence of a strong direct relationship between changes in the exchange rate and GDP growth. Rather, Kenya's rate of economic growth has been directly affected by fiscal and monetary policies, the availability of foreign aid and other economic variables, particularly the growth of exports. Together, these factors have tended to sustain a pattern of real exchange rate over-valuation, which has been unfavorable for growth. Our conclusion is that improvements in exchange rate management alone are not adequate for the revival of growth in Kenya but have to be part of a broader program of economic reform.

3-5 Budget Deficit and Economic stability.

Drawing on the theoretical and empirical discussions on potential impacts of budget deficit and its determinants presented in previous section of this chapter and chapter three of this thesis, the general conclusion about the impact of fiscal deficit on growth and stability is that higher the level of fiscal deficits in the developed and developing countries higher may be the growth rate but there will also be higher probability of macroeconomic instability. Because the higher level of fiscal deficit means the higher level of money supply and since money supply has a direct positive relationship with the price, higher fiscal deficits may push up the price level and if it is set free thus could be factor for macroeconomic instability. Likewise, as higher price level reduces the export competitiveness resulting thus in the decline in exports and increase in imports, this ultimately results in the adverse balance of payment and running down of the foreign reserves of the country. Depending on economic context of the country in consideration; running down of the foreign reserves might exerts pressure on the strength of the domestic currency

[1] "Exchange Rates and Economic Growth in Kenya: An Econometric Analysis" Belfer Centre for Science & International Affairs. John F. Kennedy School of Government. African Economic Policy Discussion Paper No; 56.

or domestic currency is depreciated in an attempt to increase the competitiveness or attractiveness of domestic goods to foreigners . This also lowers the level of interest rate since the higher level of money supply pushes up the level of liquidity in the economy. Thus, we can conclude that the higher level of fiscal deficit results in the macroeconomic instability.

However, under the liberal economic policy, where the private sector plays a leading role in the economy, there is a different argument in this regard. It says that if the government finances higher level of fiscal deficit through internal borrowings, private sector is crowded out in terms of using domestic resources and, therefore, private sector investments is squeezed resulting thus in the lower growth rate. This implies that higher level of fiscal deficits does not always ensure higher growth rate. Another argument along the similar line is that private sector investment does not come forward in the condition of macroeconomic instability.

Thus, economic growth does not take place in the instable macroeconomic situation resulting from the large fiscal deficits. From this standpoint also, large fiscal deficit does not necessarily result in the higher growth rate. Therefore, again under the liberal economic policy in which private sector is considered as the engine of growth, maintenance of macroeconomic stability is much emphasized. And for this, the government must incur as less fiscal deficit as possible to maintain macroeconomic stability in the country. This is what the IMF, World Bank, Asian Development Bank and others have been emphasizing over these years. Nepal also has been pursuing the similar policy since the beginning of the 1990s.

This, however, does not mean that the governments should not spend more. They can spend more as much revenue as they can mobilize. This only implies that they should spend as per their means and they must not spend beyond their means.

Another growth hampering impact of the large fiscal deficit is that higher the fiscal deficit higher will be the debt burden of the country. And higher the level of debt

burden, higher will be the level of debt servicing expenditure of the government and higher the level of debt servicing expenditure lower will be the government's investment for growth. Ultimately growth will be hindered if the government spends substantially higher than its means.

3.6 Budget Deficit policy.

A deficit policy plays a vital role in assisting countries achieve macroeconomic stability, poverty reduction, income redistribution and sustainable economic development. For this reason, most governments use the budget as effective tool in achieving their economic objectives. This means that large and accumulating budget deficit may not necessarily be a bad policy objective if such deficits are effectively utilized to enhance economic growth. It is in line with this that an appropriate operational definition and measure of budget deficit must be clearly stated. Otherwise, the occurrence of large nominal budget deficit may be misleading depending on the operational measure adopted by a particular country.

The effective fiscal policy can also be used to stimulate growth and revive a stagnant economy. What needs to be explored in this respect for a developing economy is the causal relationship between growth (say, of real per capita GDP) on the one hand, and quantitative fiscal adjustment (improvement in fiscal balance), expenditure composition (wages and salaries, development expenditure, and social services such as education and health), and sources (domestic and foreign) of financing budget deficits on the other hands. (Mahran[1], 2005).

Fiscal policy has conventionally been associated with the use of taxation and public expenditure to influence the level of economic activities. The implementation of fiscal policy is essentially routed through government's budget. The budget is, therefore, more than a plan for administering the government sector. It (budget)

[1]

both reflects and shapes a country's economic life. As noted by Anyanwu [1](1993), the objective of fiscal policy is to promote economic conditions conducive to business growth while ensuring that any such government actions are consistent with economic stability. It is designed to achieve the objective of price stability, growth, balance of payments equilibrium, full employment, mobilization of resources and investment. These objectives have influenced government's economic policy design and development efforts in Nigeria since independence

Easterly and Schmidt[2] (1993) argued that prior to the Keynesian Revolution, it was widely believed that governments should balance their budget during times of peace. Keynes changed all of this and, by the 1960s, fiscal policy was perceived of as a powerful tool that could be used effectively to reduce economic fluctuations. But during the past four decades, both analysis of political incentives and real-world experiences have convinced many economists that it is unrealistic to expect political decision-makers to institute fiscal changes in a stabilizing manner. Greater recognition of the secondary effects of budget deficits has also caused many to question the potency of fiscal policy. Further, the persistence of large budget deficits and growth of government debt as a share of the total economy has generated fears that, if unconstrained, the political process will result in excessive debt that will threaten the solvency of even wealthy countries like the United States, Japan, and those of Western Europe. As we have noted, debate continues with regard to how fiscal policy can best be used to promote growth and prosperity. But once again, many economists, particularly those with expertise in public choice, are now calling for something like a balanced budget constraint as a means to control government spending, excessive debt, and the political incentive structure that undermines the sound use of fiscal policy and consequently leads to

[1] Monetary Economics: Theory, Policy and Institutions. Onitsha: Hybrid Publishers.
[2] IBID 2

poor economic performance. “Unless restrained by constitutional rules, legislators will run deficits and spend excessively.” The implication of the concept of macroeconomic performance which is widely used in a variety of theoretical and empirical literature as well as in related economic agencies’ reports. Nevertheless, this concept is rarely defined as it is implicitly seems to refer in turn to higher economic growth rate, low inflation rate, stable real exchange rate, as well as internal and external balances. Thus, the question that becomes relevant “what constitutes good economic performance and how should be defined and measured?”

3.7 Debt Management Policy

The appropriateness of the fiscal policy stance is often measured by the size of the budgetary deficits. Public borrowing to pay for the excess of government expenditures over revenues received causes relative prices distortions (e.g. goods and services prices, rents, wages and interest rates). Thus, an expansionary fiscal policy typically stimulates macroeconomic instability and in turn reduces the rate of private sector investment. To eliminate these distortions, certain public budget management measures may be carried out such as: -

1. implement system of recording and monitoring payments commitments; and
2. Consolidate government accounts within a unified national treasury system.

Similarly, some external debt relief and appropriate debt management measures may also be carried out such as: -

(1) Improving government borrowing procedures;
(2) Restructuring bilateral and multilateral debt to bring it servicing within an economy realm of possibilities;
(3) Seeking least-cost debt service; and
(4) managing both external and domestic debt in an effective way.

These fiscal measures have to be undertaken in coordination with the prioritization of expenditure and the securing of revenues that improve and permit more appropriate modes of financing of the budget deficits that conducive to maintain macroeconomic stability.

3.8 Governance, Institution and Economic Growth.

The focus of this study is to determine empirically the impact of a selected macroeconomic variables on government budget deficit and how the budget deficit in turn influences economic growth. However, this does mean that the study refrains from mentioning the role of non-economic variable that might influence economic growth in Sudan. Hence this section will show some theoretical arguments on the relationship between governance, role of institutions and economic growth.

The key goals of overall economic policy are conventionally defined as growth, equity, and stability. It has long been understood that these three goals are complementary over the long-term. Economic growth provides the resources needed for poverty reduction but cannot be sustainable if it is not accompanied by sufficient stability and equitable policies. Unstable economic and financial circumstances are unfavorable to growth, and typically hurt the poor most. But stability in a context of persistent economic stagnation and poverty is hardly a desirable outcome. In the short-term, however, these goals may be mutually conflicting, and a sound resolution is required (and hence a robust institutional mechanism) that takes all three into consideration in a coherent policy package Whiteley, P[1]. (2000).

According to Helpman[2] (2004); research on the empirical determinants of economic growth has emerged in the last few decades, as hundreds of cross-

[1] Economic growth and social capital, Political Studies, 48: 443-66.
[2] The Mystery of Economic Growth, Cambridge, MA: Harvard University Press.

national studies have been undertaken to approach the elusive and ever-important question of what causes growth and the prosperity of nations. Economists have traditionally focused on the effects of physical and human capital accumulation, total factor productivity, technological innovation, the process of knowledge creation and diffusion, and international economic integration. For example, the World Bank[1] (2004) defines economic growth quantitatively as increase of real gross domestic product (GDP) or other measurements of aggregate income. Again, according to the World Bank (2003), economic growth is "quantitative change or expansion in a country's economy". In addition, the World Bank[2] (2003) contended that "economic growth is conventionally measured as the percentage increase in gross domestic product (GDP) or gross national product (GNP) for one year". However, many scholars and researchers have confirmed the existence of a positive link of improved quality of governance, institutions and economic growth.

When attempting to analyse the effect of good governance on economic growth, the first problem that rises is that of definition, i.e. what do we mean by 'good governance as it relates to economic growth and development'. It is a broad concept and, in many aspects, very difficult to measure, particularly in quantitative figures. For that reason, in the political-economic literature there is no clear definition of this concept. As the purpose of this section is limited to presentation of theoretical argument on the link between good governance and economic growth . Therefore, this section starts with the definition of the World Bank regarding 'good governance' as provided in 2002 and later in 2007. In 2002 the World Bank defined the governance as 'The ability of the state to provide those institutions that support growth and poverty reduction-often referred to as good

[1] Beyond Economic Growth Student Book. Retrieved 04/04/2012

[2] World Bank, (2003) "Better Governance for Development in the Middle East and North Africa: Enhancing Inclusiveness and Accountability.

governance-is essential to development' (World Bank[1], 2004).The later definition was within the same perception (World Bank), in which governance is defined as '...the manner in which public officials and institutions acquire and exercise the authority to shape public policy and provide public goods and services.' (World Bank, 2007). Weiss [2](2000) shows that the definitions of governance used by international organizations vary substantially. For the OECD, governance denotes "the use of political authority and exercise of control in a society in relation to the management of its resources for social and economic development". North[3] (1990), defines institutions as the "humanly devised constraints that shape human interaction" and calls for the analytical distinction between the rules of the game (institutions), the players of the game (individuals and organisations) and the way the game is played.

There is a consensus that good governance rests on following principles:

1. Accountability of Governance.
2. Political stability and lack of violence.
3. Governance efficiency.
4. Legal framework.
5. Law enforcement.
6. Corruption control

None of these principles can stand by itself; they are interrelated and instrumental in achieving each other; and all of them together are instrumental in achieving sound development management and economic growth.

Many political and economic scholars argue that good governance is one of the main factors, not only for the democratic development of the country, but it is also

[1] Beyond Economic Growth Student Book. Retrieved04/04/2012fromhttp://www.worldbank.org/depweb/english/beyond/global/glossary.htm.

[2] Governance, good governance and global governance: conceptual and actual challenges, Third World Quarterly, 21(5):

[3] Institutions, Institutional Change and Economic Performance, Cambridge University Press.

one of the primary factors in the economic growth. But some others are critical of this approach, arguing that this correlation can be only theoretical and there is not enough evidence to support it. Besides, many scholars and researchers have confirmed the positive link of improved quality of governance on economic growth. The study of Knack and Keefer[1] (1997) shows that both property rights and contract enforcement have positive impact on economic growth. Similarly, Campos and Nugent (1999) prove a statistically significant positive impact of governance on economic development.

Also, much research work conducted by the International Monetary Fund (IMF), the United Nations, and the World Bank shows that good governance leads to economic growth. For instance, Kaufman and Kraay[2] (2002) evaluated the World Governance Indicators over the period 1996 to 2002 and found a positive relationship between per capita income and quality of governance

On the relationship between Governance, institutions and economic growth in Africa Augustin Fosu[3] (2006) argued that as poor policies are blamed for dismal economic outcomes in many African countries and institutions and governance have assumed greater importance in explaining policy making, first, while politically accountable governments can lead to improved economic outcomes, they are unlikely to adopt economically desirable policies that are unpopular with the populace. Unfortunately, such governments also tend to increase the risk of political disorder in Africa, which may in turn be growth-inhibiting. Thus, recent attempts by African countries to adopt more democratic governments may not lead to the expected improved growth and development outcomes unless successful attempts at minimizing political disorder can be achieved. Second, the existence of

[1] Does Social Capital Have an Economic Payoff?" The Quarterly Journal of Economics, 112(4).
[2] Aggregating Governance Indicators", Policy Research Working Paper No. 2195, Washington DC: World Bank.
[3] Institutions, Governance and Economic Development in Africa: An Overview: Journal of African Economies: Volume 15 ; Issue No. 1 , 2006.

ethnically based interest groups is likely to result in sub-optimal provision of public goods, which can be critical to the development process. Hence, the challenge of attenuating ethnic polarization is a salient one.

Daron Acemoglu[1] (2008) says stated that there is now a growing understanding that economic, political, legal, and social 'institutions' are essential to the economic success and failure of nations. Governance can be defined in various different ways, and its meaning certainly differs when we talk of corporate governance versus governance in general. In the context of economic growth and development, governance refers to essential parts of the broad cluster of institutions. Particularly important elements of governance, defined as such, would include the political institutions of a society (the process of collective decision making and the checks on politicians, and on politically and economically powerful interest groups), state capacity (the capability of the state to provide public goods in diverse parts of the country), and regulation of economic institutions (how the state intervenes in encouraging or discouraging economic activity by various actors). Thus, the interactions between governance and growth are intimately linked to the interactions between institutions (broadly construed) and economic growth. The case of corruption is also appropriate for underlining the role of politics and distributional factors in shaping the relationship between institutions and economic outcomes. For example, Kaufmann[2] (2003a) remarks that corruption may be also promoted by the behaviour of multinationals and powerful economic elites seeking undue influence in the policy process.

The slow growth performances in many developing countries, especially Middle East and North African (MENA) countries, have been disappointing over the last decade. Since the second half of the 1980's, growth and development studies have

[1] Governance , Growth and development Decision Making. The International Bank for Reconstruction and Development. April 2008.

[2] IBID 116

started to shed the light on the importance of improving institutions of governance on economic growth. The studies of Owens[1] (1987) show that economic and political stability has a statistically significant impact on economic growth and development.

Again Tsebelis, G[2]. (2002), argued that the institutions of a country may create incentives for investment and technology adoption, for its businesses to invest, and the opportunity to accumulate human capital for its workers, thus engendering economic growth. Or they may discourage such activities, leading to stagnation. They may create incentives for politicians to work towards creating a growth-enhancing environment. Or they may encourage rent seeking activities, corruption, and the unfettered pursuance of personal gain at great cost for the rest of the society. While there is relatively strong evidence showing that the broad cluster of institutions—comprising economic, political, and legal aspects—are essential for long-run economic development, we must be modest and admit that we are still at the beginning of the process of understanding how exactly specific aspects of institutions influence economic outcomes.

Within the same lines, Han, X., Khan, H., and Zhuang[3], J. (2014) analyse the governance gap and its effect on economic growth. Among many other results, the study shows that "Middle East and North African countries with a surplus in political stability, government effectiveness, and corruption control are observed to grow faster than those with a deficit in these indicators by as much as 2.5 percentage points annually." The study implies that governance matters to economic growth in the MENA region.

[1] The Future of Freedom in the Developing World", Pergamon Press.
[2] Veto Players: How Political Institutions Work, Princeton: Princeton University Press.
[3] "Do Governance Indicators Explain Development Performance? A Cross-Country Analysis", ADB Economics Working Paper Series, No.417.

Building on data for up to 97 countries for the period 1974-89, Knack and Keefer [1](1995) finds that the quality of institutions, operationalised as the security of property rights and the level of contract enforcement, is crucial to growth and investment. In the same fashion, Mauro[2] (1995) shows that subjective indexes of corruption are negatively linked with investment and economic growth. Further empirical tests supported these initial findings. Also demonstrates that institutional quality, as measured by bureaucratic efficiency, absence of corruption, protection of property rights, and the rule of law, is important for growth.

[1] IBID 116
[2] Corruption and Growth", Quarterly Journal of Economics, Vol. 110(3).

Chapter Four

Background of Sudan Economy: Corrective Macroeconomic Policies and their Implications.

Chapter Four

Background of Sudan Economy: Corrective Macroeconomic Policies and their Implications.

4.1 Introduction:

Sudan used to be the largest country in Africa before succession of South Sudan in the year 2011. The total area of Sudan is approximately 1,844,797 (square kilometers). It is boarded by seven countries: Egypt, Ethiopia, Eretria, South Sudan, and the Central Republic of Africa, Chad and Libya. It is characterized by ethno-linguistic heterogeneity and with considerable climatic diversity, ranging from tropical forests in the south, savannah grass and woodlands in the central plains, to desert in the far north. The main physical feature of the country is the River Nile with its tributaries providing one of the country's greatest assets which consist of arable land estimated at 15.8% of the total area and 84.2% as pasture. Other resources of the country include oil deposits and gold. The population was estimated at 40,234,882 in 2015 with approximate a growth rate of 2.18% per annum. It has a highly skewed spatial distribution with Khartoum and Al-Gezira in center, South Darfur and North Darfur states being the most populated states. The urban population is mainly concentrated around the banks of the main rivers and state capitals. The urban population of Sudan increased from approximately 14.6% in 1967 to approximately 34% of the total population of the country in 2015. The noticeable increase in urban population is mainly attributable to influx of rural population to urban areas owing to the following factor :recurrent droughts and famines that hard hit the western parts of Sudan ,irruption of civil wars and communal conflicts particularly in Western, Eastern and Southern parts of the country .Another factor that causes migration of rural population is the concentration of basic social services in urban areas .All these factors destabilized

living conditions in the rural and consequently caused influx of rural population to urban areas . The migration of rural population caused by instability and the lack of basic social services at rural areas not only negatively affect the livelihood of the rural population but also affects the overall food security status in the country as the rural dwellers in Sudan contribute to a significant share of food production mainly in agricultural and livestock production. Also, it causes overpopulation, pressure on basic social services in urban areas, involvement of the migrants in marginal and unproductive activities and vulnerability and increase in poverty. There is a broad consensus that poverty incidence increased during the past decade and affected 70% to 90% of the population at end 1990s with the Southern and Western states being the poorest states.

Despite these vast resources endowments, most of the living conditions are well below those in Africa and per capita income stood at US$ 330 though the country is considered as least developed country, lower middle-income country and food deficit country. Similarly, the World Bank and the United Nations classify Sudan amongst the poor and low-income country. According to UNDP, Sudan's Human Development Index (HDI) remains very low with value of 0.473 for the year 2013 placing the country at very low rank of 166 out of 187 countries and territories. Sudan also suffers from very wide and large incidences of poverty and plain inequality between regions with the country. According to National Baseline Household Survey 2009 Poverty estimates set the average rate of poverty incidence at 46.5% indicating that some fifteen (15) million people were poor. Additionally, Sudan is considered as a heavily indebted country to external creditors. Sudan remains in debt distress and is eligible for debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative. Large external debt and arrears hinder access to external financing and weigh heavily on development prospects. Sudan's arrears to the Fund declined to about SDR 969 million at end-June 2016 following payments

of $10 million each in 2014 and 2015, and $5 million in the first half of 2016. The authorities should continue to engage with international partners to secure support for debt relief and the lifting of sanctions, which would pave the way for foreign investment and financing for growth and poverty reduction. (IMF 2016)[1].

In its social and political background, Sudan is characterized by a very history of instability. The country has been severely impacted by chronic internal political instability, civil wars in South Sudan, Eastern region and Blue Nile as intercommunal and political conflicts in Darfur Region (states) (its **impact on economic and fiscal stance of the country**. On the same question IMF[2], 2012) described the situation in Sudan as has been plagued by chronic internal conflicts and civil wars involving northern and southern regions since its independence 1956, culminating in the secession of South Sudan on 9 July 2011. The secession of the South Sudan has contributed to creating severe macroeconomic imbalances and deteriorating considerably the economic condition in Sudan. It resulted in losing of some three-quarters of its oil production, half of its fiscal revenue, and about two-third of its international payment capacity.

It has also driven the trade balance from substantial surplus to a large deficit.

Likewise, another impediment to instability of government economic programs and sustained economic development in Sudan is the frequent change in political regimes. Since its independence from colonial rule in 1956 Sudan witnessed six alternating governments. They included three civilian parliamentary regimes during the periods (1956 to 1958 , 1965 to 1969 and 1986 to 1989) and three military governments (1958 to 1964, 1969 to 1985 and the military government that came to power 1989 and still functioning at time of drafting this thesis. Obviously such alternating civil –military political regimes poses serious

[1] MF Executive Board Concludes 2016 Article IV Consultation with Sudan, October 4, 2016

[2] International Monetary Fund: Sudan: Selected Issues Paper: IMF Country Report No. 12/299:

challenges to the process of smooth social and economic development programs in the country as each regime attempts to implement its own agenda for economic and social development in the country.

4.2 The structure of the Sudan economy.

The structure of the Sudan economy is predominantly agricultural. At the independence in 1956 the production structure of the Sudan economy was clearly dual in nature with vast traditional sector and dominated by agriculture, which contributed to about 61% of GDP, there was no substantial industrial sector to speak of (with contribution of about 1.1% of GDP) and the service sector accounting for about 37.9% of GDP, see table (1). However over the past few years, this structure of the economy has been changing from an agriculture based-economy towards a highly oil-dependent one which consequently undermined the contribution of agricultural sector in Sudan's economy.

Table (4.1) Sudan: 1955/1956 GDP Composition (current Prices).

Sector	GDP (millions Ls)	GDP Share %
Agriculture	172.6	60.7
Industry	3.0	1.1
Construction	16.2	5.7
Transportation	37.6	13.2
Public Utilities	1.0	0.4
Governments	17.2	6.0
Rental Estate	8.2	2.9
Others	28.4	10.0
Total	284.2	100.0

Source: Ali and Elbadawi (2002).

Given the sectoral composition of the GDP, at the independence the structure of Sudan economy was clearly dual in nature with vast traditional sector and small modern sector, however the development of oil export industry has led to shift in the economic structure, estimates for 2003 indicate that the service sector is the leading sector to Sudan's GDP. The service sector contributes 41% to GDP,

agriculture 38.7% and industry 20.3% . As the figures indicate, unlike, the significant contribution of agriculture and services sectors, industrial sector of Sudan is accounting only for a small share of GDP and workforce. According Suliman (2016), the main industrial activities of Sudan include manufacturing, construction, mining, electricity and water. The sector primarily comprised of industries that process agricultural products, particularly sugar textiles, oilseeds, flour and footwear. Owing to inclusion of revenue in the government budget as from 1999, the subsequent year witnesses an increasing role of industrial sector in the economy.

As stated in the previous section; the dominant contribution of agricultural sector continued until end of 1990s when Sudan started exporting crude oil and since then the country had been increasingly dependent on oil for its exports and revenues to the extent that the country had become an oil dependent economy particularly as from 2000 until section of South Sudan in 2011.As seen in table (2) and figure (1), oil had taken a corner stone position within the united Sudanese economy since its exploitation started in 1999. This could be demonstrated by its weight in, at least, three major economic variables, namely: the GDP, the foreign trade sector, and the government revenue as depicted in Central Bank of Sudan (CBoS) Reports. Accordingly, its impact has considerably spread over almost all aspects of the economy and society.

The first economic variable that petroleum started to influence to consider is the GDP. As shown in Figure (1), before 1999 and even in 1999, the year which witnessed the beginning of Sudanese exports of oil, the petroleum sector contribution to the GDP was negligible. Prior to that date, the shortage of petroleum products was a permanent handicap impeding the economy's

development with all its negative implications especially on production and growth (Gadkarim[1], 2010).

Table (4.2), Sudan: Total Exports decomposed into Oil and Non-oil Exports.

years	OIL exports as percentage of total Export %	Non-oil exports as percentage of total Exports %
1998	0	100%
1999	35	65
2000	75	65
2001	80	20
2002	78	22
2003	80	20
2004	82	18
2005	88	12
2006	90	10
2007	95	5
2008	95	5
2009	88	12
2010	85	15

Source: CBoS Report (various issues).

an increasing contribution of the oil sector to the GDP from 2% in 1999 to 21% in 2007 and to an average of 9% afterwards, b) a declining significance of the agricultural sector from half the GDP in 1999 to about 31% in 2010, and c) there was no or only a slight change in the other sectors' - the services, building and construction, and electricity and water – contributions, other than services taking over the lead after the deterioration of oil revenue after 2008.

[1] Oil, Peace and Development: The Sudanese Impasse". ISSN 1890 5056. ISBN 978-82-8062-283-9. Peace building in Sudan: Micro-Macro Issues Research Programme, CMI.

(**Table (4.3): Sudan's Sectoral contribution to real GDP period 1960-2013 (%GDP).**

Period	Agriculture	Services	Industry	% GDP
1960-1969	41.90	43.80	14.30	100%
1970-1979	41.55	45.08	13.37	100%
1980-1989	35.54	49.45	15.01	100%
1990-1999	40.49	43.50	16.90	100%
2000-2009	39.60	34.53	25.87	100%
2010 -2015	31.22	47.13	21.65	100%

Source: CBoS Reports - various issue.

4.3 The role Political Instability and Weak Institutions.

Like most African countries, Sudan has been making an effort continuously to establish political and economic choices and stability since its independence in 1956. Since then the country has experienced frequent regime changes and has witnessed devastating civil wars and unrest. Ali[1] (2005) claimed that "the civil unrest and armed conflicts in Sudan have been characterized as 'interlocking civil wars' whose causes are intertwined with economic, resource-based, ethnic, cultural, religious, and international dimensions. However, all causes are underpinned by the state's crisis of legitimacy, which permits political elites to control its institutions for their own benefit". Once more he thought that in Sudanese society there is overwhelming agreement that bad institutions and an unstable political environment are the main causes of its poor development performance.

Also, according to Ali et al. (2005), the highly volatile growth record of Sudan is related to the structure of institutions inherited from the colonial period, which is not only weak but has not changed significantly over the years, at the same time dramatically failing to provide a viable solution to the country's major political and

[1] INSTITUTIONAL QUALITY AND ECONOMICGROWTH: EMPIRICAL EVIDENCEFROM THE SUDANESE ECONOMY: ECONOMIC ANNALS, Volume LIX, No.203 / October – December 2014

economic challenges and to propel growth. Johnson[1] (2003) points out that the civil violence in Sudan has roots in the deep injustices created historically during the two waves of colonization. The old social hierarchy is still reproduced in contemporary Sudan and significantly contributes to political, economic, and social marginalization of large parts of the population, and to poverty and horizontal inequality. Elbadawi (2005) also states that the Sudanese political establishment's lack of vision following independence further reinforced the inherited colonial legacy. The ensuing political landscape was thus characterized by a high degree of political instability, which produced three short-lived democracies and three long-reigning military regimes. He also indicated that the institutional quality environment is one of the most important factor in defining the Sudanese economic prosperity.

Given the incidence of war in Sudan, it must have impacted the economic growth of the country. Elbadawi (2002) provides some simulation costs incurred by Sudan due to wars. The intensity of the war, which is assumed to lead to political instability, erosion of the state and the civil society instruments, and the consequent decline in property rights and the enforcement of contracts, and the diversion of the limited human, financial and physical resources to the military ends. Using the global panel data estimates of the determinates of growth and investment Elbadawi (2002) derived the following results: "The cost due to increase in military expenditure: relative to the average military expenditure to GDP ratios that prevailed in SSA in 1986 –1990 (about 2.5) the high military expenditure ratios in Sudan for 1989/1990 –1993/1994 (about 7.9) have cost Sudan a decline of 16% in investment /GDP and caused a loss of 2% in per-capita GDP growth during the four years. The cost due to war intensity is estimated at by noting that when the war

[1] The Root Causes of Sudan's Civil Wars (African Issues), https://www.amazon.com/Douglas-H-Johnson/e/B001IOH6LS/ref=dp_byline_cont_pop_book_1

intensified from a relatively low level violence (and average of 965 non-civilian causalities in 1984) to more than 4.000 in 1989 .The growth slowed by percentage points. Thus, the overall cost over this four years period was such that the civil war has caused the country's investment to be less than one third of its potential level under normal conditions and has reduced per capita GDP by accumulative rate 8 percentage points. On average, therefore, the cost of war can be looked as having being 2% in real per capita GDP growth. While Alamir[1] (2000) argues that, the lower growth and fluctuation in Sudan has come as result of adverse consequences of excessive fiscal expansion

4.4 Social and Economic Development and Management Plans and Programs (1960-1983).

The post-independence governments of Sudan had thought to develop the national economy. The first attempt of the planned development of the Sudan economy was made in the context of the Ten Year Plan (TYP) of social and economic development (1961/62-1970/71). The approach used by the TYP to analysis the Sudan economy was "dualistic approach in which the Sudan economy is looked at as composing of traditional and modern sector. The quantitative objectives of TYP were stated as followed:-

a. Increase per-capita income brought about by increase in real Gross Domestic Product GDP.
b. Broadening the structure of the Sudan economy by diversifying national products and improving production quality.
c. Increase exports and imports substituting industries.
d. Increasing social welfare.
e. Maintaining relatively stable prices.

[1] Ibid

Also one of the important features of the TYP was that it stressed the role of private sector in realization of its objectives.

However these ambitious the objectives of the plan were satisfactorily achieved due to the fact many development projects which were part of the TYP plan were implemented without prior feasibility and sustainably studies, also eruption of civil war in the Southern Sudan which drained resources that could had been directed to post independent development requirement of Sudan , lack of sufficient of capital. In spite of these constraints, Sudan economy during that period recorded an average positive an annual growth rate of 5%. (Ali & Elbadewi [1]2004).

Also it has been argued that the establishment of those public projects was not based on prior evaluation or feasibility studies that could had proved their future sustainability hence many of these projects instead of providing revenues they become extra burden to the government budget. A few examples of such projects were: Babanousa Milk Products Factory, Aroma Cardboard factory, Karima Fruits and vegetables Canning Factory, Kassala Onion Dehydration Factory, Nyala Textile Factory. Most of this project failed due to factors related to the availability of raw materials, transportation problems, and factors related to infrastructure bottlenecks. Shaykh[2], (2001) argued that the criteria of public expenditure did not give regard to priority and the relative importance of these projects to the national economy and the result was failure of many public investment project. He further argued that confiscation and the nationalization policies adopted in 1970 increased the size of public sector which already characterized by weak performance. The consequences of these policies were decreased productivity and extra burden on government budget.

[1] Explaining Sudan's Economic Growth Performance", unpublished study for AERC Collaborative Research Project on Explaining Africa's Growth Performance.

[2] The Economic Adjustment Policies in the Sudan 2nded: An analytical study for economic development in the period (1970-2000)", published by Sudan currency printing Co. Limited. – Sudan. (in Arabic).

During 1970s, also, Sudan economy witnessed initiation of serious of development plans and macroeconomic corrective policies, examples were the Five Year Plan (FYP) for Economic and Social Development, for period of (1970-1975). Based on socialist perspective ,the main objectives the plan were to achieve ; among others , a an annual GDP growth rate of 7.6%, increase agricultural production by 60.8% ,increase livestock production by 75.5.8% and increase industrial production (mainly agro-based products) by 57.5% and develop productive cooperative societies as a basis for economic development. Due to political instability in the aftermath of the beginning plan program activities , the plan had fallen short of achieving its objectives. Thus, the overall rate of growth of GDP recorded during the plan period was only 4%. Subsequently the plan was supplemented with a five year interim program FYIP of action in 1972 with a change in sectoral targets giving more attention to transport and communications sectors, followed by agricultural sector.

The FYIP by then followed by the six-year plan of economic and social development, 1977/78-1982/83. The SYP targeted an annual GDP growth rate of 7.5 percent with a growth rate of 6.5 percent for agriculture sector and 9.5 percent for industry. Table 4-3 shows the percentage contributions of the various economic sectors during the SYP. The plan has aimed at restructuring the economy in favour of exports, import-substitution, investment and essential consumption (Central Bank of Sudan, Annual Report 1977).

Table (4.4): Projected Sectoral Contributions and Annual Growth Rates.

Period	1976/1977%	1982/1983 (%)	Annual Growth Rate (%)
Agriculture	39	37	6.5
Manufacturing and Mining	9	10	9.5
Electricity and Water	1	1	8
Construction	4	5	9
Communication	6	6	7.5
Commerce, Finance and Real Estates	24	24	8
Government and Other Services	17	17	7.5
GDP at market price	100	100	7.5

Source: Central bank of Sudan, Annual Report 1977.

The main objectives of these plans were to increase and diversify Sudan's agricultural output, promote imports substituting industries and alleviate transport problems.

These economic development plans were ambitious but they did not improve the economic well-being in the country, instead they worsened it. The high investments embodied in the plans expanded aggregate demand hence resulted into severe budget deficits. The expansionary government activities were financed resorting to central banking by printing money, as consequence of this, the inflation reached 26% in 1977/78, and GDP growth rate declined to –2% in the same year. The government budget balance also deteriorated from a positive balance in 1970 into a deficit 5% of GDP in 1977/78. the trade deficit also deteriorated from 2% of GDP in 1970 to 8% of GDP in 1977/78.

4.5 Sudan's Experience with International Monetary Fund and World Bank's Stabilization and Structural Adjustment Programs.

The structural adjustment program was adopted in expectation of resolution of debt crisis that hard hit most developing countries in the 1980s. The causes of the debt crisis in these countries were supposedly ; the oil crisis of the 1970s, unsuccessful lending policies, increase in the interest rate in the United States,

falling prices of commodities prices and large withdrawal of funds from indebted countries.

Moreover it was claimed that during the early part of 1970s, the oil producing countries under the umbrella of the Organization of Petroleum Exporting Countries (OPEC) teamed up to increase the price of oil so as to gain additional revenue. The additional revenue was then invested with banks in developed countries. The banks later on lend money to developing countries to purchase goods from the developed countries. By so doing, the loans lent to these developing countries helped to arouse production in the developed countries .During this period, both the International Monetary Fund and the World Bank advocated for debt as the gateway towards the much needed growth. Consequently, the politicians borrowed huge sums of money without any conceived plan to invest the money into a productive project that will generate the much needed growth ,

Sudan adopted stabilization and adjustment policies in 1978. These programmes of reforms started after the government requested IMF financial assistance to tackle its internal and external macroeconomic balances. However, the seeds for the Sudan's poor macroeconomic performance in the 1980s and 1990s appeared to have been sown in the early 1970s when the government attempted to boost the economy through nationalization and substantial low-productivity investment financed by foreign borrowing.

The IMF[1] (1977) diagnosed the causes of the crisis by noting that "over past few years a number of external developments affecting budgetary operations, credit expansion and cost-price relationships have resulted in structural disequilibria in the Sudanese economy; these are clearly indicated by the several imbalance in the budget and the balance of payments. In addition to taking steps to eliminate the causes of the imbalances, it has become necessary to take corrective action through

[1] The Monetary Approach to the Balance of Payments (Washington, DC: IMF).

depreciation of the Sudanese pound. A principal aim of such a reform is to accelerate the rate of growth by rationalizing the allocation of the resources so as to best utilize the Sudan's present and potential comparative advantage particularly in agriculture and agro-industries" (quoted in Ali[1], 1984). Also during the same period the world bank described the status of Sudanese economy as " Started to experience a wide range of interdependent structural problems which created a serious challenges for economic development effort during that period. They included, among others, the imbalance between saving and consumption, inefficiencies in production, the large deficit on external account, and the imbalance between public revenues and expenditures.

Subsequently, in mid-1978, to address these economic challenges , the government negotiated and adopted the first series of stabilization and economic adjustment programs with the International Monetary Fund (IMF) and the World Bank (WB). Under IMF (1984: 34-39) the reform policy actions adopted by the Sudan economy under the reform program of IMF can be summarized by sectors as follows: in agricultural sector the policy package included exchange rate adjustment for export crops; eliminations of export taxes, cost recovery and reform of pricing system to eliminate subsidies, physical rehabilitation and inputs procurement plan, and institutional reform of public enterprises, physical rehabilitation, privatization and management contracts.

In government sector, the policy actions included increasing taxes on imports, increasing departmental fees and charges, increasing excise taxes and duties on cigarettes, liquor, and luxury imports, increasing the price of sugar and petroleum products and cement products, raising charges for public utilities, reducing credit ceiling and increasing interest rate.

[1] The Sudan Economy in Disarray: Essays on the IMF Model, Khartoum, Sudan.

In the external sector the policy action included liberalization of foreign trade transactions, creating market for foreign exchange, and devaluation of Sudanese pound with aim of improve improving balance of payment position particularly through boosting exports and reducing exports. .

In spite of adopting and implementing the IMF and World Bank sponsored programs the economic and social condition in Sudan deteriorated even further in the period between 1978/1984. Hassan[1] (1999) for example, argued that "the reform period (1977/78 – 1984/85) was one of extremely hard economic performance period. The country's GDP declined in real terms; development expenditure as percentage of GDP dropped by 50 percent, the budget deficit tripled reaching 15 percent of GDP and money supply increased from 23 percent of GDP to 35 percent, giving rise to an average annual inflation in excess of 30 percent over the period in question". During the same period, a program known as the Economic Recovery Program (ECR[2]P) [i]was designed for the period the period (1978-85). The key policy actions were devaluation of Sudanese pound and implementation of a tight demand management. The potential corrective effects of these policies were, however undermined by mounting inflationary pressure, increasing government budget deficit, rising trade deficit, and accelerated foreign debt . accordingly the economy remained very weak with a persistent macroeconomic instability. The main impediment for the SAP to achieve the desired outcome sin Sudan were the

[1] The Macroeconomic Effects of Foreign Capital, Liberalization and Reform in Sudan: An Empirical Investigation", Journal of Economic Development, Vol. 24 .

[2]The broad principles of SAP or ECRP is belief in the superiority of the market forces over economic planning. They are similar in their essential components. however , ECRP become more current in the aftermath of growing resistance to the implementation of SAP by some African countries .It is therefore appears that the change in the terminology arose just from political concern by some government seeking to put as positive public gloss as possible on necessity of economic change to be brought about by FMF and WB sponsored SAP.

approach of implementation and the uncertainty about the policy and the existence of the government itself (Denu[1] 2011).

4.6 Critical evaluation of Structural adjustment polices in case of Sudan:

In this section will present and review critically some of the empirical studies related to Sudan's adjustment policies. With particular emphasis on devaluation and exchange rate, privation and reduction of government expending.

Reduction of government spending was mainly directed to reduce spending on social services; especially health and education, water and other critically needed goods and services. Most of these important services were provided by the private sector at levels of prices that most people cannot afford. With no matching increases in the level of wages and salaries, the fixed salaried people, middle class and small-scale producers as well as a large number of unskilled and seasonal labor have become net losers and their incomes and consumption positions worsened joining the masses of the poor people. [Atabani[2], 2004,]

On improving the foreign trade balance, the objective of devaluation of the Sudanese pound as proposed by advocates of the structural adjustment policies was to promote exports and reduce imports conceivably to correct balance of trade deficit. The policy assumed that devaluation result in Sudanese products being cheaper to foreigners consequently they increase purchase of Sudanese goods hence the volume of exports increases on the other hand devaluation makes foreign good expensive hence reduce the volume of imports of goods and services .Hence it was anticipated that the overall effect of reduction in import and increase export result into improved balance of payment through improved trade balance and eventually result into improved performance of the economy. One of the early and most influential studies that criticized the IMF/World Bank

[1] The Role of Institutions in Improving the Performance of Investment in Sudan After the Comprehensive Peace Agreement : Berlin:Lit-Verlag.

[2] Sudan: Interim Poverty Reduction Strategy Paper, 2004-2006, December 2003/January 2004, Draft.

proposed devaluation (which was central for reforms) in 1977 was prepared by Hassan (1977) who was an advisor to the Ministry of Finance. The main thrust of this criticism was the price elasticity of demand for Sudan's exports and imports (the Marshal-Lerner condition). His calculation for these elasticities yielded very low values (the weighted price elasticity for exports was found to be (-0.7507) and that of imports elasticity was as low as (-0.11258). He concluded that the argument for devaluation of the Sudanese pound no longer stood. At best, the results rendered the devaluation proposal dubious. He also argued against the assumed supply response to devaluation stating that:

"The numerous rigidities that characterize the economy of Sudan, together with the highly inelastic nature of the supply of the agricultural products which dominate Sudan's exports mitigates against an immediate or even medium term increase in exports". (Cited in Ali[1], 1985).

He added: "The demand for imports is likely to be inelastic in the short term, as imports have already been reduced to essentials by quantitative restrictions; and hence the devaluation of the exchange rate to manipulate imports prices is not likely to produce the desired results in terms of reduced imports volume."

However, it could be argued that the government intervention to reduce import volume has created a great distortion in the economy. The problem of appropriate import structure was not addressed. The government subsidies for imported input, particularly oil and machinery, led to bias towards imported input and against local inputs and hence the choice of the wrong type of technology for production.

Hassan's[2] (1977) alternatives for devaluation included (some sort of structuralists' package): reviewing tax on cotton, curtailing government expenditure, downwards adjustment for wages and salaries in the public sector, imposition of new import

[1] Bidi 133
[2] Bidi 133

duties, and reducing central government budgetary transfers to the local government.

In defense of their position, and as a means of determining the appropriate level of devaluation required, the IMF/World Bank relied on a number of studies deriving and comparing indices of the relative competitiveness of Sudan's main crops. Most notable in this regard was the work of Nashashibi[1] (1980), who set out to determine the appropriate real exchange rate adjustment to promote exports, and to complement other IMF/World Bank-sponsored supply side measures that had been proposed for Sudan in 1978; the so-called 'supply side approach' to exchange rate determination. Using data for 1972/73 and 1976/77, Nashashibi found that competitiveness of the Sudan's exports had deteriorated from a weighted average of US $ 2.68 to US $ 2.44, per unit of domestic resources used. On the bases of these calculations, he concluded that a devaluation of the Sudanese pound from Ls1=US $ 2.5 to Ls 1=US $ 2.00 (namely, of 20 percent) in 1978 had been justified. He argued that this was not only imperative to increase the supply of the Sudan's exports, but it would also have the effect of stimulating the output of all other goods in the economy (Brown, 1992).

Both Hassan's[2] (1977) study and the IMF/World Bank study reflected important factors affecting the Sudanese economy. On the one hand, Hassan (1977) pointed to the structural rigidities that undermined the ability of the economy to respond effectively to price incentives. On the other hand, the IMF/World Bank studies stressed the overvaluation of the Sudanese pound as damaging export performance. In theory, the elasticity approach which was used on the above analysis was criticized for focusing exclusively on the trade balance and ignoring the likely effects on the domestic economy of the exchange rate devaluation. Moreover, for

[1] Adjustment Policies and the Current Account Balance: Empirical Evidence from Sudan https://ageconsearch.umn.edu/record/30546/

[2] Ibid 133

the devaluation policy to be effective, a nominal devaluation would have to bring about real devaluation which was a question needing further empirical investigation. For the structuralists, even if the devaluation improves the balance of payment, it would tend to have contractionary effects on the economy.

A number of studies adopted the structuralists' approach to criticize the IMF/World Bank policy in Sudan, in particular, the orthodox presumption that a devaluation typically improves international competitiveness and expansionary. The structuralists' arguments that short-, medium-, and long-term effects must be distinguished, and that devaluation may lead to an increase in unemployment and stagflation in the short-run; these arguments are found in the studies of Hussein (1985a; 1985b), Hussein and Thirlwall[1] (1984), Ali (1985a, 1985b) and Branson and Macedo (1989).

However, El Badawi's (1992), study on the equilibrium real exchange rate in Sudan for the period (1970-1989) has found that "a high though sustainable total domestic absorption or a well-maintained restrictive foreign trade regime run the risk of trapping an economy into a lower level of competitiveness". Moreover, his interpretation for the short-run effect of domestic absorption is that "a 100 percent devaluation will lead to a 26 percent real depreciation in the short-run" (see El Badawi 1992).

Other studies explaining the extent, nature and results of IMF/World Bank involvement in Sudan include Ali[2] (1985), Brown (1988), Hussein (1988), Wohlmuth and Hanshom (1987) and Hassan (1994). The authors cite a long list of economic indicators attesting for the worsening of the economic crisis in Sudan despite the implementation of the stabilization and structural adjustment

[1] 1. "The IMF Supply-Side Approach to Devaluation: An Assessment with Reference to the Sudan," Oxford Bulletin of Economics and Statistics, Department of Economics, University of Oxford, vol. 46(2), pages 145-167, May.

[2] 1. The Sudan Economy in Disarray: Essays on the IMF Model, Khartoum, Sudan.

programmes . However, these studies tend to use short periods for their analysis and focus on the effects of one or perhaps a few reform measures, the devaluation issue in particular.

Hassan et al (1995), conducted an empirical investigation into the effect of the entire reform package on economic growth, investment, industrialization and export and export growth. His work was based on the simultaneous equation model developed by Salvatore (1983) to investigate the relation between trade, industrialization and liberalization for Sudan. Hassan et al (1995) found that the IMF/World Bank programmes in Sudan had favorable effects on investment and industrial production, but at the same time, had negative effects on economic growth. The study suggested that reform policies that do not carefully evaluate the country's productive capacity have the potential of distorting efficiency thereby inhibiting rather than promoting growth. They concluded that "the evidence reported in this paper suggests that general policy prescription as appears to be the norm with the IMF and the World Bank can create disastrous results".

It appears that the study has gone beyond the general critique against the IMF/World programmes in Sudan that focused on the deficiency and superficiality of the programmes' design4 and argued that the IMF/World Bank package could be disastrous to the economy. However, the study did not isolate explicitly the influence of the exogenous non-policy factors, such as weather and terms of trade, from that of the programme.

El Hassan's (1993) study assessed the IMF adjustment programmes undertaken by Sudan during the period 1978-1985. Using regression analysis, before-and-after, relative, as well as target-versus-actual tests were applied to detect the effects of the programmes on the policy targets. The results showed that the IMF policies have had a negative, albeit insignificant, effect on both balance of payments and

economic growth and significant negative effect on inflation. His test results were, in general, supportive of the structuralist claims against the IMF programmers.

In brief, with the exception of a few, the studies on Sudan SAPS's effectiveness showed that these programmers either failed to improve the economic situation or made it worse.

Other related Sudanese studies include Henley et al (1980), Abuel Nur [1](1981) and Farzin (1988). Most of the earlier studies concentrated on the effect of the foreign capital flow on domestic savings. These studies include Henley et al (1980), Abuel Nur (1981) and Farzin (1988). Generally, the studies tend to suggest that aid should be suspended either because it had not supplemented domestic savings at all or because it substituted a proportion of them. However, some of these studies used a miss-specified model due to the misspecification in Griffin's model itself5. Yet none of the above studies have tried to link aid effectiveness to the IMF/World Bank policy package associated with it. In our evaluation of the policy effectiveness, aid effect is not considered explicitly but assumed to be captured by the changes in macroeconomic policy indicator.

4.7 National Economic Salvation Program (NESP)

Following the political change of June 1989, the new government adopted a reform program under name of National Economic Salvation Program (NESP) for the 1990-1992/93 which was subsequently merged into the ten-year Comprehensive National Strategy (CNS) for the period 1992/93-2002/03 the supposed objectives of the program were assumed to include giving special priority to agricultural sector to achieve self-sufficiency and food security, liberalizing the economy, deregulating prices control and removing administrative and legal barriers in order to stimulate the agricultural exports, enhancing the role of private enterprises in the

[1] Adjustment Policies and Current Account Balance: Empirical Evidence from Sudan", IDPM – University of Manchester.

economy including health, education and utilities; and encourage saving by reforming the banking sector and introducing new saving instruments. (World Bank, 2003).

Again as from 1997, Sudan began to cooperate with the IMF by implementing macroeconomic reform within the framework of a medium term staff-monitored program (MTSMP) Two successful staff-monitored programs were implemented in 1997 and 1998 . this programs had built upon the development made in decontrolling the economy during the period of (SAPs) 1992-96 .As a result Sudan was able to achieve and sustain high growth rates in the 1990s and 2000s within a framework of very tough self-imposed and monitored Structural Adjustment Programs (SAPs). This program included : streamlining investment procedures , initiating a public sector reform and privatization program, initiating major agricultural reform, eliminating not-targeted consumer subsidies.

The real gross domestic product (GDP) growth rate, on average, for the period 2000-2008, amounted to 7.7% annually, varying between 10.2% in 2007 and 6.1% in 2003. Growth is estimated at 4.9% in 2009 and projected to be around 5% in 2010. The sustained growth rates of GDP for the period 2000-2008 were achieved. Within a context of stable macroeconomic policies and relative controlled and carefully guided inflationary pressures (Ahmed, 2010). Also he continued saying that the government was able to stabilize prices and sharply reduce inflation from a record high of 130.6% in 1996 to a single digit by the end of the 1990s. Since 2000, oil and related sectors have been driving GDP growth, despite their relatively smaller shares in GDP composition. Agriculture (composed of irrigated, traditional rain-fed and mechanized crops, livestock and forestry sub-sectors) contributed more than 40% of GDP in the 1960s, 1970s and 1980s but declined to more than 36.2% and 35.9% in 2007 and 2008, respectively. Insert Table (1) to show GDP

composition by sectors. Insert another two improvement in the GDP growth rate as result of Implementing self-imposed SAP.

Another key change implemented by the government of Sudan under supervision of IMF was implementation of a medium-term Financial Adjustment and Structural Reform Program (MTFASRP) for the period 1997-2011 . The targets of this macroeconomic management approach were restoring macroeconomic stability, creating a better environment for private sector's economic initiatives, addressing the post-conflict challenges of reconstruction , rehabilitation activities in the conflict affected area and addressing issues of resettlement and sustainable return of internally displaced person to their place of origin including creating attractive by providing basic social infrastructure. Additionally , substantial fiscal policy measures, combined with monetary and exchange rate reforms as well as trade liberalization reforms , were undertaken over the period 1999-2011 (Alamir et al.,2014).

Following the economic shocks in the aftermath of the secession of south Sudan and the consequent loss of approximately 75% of the oil revenue oil , the government of Sudan attempted to introduce some comprehensive reforms to alleviate the deterioration of economic growth performance and the consequent worsening of government budget position .A first attempt was made by formulating a three year Salvation Economic Program (2011 -2013)with main objectives to reverse the trade deficit by actively promoting imports substitution and increasing exports. The plan aimed to promote self-sufficiency by 2013 on a number of agricultural products such as wheat, sugar, and cooking oil as well as increasing exports of cotton, processed meat, gum Arabic and gold (World Bank, 2013).

Additionally, and with the view to addressing the aforementioned structural constraints and challenges, the government of Sudan formulated an Interim Poverty

Reduction Strategy Program (I-PRSP) for the years 2011-2013 and a five-Year National Development Plan (FYNDP) for the period 2012-2016.Both programs seek to promote economic growth, build institutional capacity and strengthen governance and are, therefore, meant to be complimentary and mutually reinforcing. The (I-PRSP) had four main pillars;(i) strengthening governance and institutional capacity (ii) reintegration of Internally displaced Persons IDPs; (iii) developing human resources, and (iv) promotion of economic growth and employment creation . The NDP on the other hand, focuses on five priority area: (i) governance and administration; (ii)building institutional capacity; (iii) economic growth and sustainable development; (iv) social development and culture; and (v) consolidation of the value system,(sw date 8 /10/2017)

The preceding is a brief outline of the Sudan economic structure, economic and Social development plan; corrective macroeconomic policies and Program that had been undertaken by successive governments of Sudan. In all these period of the post-independence of Sudan the low and fluctuating growth has been the serious economic problem that retarded economic development . Ali and Elbadawi (2002) based on trend growth rate calculations reported that the economic growth in Sudan has been volatile over the past forty years or since the independence in 1956. They have used trend growth regression to show that the country has alternating sub-periods of negative and positive growth. As shown in table (2), the negative annual growth periods are the longest ones, but with relatively low growth rates, by contrast, the positive growth sub-periods are shorter with relatively higher per-capita growth rates. They further argue that “for the whole period there was a positive but insignificant growth rate".

Table (4.5); Sudan growth Episodes: Per capita GDP growth rates (1960-1998)

Growth Episodes	Trend growth rates%	Average growth rates%	Budget Deficit/GDP (%)
1960-1973	-0.89	-1.43	4.31
1974-1983	1.27	2.57	6.64
1984-1994	-0.11	-0.60	5.62
1995-1998	2.96	2.60	2.00
1960-1998	0.02	0.60	5.29
1970-2003	-	0.08	1.0

***Source**: Ali and Elbadawi (2002):*

In answering the questions of "why has Sudan grown so little Elbadawi (1996 b) argues that in addition to solid macroeconomic, and institutional environment as well as rapid accumulation of human and physical capital, growth has also been linked, in modern growth literature, to factors associated with geography and ecology , demographic transition and political and criminal violence. He further asserts that the last three factors are strong determinants of growth in Sudan. It is well known those wars and civil unrest cause immediate decline in output, if they persist for long time they could destroy the physical, social and the human capital of the society. Since the independence Sudan has been suffering from effects of war and civil conflicts. The civil war continued for about ten years (1962-1972), then resumed in 1983 after a break of about eleven years and continuing in some parts of the country up to the present date. The situation has been particularly aggravated by out brake of war in Darfur in 2003.

The above argument is supported by guidelines for fiscal adjustment released by IMF in 1995: it states along the same line that "the continued fiscal expansion leads to further deterioration in the underline balance of payments, with accelerating inflation, loss of confidence contributed to reduced inflow of capital, increasing the resource constraints. Vicious circle can then arise whereby these policies lead to

erosion of the resources base (particularly important) and the difficulty of containing the fiscal deficit increases. At this point the country has both problem of low, and negative and underlying external adjustment problems.

CHAPTER FIVE

MODEL SPECIFICATION AND ANALYSIS

Chapter Five

Model Specification and Analysis

5.1 Preface:

An economic model is a simplified description of reality, designed to yield hypotheses about economic behavior that can be tested. An important feature of an economic model is that it is necessarily subjective in design because there are no objective measures of economic outcomes. There are two broad types of economic models— theoretical and empirical. An empirical model aims to verify the qualitative predictions of theoretical model and convert these predictions to precise and simple numerical outcomes. An economic model generally consists of a set of mathematical equations that describe a theory of economic behavior. A model may have various exogenous variables, and those variables may change to create various responses by economic variables. In general terms, economic models have two functions: first as a simplification of abstraction from observed data, and second as a means of selection of data based on a paradigm of econometric study. Macroeconomic modelling is generally motivated by two objectives: forecasting and More significantly, policy analysis. In pursuit of these objectives, every model should ideally satisfy four criteria. First and foremost, it must fit into a theoretical framework. Second, the actual specification of the model must reflect a clear understanding of the contextual framework within which policies are formulated and executed along with an envisaged process of adjustment. Third, it is essential that the model is built on a firm and rich data base and, finally, the estimated structural model must adequately utilise the accurate econometric methodology.

5.2 Description of the Model of the Study.

The econometric of this study will measure and analyze empirically the extent to which budget deficit in Sudan could be influenced by key macroeconomic variables and how budget deficits in turn can influence the rate economic development in Sudan for the period 1980 to 2017. To achieve this objective the study has formulated a linear equation. The process of construction of the model, formulation of the equation and selection of dependent and independent variables have been based on economic theory and relevant empirical literature on determinants of budget deficits. The construction of the model involves identification of variables, setting the variables in a mathematical form and hypothesize the prior signs of parameters of the explanatory variables.

5.3 Choice of Variables and Specification of equations.

As the study aims to identify the key determinants of budget deficits and explain how budget deficit can affect economic development in Sudan for the period 1980 - 2015, this section defines the relevant variables of the study. In model Building process, once the problem is carefully formulated and objectives have been decided, the next question is to choose the relevant variables. It must be kept in mind that the correct choice of variables will determine the statistical inferences correctly.

Variables of Determinants of Budget Deficit.

BD= (Dependent variables) Government Budget Deficit. It is the gap between the government's total spending and the sum of its revenue receipts and non-debts capital receipts.

RGDP is real Economic Growth Rate used as a proxy for economic development .It is the rate at which a nation's Gross Domestic product (GDP) changes/grows from one year to another. GDP is the market value of all the goods and services produced in a country in a particular time period

EXCH = **Exchange rate** is the rate at which one currency will be exchanged for another. It is also regarded as the value of one country's currency in relation to another currency. In the Sudan, It is well known that government intervention in exchange rate market leads to emergence of parallel or black market for foreign exchange, which has been considered as one of widespread phenomena in developing countries. It is also recognized that parallel exchange rate has a negative impact on the macroeconomic performance, since parallel premium indicates distortion of market prices,

INF is the Inflation rate and it is defined as a continuous and persistently sustained rise in the general price level, leading to continuous fall in the purchasing power of a given monetary unit. In other words, the generalized purchasing power of a given unit of money declines continuously so that it cannot purchase the same basket of goods and services over a given range of period. The usual approximate measure of inflation is the consumer price index

X= Total Exports are total values of the goods and services produced in Sudan and exported to another countries or purchased by citizens of other counties .

The prior signs of the coefficients of the explanatory variables of equation (1) are expected to be :-

Rise in inflation rate increases the budget deficit ,while increase in Growth Rate of Gross Domestic Product, Exchange rate and Total Export are expected to negatively associated with the budget deficit .

The budget deficit could reduce the surplus available to an economy hence retards economic growth.

As it is mentioned in the previous two chapters, in explaining the impact of government budget deficit on economic growth, the conventional analysis of budget deficit demonstrates the possible channels through which budget deficit could affect economic growth. Under the conventional view the persistent budget

deficits will decrease the national saving, which will in turn leads to reduction in domestic investment and increase in borrowing from abroad. Also, it is argued that lower budget deficit will lead to lower interest rate, lower interest rates lead to more investment, more investment leads to higher production, and the higher production leads to higher growth rates of the economy

5.4 Data of the Study.

After appropriately descripting the model, selecting the variables and specifying the equation of the study; it is vital to obtain relevant annual time series data that reflect the functional relations of the model. Thus, to arrive at stable, suitable and accurate results a relatively long run time series data covering the period of the study (1980-2017) is obtained from Sudan National Bureau of Statistic and Central Bank of Sudan.

5.5 Testing of the Data of the Study.

This section will review some econometric tests of economic models with respect to the impact of key macroeconomic variables on budget deficits during the study period.

5.6 Testing Stationarity using Augmented Dicky Fuller Test.

Stock & Watson[1] (2007) say that the assumption that the future will be like the past is an important one in time series regression. If the future is like the past, then the historical relationships can be used to forecast the future. But if the future differs fundamentally from the past, then the historical relationships might not be reliable guides to the future. Therefore, in the context of time series regression, the idea that historical relationships can be generalized to the future is formalized by the concept of stationary. Most macroeconomic time series are trended and therefore in most cases are nonstationary. The problem with nonstationary or trended data is that the standard ordinary least squares (OLS) regression procedures can easily lead to

[1] Stock, J. H., & Watson, M. W. (2007). Introduction to econometrics. Boston: Pearson/Addison Wesley.

incorrect conclusions. Broadly speaking, "a time series is said to be stationary if its mean and variance are constant over time and the value of the covariance between the two periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed" (Gujarati, 2011).

In its simplest terms a time series Yt is said to be weakly stationary (hereafter refer to stationary) if:

(a) Mean: E(Yt) = (constant for all t);

(b) Variance: Var(Yt) = E(Yt-)2 = 2 (constant for all t); and

(c) Covariance: Cov (Yt, Yt+k) = k = E[(Yt-)(Yt+k-)]

Why are stationary time series so important?According to Gujarati[12] (2011), there are at least two reasons. First, if a time series is nonstationary, we can study its behavior only for the time-period under consideration. Each set of time series data will therefore be for a episode. As a result, it is not possible to generalize it to other time periods.

Therefore, when such non-stationary time series (DSP) are used in estimation of an econometric model, the Ordinary Least Square (OLS) traditional diagnostic statistics for evaluation of the validity of the model estimates such as, coefficient of determination (R2), Fisher's Ratio(F-Statistic), Durbin-Watson(DW-Stat), t-statistic etc. become highly misleading and unreliable in terms of forecast and policy. Indicating that for forecasting or policy analysis, such (nonstationary) time series may be of little practical value. In such series, the mean, variance, covariance and autocorrelation functions change overtime and affect the long run development of the series. Thus the presence of unit root in these series leads to the violation of assumptions of constant means and variances of OLS. However, this review dwells

[1] Econometrics by Example, 1st Edition, Palgrave Macmillan.

[2]

on Difference Stationary Process rather than Trend Stationary Process since most time series are Difference Stationary Process.

Second, if we have two or more nonstationary time series, regression analysis involving such time series may lead to the phenomenon of spurious or nonsense regression results. Granger and Newbold (1994) proposed the following rule of thumb for detecting spurious regression, if (R-squared) > (DW) Durbin-Watson or R-squared ≈ 1, then the estimated regression must be spurious. Most common tests used to stationarity of time series data are: Dickey-Fuller[1] (1979), Augmented Dickey-Fuller (1981), and Phillips and Perron. This study will use Augmented Dickey-Fuller (1981) to test the stationarity of time series data to be analyzed.

5.6.1 Co-integration Test.

Co-integration refers to a long-run equilibrium relationship between variables. The notion of long-run equilibrium implies that two or more variables may wonder away from each other in the short-run but move together in the long- run (Enders[2], 2010). When variables wander away from each other, the process is known as a random walk. In the long-run however, it may be possible that these variables move in the same direction that is, have a long run relationship. In this case, there may be a linear combination of these random walk processes that is white noise (stationary) and the variables are said to be co-integrated (Enders, 2010) .Co-integration becomes an overriding requirement for any economic model using nonstationary time series data. If the variables do not co-integrate, we usually face the problems of spurious regression and econometric work becomes almost meaningless. On the other hand, if the stochastic trends do cancel to each other, then we have cointegration.

[1] Distribution of the Estimators for Autoregressive Time Series with a Unit Root, Journal of the American statistical association, Vol. 74.

[2]. Applied Econometric Time Series (3d ed.). New York: Wiley. Engle, Robert F., and Clive W. J. Granger. 1987. Co-integration and Error Correction: Representation, Estimation, and Testing. Econometrica 55:251–76.

In econometrics there are many methods of testing existence of long-run equilibrium relationship between variables. The most commonly used tests are ; Engle-granger , Johansen test of Cointegration and Bound test which can be used for both simple and multi variate models.

5.6.2 Method of Estimating the Model;

In their study Dreger and Wolters (2010) utilized the error-correction model to capture the long-run relationship between the variables. However, given the order of integration of the variables in this research, the autoregressive distributed lag (ARDL) approach to co integration was applied. The ARDL approach deals with single co integration and was introduced originally by Pesaran and Shin (1999) and further extended by Pesaran[1] et al. (2001). The authors showed that the existence of a level relationship between a dependent variable and a set of regressors can be tested, when it is not known with certainty whether the regressors are trend or first-difference stationary. They proved that once the order of the ARDL has been determined, OLS may be used for the purpose of estimation and identification. The presence of a unique long-run relationship is crucial for valid estimation and inference. Such inferences on long and short-run parameters may be made, provided that the ARDL model is correctly augmented to account for contemporaneous correlations between the stochastic terms of the data generating process included in the ARDL estimation. Hence, ARDL estimation is possible even where explanatory variables are endogenous. Other econometric advantages of the ARDL method include: (i) the simultaneous estimation of long- and short-run parameters of the model; (ii) the inability to test hypotheses on the estimated coefficients in the long-run associated with the Engle-Granger method are avoided; (iii) all variables are assumed to be endogenous. Whereas other methods of

[1] An Autoregressive Distributed Lag Modeling Approach to Cointegration Analysis" in S. Strom, (ed) Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch centennial Symposium, Cambridge University Press, Cambridge.

estimation require that the variables in a time series regression equation are integrated of order one, i.e., the variables are I(1), only that of Pesaran et al. could be implemented regardless of whether the underlying variables are I(0), I(1), or fractionally integrated.

The ARDL framework is implemented by modeling of budget deficits equation as follows:

$$\Delta lbd_t = a_0 + \sum_{i=1}^{m} a_{1i}\Delta lrgdp_{t-i} + \sum_{i=0}^{m} a_{2i}\Delta lex_{t-i} + \sum_{i=0}^{m} a_{3i}\Delta \inf_{t-i} + \sum_{i=0}^{m} a_{4i}\Delta x_{t-i} + \sum_{i=0}^{m} \Delta lcpm_{t-i} + a_5 lrgdp_{t-i} + a_6 l\exp_{t-i} + a_7 lr\inf a_{t-i} + a_8 x_{t-i} + a_9 lm_{t-i} + \varepsilon_t \quad (1)$$

where a_1 to a_4 represents the short-run coefficients related to the determinants of budget deficits and a_5 to a_9 are the level effects. The long-run coefficients are computed as (a_6, a_7, a_8, a_9)/a_5 and a_5 represent the speed of adjustment to the long-run relationship. The term ε_t is the classical disturbance term with the usual assumptions of zero mean and independent, distribution.

To investigate the presence of a long-run relationship amongst the variables of equation (1) the bounds testing procedure of Pesaran et al is utilized. The bounds testing procedure is based on the F or Wald-statistics, which has a non-standard distribution. The bounds testing procedure involves applying a joint significance test that implies no cointegration, that is,

(Ho = a_5 =a_6 =a_7 = a_8 =a_9 = 0)

Two sets of critical values are computed by Pesaran et al for a given significance level. One set assumes that all variables are I(0) and the other set assumes they are all I(1). If the computed F-statistic exceeds the upper critical bounds value, then Ho is rejected. If the F-statistic falls into the bounds then the test becomes inconclusive. Lastly, if the F-statistic is below the lower critical bounds value, it implies no cointegration.

The study basic employed Views 10. It stands for Econometric Views. it is a statistical package for Windows, used mainly for time-series focused on econometric analysis .E-Views provides sophisticated data analysis, regression, and forecasting tools on Windows-based computers. E-Views enables a quick development of a statistical relation from data and then use the relation to forecast future values of the data. The areas where E-Views has proven to be useful include: scientific data analysis and evaluation, financial analysis, macroeconomic forecasting, simulation, sales forecasting, and cost analysis.EViews10 is a new version of a set of tools for manipulating time series data originally developed in the Time Series Processor software for large computers. The predecessor of E-Views was first released in 1981. Though E-Views was developed by economists with an emphasis on time series analysis, there is nothing in its design that limits its usefulness to economic time series.

5.7 Interpretation of the Regression Results.

After selection of the variables, specification of the equations and estimation of the parameters of model, the result must be evaluated and interpreted according to three standpoints namely economic, statistical and econometric criteria :

5.7.1 Economic Theory.

Economic theory is the most vital criterion that should be used to evaluate and interpret the results of an estimated model. The economic theory refers to specific assumptions about the signs of the parameters to be estimated. These assumptions are used to judge the validity of the estimates from economic viewpoints. Where the economic theory, previous empirical literature and the nature of the phenomenon under study gives an initial idea of the signs of the parameters and their magnitudes.

5.7.2 Statistical Criterion.

After evaluating the estimation results from requisites of economic theory ; statistical measures must also be used to determine to determine:-

1. To determine the stationarity of the variables of the study in order to avoid a spurious regression results.
2. How well the model fits the data as indicated by the value of the coefficient of determination (R-square). e.g. the proportion of the variance in the budget deficit (dependent variable) that is explained by change in the independent variables.
3. Use F statistic to test the joint effect or the significance of all independent variables included in a regression model. Here F-test must be **used** in combination with the p value when you are deciding if your overall results are significant. If the result is determined to be a significant according F-test, it doesn't mean that all the individual variables are significant. Thus T-test is needed to determine the separate effect of each independent variables on the phenomenon (dependent variable) under study.

5.7.3 Econometrics Criterion.

The consequences of model mis-specification in regression analysis can be severe in terms of the adverse effects on the sampling properties of both estimators and tests. There are also equal implications for forecasts and for other inferences that may be drawn from the fitted model. Accordingly, the econometrics literature places a good deal of emphasis on procedures for interrogating the quality of a model's specification. These procedures address the assumptions that may have been made about the distribution of the model's error term, and they also focus on the structural specification of the model, in terms of its functional form, the choice of repressors, and possible measurement errors.

Therefore, this study applies a number of diagnostic tests to verify the validity of the assumptions of the method of the study as well as the desired qualities of

estimated coefficients and problem of specifications that limits the application OLS method .The common specification problems in this regard are ; problem of multicollinearity; autocorrelation and heteroscedasticity .

5.7.3.1 Multicollinearity.

Multicollinearity generally occurs when there are high correlations between two or more independent (explanatory) variables. In other words, this occurs when too many variables have been put into the model and several different variables measure similar phenomena. The existence of multicollinearity affects the estimation of the model as well as the interpretation of the results. However, multicollinearity does not affect the goodness of fit or the goodness of prediction, it can be a problem if our purpose is to estimate the individual effects of each explanatory variable. There are many methods of detecting Multicollinearity. A simple method for detecting multicollinearity is to calculate the correlation coefficients between any two of the explanatory variables. If these coefficients are greater than 0.80 or 0.90 then this is an indication of multicollinearity. Once multicollinearity is detected, the best and obvious solution to the problem is to obtain and incorporate more information, biased estimation, and various variable selection procedures.

5.7.3.2 Autocorrelation.

The classical regression model includes an assumption about the independence of the disturbances from observation to observation. if this assumption is violated the error terms in one time period are correlated with their own values in other period hence resulting into problem of autocorrelation. Also, some time referred to as serial correlation. Consequences of autocorrelation is that is the least square estimators are no longer efficient (e.g. they don't have the lowest variance. More seriously autocorrelation may be a symptom of model miss-specification. Presence of problem autocorrelation can be detected by plotting the residuals against time or

their own lagged values, calculate the Durbin-Watson (DW) statistic or use some other tests of autocorrelation such as the Breusch-Godfrey (BG) test. This study uses DW to detect presence of autocorrelation per the following criterion:

1.If WD= 2 then the value of autocorrelation coefficient = (0), indication of absence of autocorrelation.

2. If WD= 4 then the value of autocorrelation coefficient = (-1), indication of presence of negative autocorrelation.

3.If WD= 0 then the value of autocorrelation coefficient = (+1), indication of presence of positive autocorrelation.

Possible remedies to autocorrelation problem are Considering possible model re-specification of the model: using a different functional form, adding variables, lags etc. If all these attempts of solutions fail, you could correct for autocorrelation using chrane-Orcutt procedure or Autoregressive Least Squares.

5.7.3.3 Heteroscedasticity.

Heteroscedasticity occurs when the constant variance assumption of OLS fails. This happens when variance of the error term changes across different values of the explanatory variables. Consequently, the least squares results are no longer efficient and T- tests and F-tests results may be misleading. Presence of problem heteroscedasticity can be detected by plotting the residual values against each of the explanatory variables or use one of the more formal tests. Possible remedies to this problem are specify the model – look for other missing variables; perhaps take logs or choose some other appropriate functional form; or make sure relevant variables are expressed appropriately. This study uses the Breusch-Pagan (BP) test of the most common tests for heteroscedasticity.

5.8 Data Analysis and Presentation of the Estimation Results.

This section covers methods used in analyzing the time series data and estimation results of the model which include testing the stationarity of the time series data

using Augmented Dicky Fuller test, cointegration test results as well as the results of estimation of the model.

5.8.1 Descriptive Statistics for Dependent and Independent Variables of the Study.

The study employed descriptive statistics in its initial stage of data analysis to describe the basic features of the data of the study period. The mean, median, standard deviation maximum and minimum, and skewness kurtosis. They provide simple summaries about the data distribution and the measures. The descriptive statistic of data of the study period (1980 -2017) is tabulated as percentage of GDP in the table no. (5.1)

Table No (5.1). Descriptive statistics of study variables: Means, Standard Deviations, and Minimum; Maximum Value and kurtosis.

Variable	Mean	Maximum	Minimum	Std. dev.	kurtosis
BD	-0.014	0.01	-0.05	0.01	6.25
RGDP	4.52	14.22	-6.28	4.54	3.37
Inf	37.27	159.26	1.60	35.67	5.45
Exch.	1.67	6.22	0.01	1.81	3.43
X	10.38	24.09	3.33	5.84	2.35

Source: Own calculation from the results of E-view 2019.

From table (5.1) the following graphical presentation of each individual variables of the study

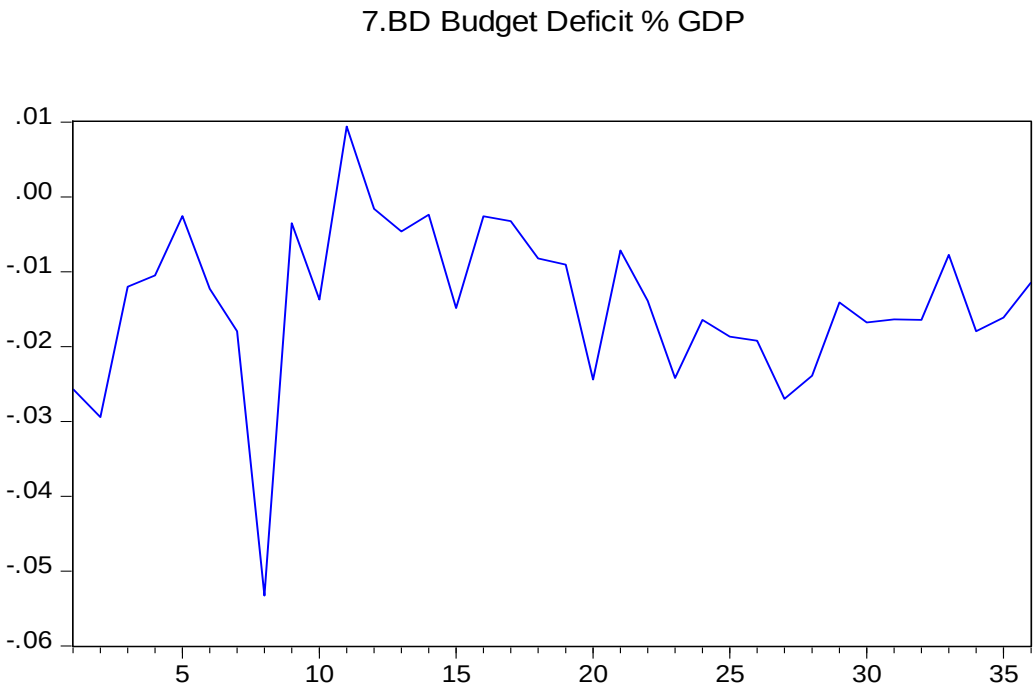

Figure 5.1

Source: Own graphical presentation of data on budget deficit as percentage of GDP applying Views software.

The descriptive statistic table shows that the mean value of the budget deficit during the study period (1980-2017) is (-0.014), with a standard deviation of (0.01) and a maximum value of (0.01) million SDG and a minimum value of (-0.05), and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (6.25).

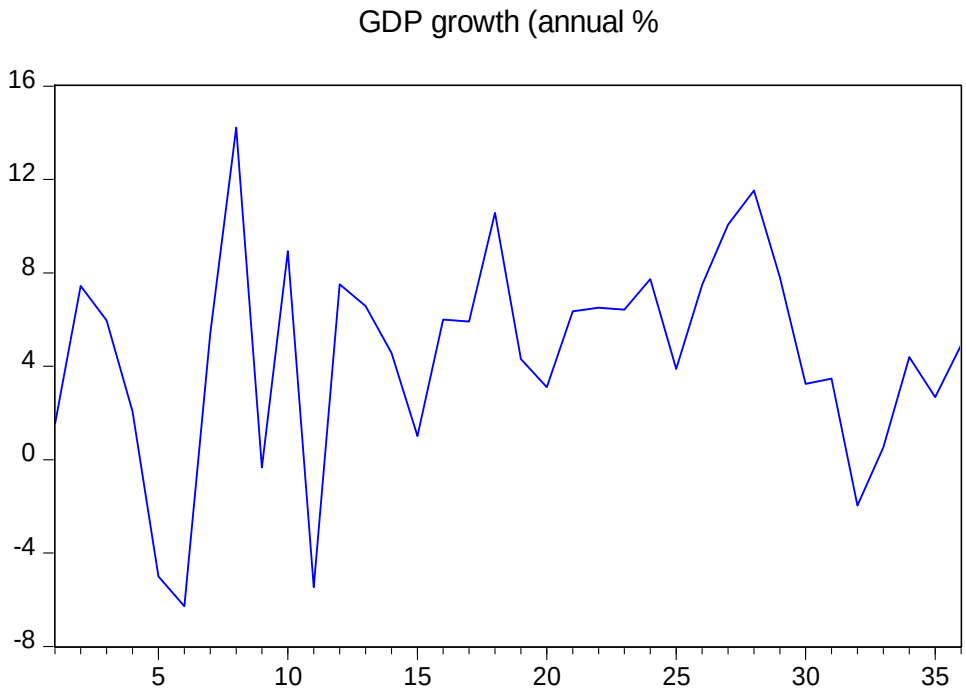

Figure 5.2

Source: Own graphical presentation of data on GDP growth rate applying EViews software.

The descriptive statistic table shows that the mean value of growth Rate Of Growth Domestic Product (RGDP) during the study period (1980-2017) is (4.52), with a standard deviation of (4.54) and a maximum value of (14.22) and a minimum value of (-6.28), and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (3.37).

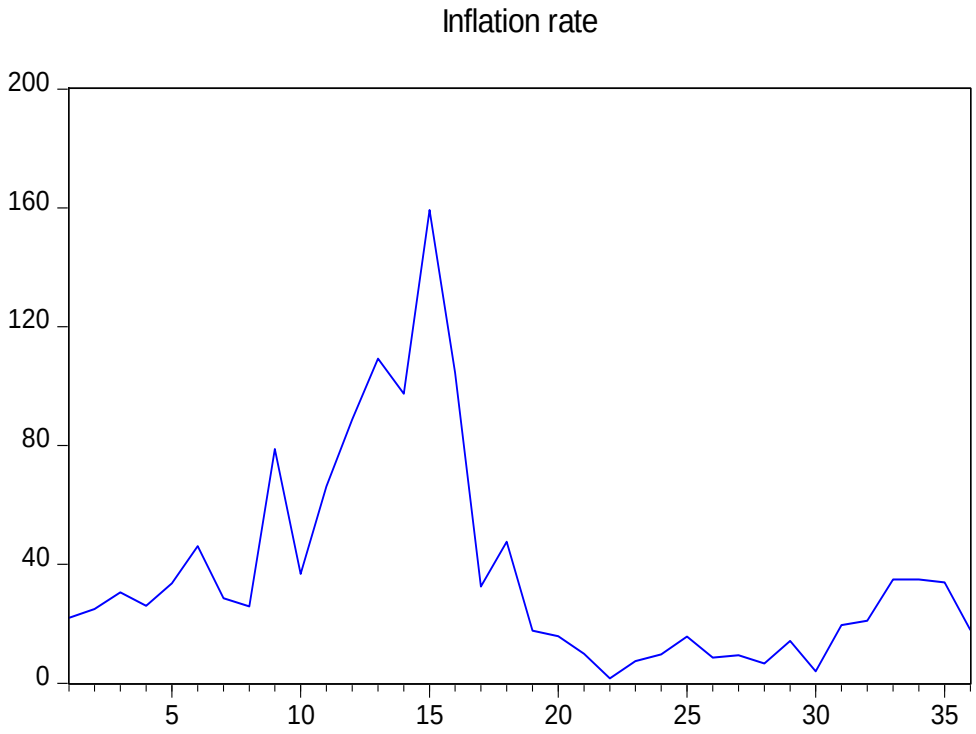

Figure 5.3

Source: Own graphical presentation of data on inflation rate applying EViews software.

The descriptive statistic table shows that the mean value of the inflation rate during the study period (1980-2017) is (37.27) million SDG, with a standard deviation of (35.67) and a maximum value of (159.26) and a minimum value of (1.60), and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (5.45).

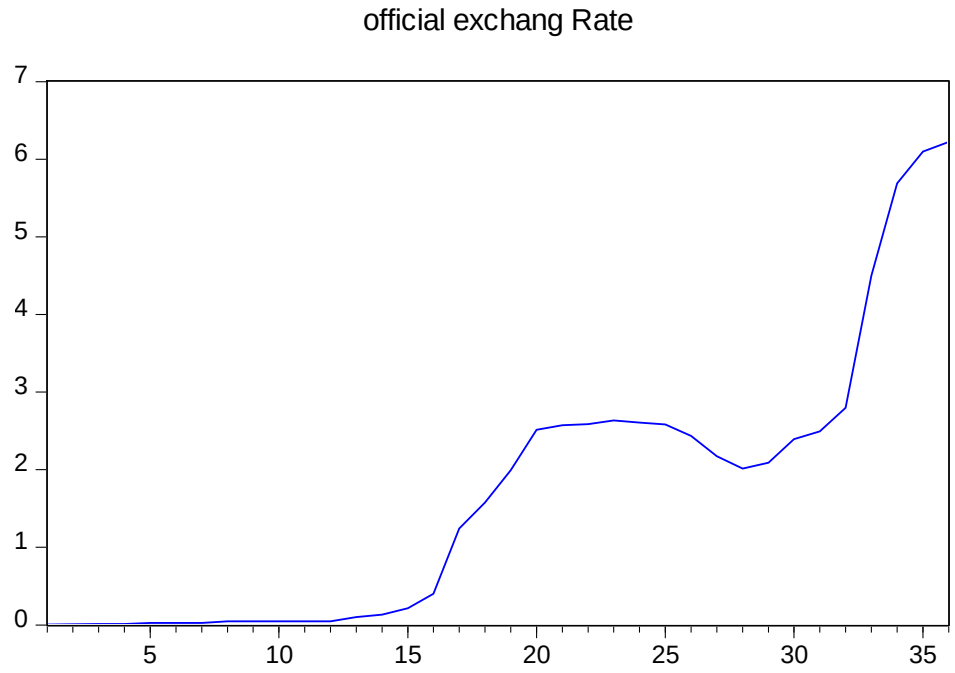

Figure 5.4

Source: Own graphical presentation of data on official exchange rate applying EViews software.

The descriptive statistic table shows that the mean Value of the official Exchange rate ` during the study period (1980-2017) is (1.67) SDG, with a standard deviation of (1.81) and a maximum value of (6.27) and a minimum value of (0.01), and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (3.43).

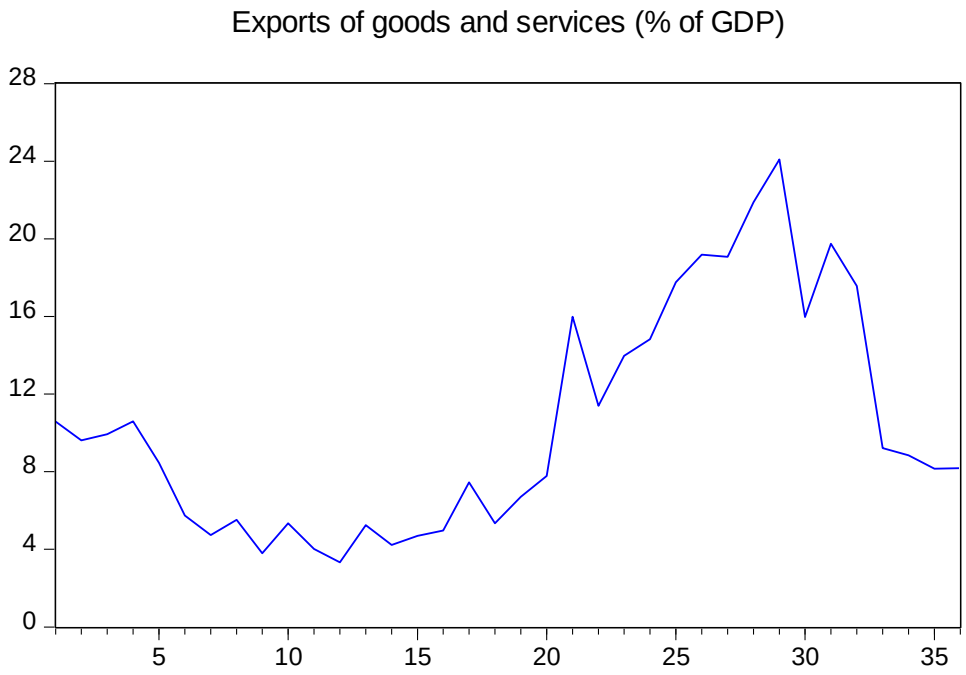

Figure 5.5

Source: Own graphical presentation of data on exports of goods and services as % GDP applying EViews software.

The descriptive statistic table shows that the mean variable of the budget deficit during the study period (1980-2017) is (10.38) million SDG, with a standard deviation of (5.84) and a maximum value of (24.09) and a minimum value of 3.33) million SDG, and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (2.35).

Figure 5.6

Source: Own graphical presentation of data on import of goods and services as % GDP applying EViews software.

The descriptive statistic table shows that the mean variable of the budget deficit during the study period (1980-2017) is (15.59) million SDG, with a standard deviation of (5.63) and a maximum value of (28.40) million SDG and a minimum value of (7.06) million SDG, and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (2.40).

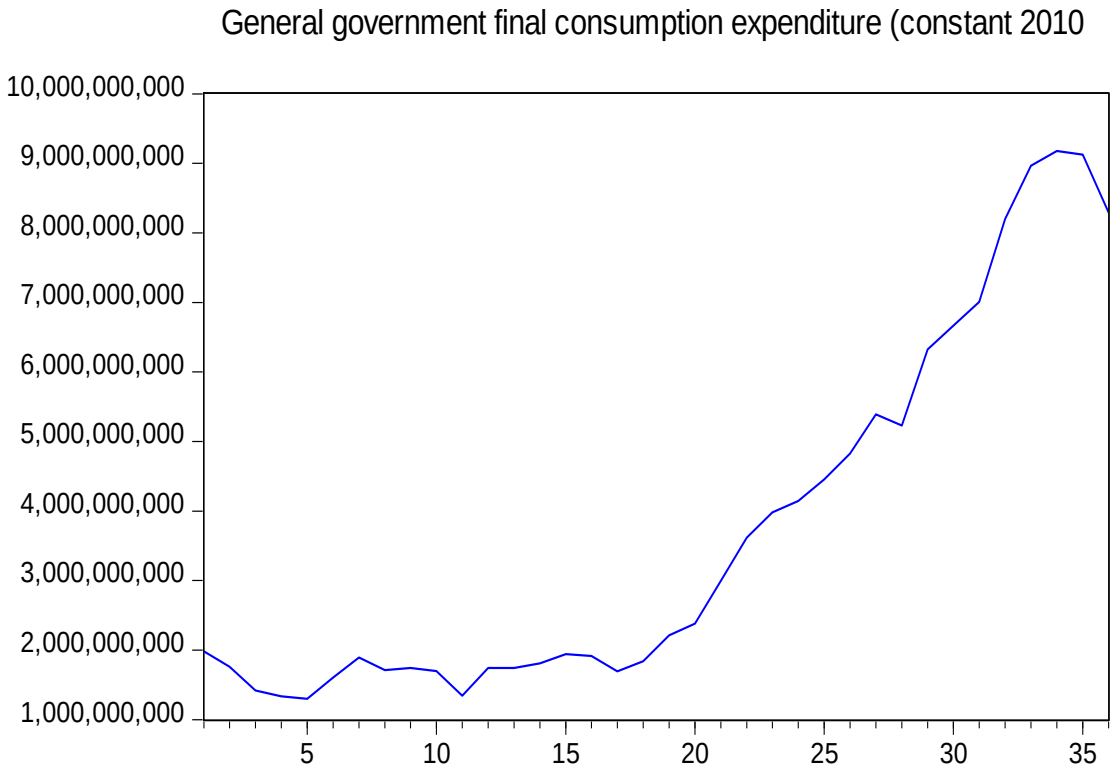

Figure 5.7

Source: Own graphical presentation of data on government expenditure applying EViews software..

The descriptive statistic table shows that the mean variable of the budget deficit during the study period (1980-2017) is (2.56) million SDG, with a standard deviation of (2.26) and a maximum value of (7.01) and a minimum value of (4.97) million SDG, and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (2.19).

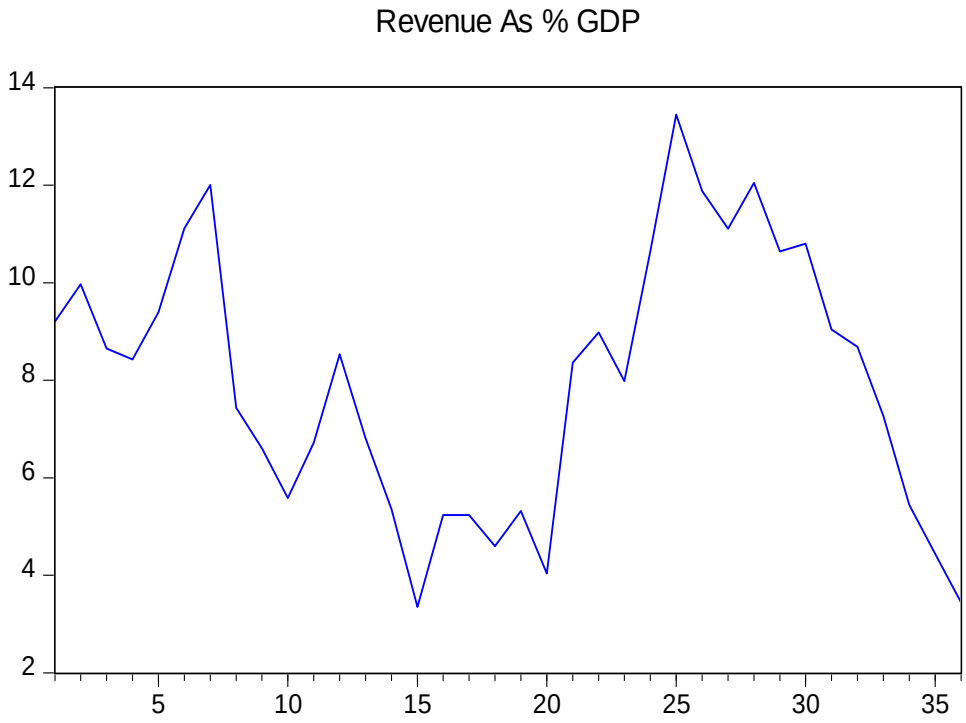

Figure 5.8

Source: Own graphical presentation of data on government revenues as % of GDP applying EViews software.

The descriptive statistic table shows that the mean variable of the revenue during the study period (1980-2017) is (7.99) million SDG, with a standard deviation of (13.44) and a maximum value of (3.34) million SDG and a minimum value of (2.72) million SDG, and the kurtosis test shows that the budget deficit time series data is not normally distribution with a positive value of (2.00).

To examine the stationarity of variables of the study at 5% significant level, Augmented Dicky Fuller Test is applied and the results of the test are presented in Table No ( ) .they indicates Budget Deficit (BD) and Growth Rate of Gross of Domestic Product (RGDP) are stationary at level and Exchange Rate is stationary at 2 difference while Inflation rate (Inf), and Exports (X) at 2difference respectively.

Table No (5.2) Augmented Dicky Fuller Test Result:

Variables	Type of Test	Critical Value at 5%	Test Results	Significance level at 5%
BD		-2.95	-3.33	At level
RGDP	ADF	-2.95	-5.03	At level
Inf	ADF	-2.95	-7.05	At first difference
Exch.	ADF	-2.95	-5.56	At second difference
X	ADF	-2.95	-7.10	At first difference

Source: Own tabulation from result of Views (Augmented Dicky Fuller Test Result).

5.8.2 Result of Co-integration Test for the Study Variables.

A lot of time series literatures suggested empirical work based on time series data assumes underlying time series is stationary, if a time series is nonstationary as discussed in previous section , the spurious results are likely to arise. So we can use stationary or first differenced variable to overcome this problem. But, the use of differenced variable eliminates the long run information from data set. And merely provides short run information. To solve such kind of problem, econometrician proposes that testing to determine whether or not long-run relationship exists among variables in the model is required. A lot of techniques are available to test for the existence of long-run relationships in the levels among variables.

This study uses Bound Test to determine the existence of the long run relationship between the variables of the study by employing Autoregressive Distributed lag (ARDL) approach to cointegration and test exercise is implemented in four steps:-

The first step in the process is the selection of optimum lag length for the first difference of the variables of Vector Error Correction Model (VECM) by using proper model order selection criteria such as the Akaike information criterion (AIC;1973), Final Prediction Error (FPE;1969), Hannan and Quinn,(H-Q;1979) and Schwarz (SC;1978) Criterion . Then, the result of the criterion with the lowest value is selected.

The second step is to select the suitable model and estimate the Vector Error Correction Model (VECM) using ARDL model.

The third step of bound test is based on the joint F-statistic which its asymptotic distribution is non-standard under the null hypothesis of no cointegration. The estimation of the equations tests for the existence of a long-run relationship among the variables by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variables.

The fourth step to determine two sets of critical values for a given significance level (Pesaran et al., 2001). The first level is calculated on the assumption that all variables included in the ARDL model are integrated of order zero, while the second one is calculated on the assumption that the variables are integrated of order one. The null hypothesis of no cointegration is rejected when the value of the test statistic exceeds the upper critical bounds value, while it is accepted if the F-statistic is lower than the lower bounds value .

Table (5.3) showing the result of Co-integration test.

Test Statistic	K	Value
5	7.77	F-statistic
I1 Bound	I0 Bound	Significance
3.09	**2.2**	**10%**
3.49	**2.56**	**5%**
3.87	**2.88**	**2.5%**
4.37	**3.29**	**1%**

Source: Own calculation using results of E-view10 on existence relation between the variable of the study.

Cointegration test results shown in Table (5.3) indicates that the null hypothesis of no cointegration is rejected is rejected because the value of the F- test statistic (7.77)is higher than the upper-bound critical value (3.49) at the 5% level. It is clear that there is cointegration or a long run equilibrium relationship amongst the variables of the study.

5.9 Results of Estimation of the Model of Study.

Building on the results of unit root test of stationarity and cointegration test of the variables of the study , the model is estimated by presenting the variable at their levels with objective of determining the dynamic long run relationship between the variables and the impact of the independent variables on the budget deficit as well as the influence of budget deficit on growth rate of real GDP as proxy for economic development during the study period (1980-2017). Initially, the model is estimated by employing ARDL model to examine the influence of economic growth rate (RGDP) inflation rate (inf), exchange rate (exch.) and exports (X), as

explanatory variables on budget deficit (BD) in Sudan during the study period (1980-2017). Thus, applying (ARDL) technique to the data covering the period (1980 – 2017) on the variables mentioned above, we estimated the linear form of equation:

$$\Delta lbd_t = a_0 + \sum_{i=1}^{m} a_{1i}\Delta lrgdp_{t-i} + \sum_{i=0}^{m} a_{2i}\Delta lex_{t-i} + \sum_{i=0}^{m} a_{3i}\Delta \inf_{t-i} + \sum_{i=0}^{m} a_{4i}\Delta x_{t-i} + \sum_{i=0}^{m} \Delta lcpm_{t-i} + a_5 lrgdp_{t-i}$$
$$+ a_6 l\exp_{t-i} + a_7 lr\inf a_{t-i} + a_8 x_{t-i} + a_9 lm_{t-i} + \varepsilon_t$$

and the regression results are given in table No( ).

Table (5.4); Result of the estimated (linear) Equation Determinants of Budget Deficit(short run):

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0002	4.596536	0.188106	0.864636	DLOG(BD(-1))
0.0486	-2.924667	0.539063	-0.037517	DLOG(RGDP)
0.0182	-3.362601	0.726448	-0.989859	DLOG(EX)
0.0234	1.775410	0.628421	1.115706	DLOG(EX(-1))
0.0101	2.839357	0.245150	0.696068	DLOG(INF)
0.0105	2.821566	0.283827	0.800837	DLOG(X)
0.0000	-7.638363	0.276146	-0.8721	CointEq(-1)*

R squared=0.91 Adjusted R-squared=0.84 F=51.9 Prob (F.Statistic): 0.000

Result of the estimated (linear) Equation Determinants of Budget Deficit(long run):

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0407	-2.90903	0.25454	-0.48592	LOG(rgdp)
0.0078	-2.9571	0.22465	-0.6643	LOG(ex)
0.0000	5.38567	2.58082	1.05435	LOG(inf)
0.0179	-2.58082	0.18065	-0.46623	LOG(X)
0.0146	2.67504	0.95079	2.54341	C

R-squared=0.91 Adjusted R-squared=0.82 F=10.54 Prob 0.000

CHAPTER SIX

Discussion of the Results, Conclusions and Recommendations.

Chapter Six

Discussion of the Results, Conclusions and Recommendations

6.1 The Estimated Equations of the Model.

Based on the regressions results of tables No,(5.4)) in chapter five; the estimated equations of the model are presented as follows:

Table 2: The Estimated ARDL Model of Budget Deficit(short run, long run)

bd= $0.864*\Delta db(-1) - 1.037*\Delta lrgdp - 0.664*\Delta lex + 1.115*\Delta lex_{t-1} + 0.696*\Delta \inf + 0.801*\Delta x + 0.439*\Delta m$

bd= $2.54 - 0.485*lrgdp - 0.664*\log ex + 1.054*\log \inf - 0.466*\log x$

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6.2 Interpretation of the Results of the Study.

The result for the Budget Deficit model is shown in Table (). Here too, the model passes all the diagnostic tests. Specifically, there is no evidence of autocorrelation in the disturbance of the error term, the errors are heteroscedastic and independent of the repressors, the normality test suggests that the errors are normally distributed, and the RESET test indicates that the model is correctly specified. The computed F-statistic of (51.9) significantly exceeds the upper critical bound value and thus indicates that there is a long-run equilibrium relationship between budget deficit and its determinants. The coefficient of the lagged budget deficit variable is negative and highly significant, and suggests that approximately (87) percent of the short-run deviations from this equilibrium relation is corrected each year.

Parameters of equation (): The determinants of Budget Deficit

1.C is the autonomous coefficient of budget deficit with positive sign and it coincides with postulation of economic theory.

2.The coefficient of inflation (INF) is positive (0.696), indicating that 1% increase/decrease in the inflation rate will result into 0.70% increase/decrease in budget deficit.

This positive association between inflation rate and budget deficits in Sudan is in agreement with the hypothesis of the study and it also conforms economic theory and empirical literature that the government budget deficit will increase in the inflationary condition. In addition, the monetary finance of deficit will increase money supply and this tends to increase inflation. Economic literature shows that inflation can potentially impacts budget deficits in a number of ways namely (a) primary deficits via its effects on government revenues and current expenditures, (b) interest payments via its effects on nominal and real interest rates, which increase with the rise of inflation rate, leading to the increase of debt expenditures reflected in the budget, hence lead to the increase of the budget deficit.Nominal tax revenues are not affected by inflation developments; yet, inflation can reduce the real value of tax revenues. The literature also points to the importance of inflation-induced revenue losses due to collection lags, for example see Immervoll (2005), which denote the period between the time a tax liability arises and the actual collection of the tax. In case of long collection delays, the loss of real tax revenue might be large.

3.The coefficient of economic growth rate (RGDP) is negative (0.037-), indicating that 1% increase/decrease in the RGDP as proxy for rate of economic development will result into (-0.037) % decrease/increase in budget deficit.

The negative sign of coefficient of (RGDP) coincides with the hypothesis of the study and the postulation of economic theory because increase in real national

income imply increase in the taxable income hence the total revenue will subsequently increase and subsequently reduce the budget deficit. The association between budget deficit and GDP is negative however it is obvious that the contribution of GDP growth rate in the improvement of budget position in the Sudan during the study period is very negligible. This could be attributable to the poor performance of the Sudan economy during the study period.

4.The coefficient of Exports (X) is positive (0.801), indicating that 1% increase/decrease in the Exports will result into (0.8)% decrease/ increase in budget deficit.

This positive association between Exports and budget deficits does not follow the hypotheses of the study, however it might be due to poor competitiveness of the Sudanese exports as result of devaluation SDG. As a part of structural adjustment policies adopted at the end of 1970s and 1980s to rectify trade deficit and enhance real growth rate of GDP. Under that policies the Sudan's currency was devalued several times. The major objectives of devaluation of the national currency were to increase exports earnings through increasing the volume of exports as devaluation is believed to make Sudanese goods and services more attractive to foreigners hence increase exports earning and at the same time supposed to make imported goods expensive resulting into reduction in the volume of imports , thus result into improvement in the trade balance which in turn expected to positively affect the overall economic growth performance.

5. The coefficient of Exchange Rate (EXCH) is negative (-0.989) and it is in agreement with hypothesis of the study, indicating that 1% increase/decrease in the exchange rate will result into (0.99)% decrease/increase in budget deficit.

Increase in the exchange implies appreciation of value of the local currency as opposed to situation of devaluation of the national currency which potentially

induce inflation and hence might lead to increase in budget deficit , the magnitude of the effect depending on method of financing the deficits.

6.The value of adjusted R-squared equals (0.84). It measures the explanatory power of the model and it suggests that variation in budget deficit is explained by joint variations in real rate of GDP, inflation, , exchange rate and export, the remaining 16% is the caused by other variables not included in the model and this value indication of goodness of fit and the quality of the model.

7. F statistic is used in combination with the p value when deciding if the overall results of the regression are significant. If the result is significant, it doesn't mean that all variables in the model are significant. The statistic the objective of this statistic is just to compare the joint effect of all the variables together. The value probability of F-statistic is (0.0000) which is less than (0.05) which is an indication of existence of a significant relationship between the explanatory variables (the key macroeconomic variables) and the dependent variable (Budget deficit)

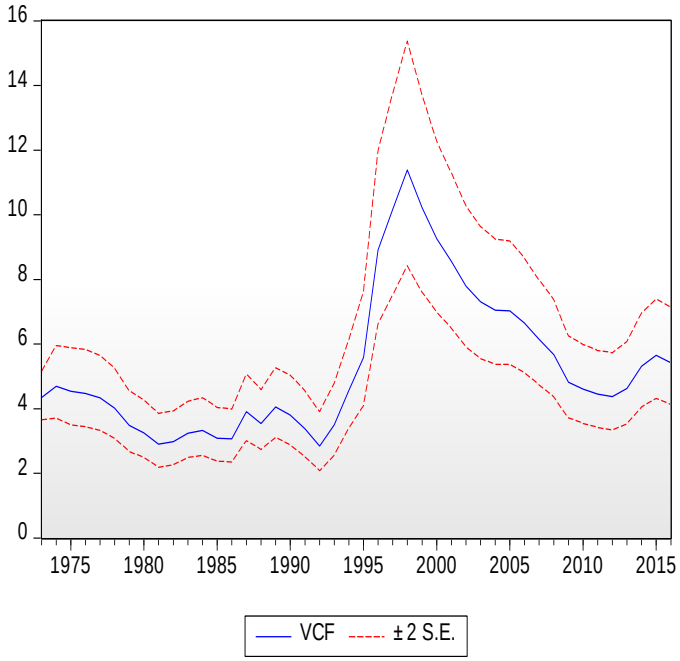
8. Similarly, as indicated by the value of LM test (),indication of absence of problem of serial autocorrelation.

6.3 Heteroscedasticity:

as stated in section it happens when variance of the error term changes across different values of the explanatory variable. Possible remedies to this problem are to re-specify the model – look for other missing variables; perhaps take logs or choose some other appropriate functional form; or make sure relevant variables are expressed appropriately. The Breusch-Pagan-Godfrey test shows that there is no problem of heteroscedasticity. See appendix table No. (A 116)

1. Multicollinearity generally occurs when there are high correlations between two or more independent (explanatory) variables. This problem is detected from autocorrelation matrix of the independent variables. See appendix table No.(A11) The problem is resolved by introducing re-specification of the model.

2. Forecasting accuracy of the model: Economic forecasting is the process of attempting to predict the future condition of the economy using a combination of important and widely followed indicators. Economic forecasting typically tries to come up with a future gross domestic product (GDP) growth rate, involving the building of statistical models with inputs of several key variables, or indicators. For example, some of the primary economic indicators include inflation, interest rates, industrial production, consumer confidence, worker productivity, retail sales and unemployment rates, to name several. There are many ways of making forecasts. These include formal model-based statistical analyses, statistical analyses not based on parametric models, informal "back-of-the-envelope" calculations, simple extrapolations, "leading indicators," "chartist" approaches, "informed judgment," tossing a coin, guessing, and "hunches." This study uses Theil's Inequality Coefficient to measure the predictive accuracy of the equation. The Theil inequality coefficient always lies between zero and one, where zero indicates a perfect fit.



Forecast: VCF	
Actual: VC	
Forecast sample: 1980 2017	
Adjusted sample: 1980 2017	
Included observations: 44	
Root Mean Squared Error	0.408242
Mean Absolute Error	0.312699
Mean Abs. Percent Error	6.346179
Theil Inequality Coefficient	0.035609
Bias Proportion	0.002024
Variance Proportion	0.020488
Covariance Proportion	0.977488

Figure (6.1)

The Result of test of predictive power of equation of determinants of the government budget deficit

The value of Theil Inequality Coefficient of the determinants of Budget Deficit is (0.129) ,which lies between zero and one indicates that the model's predictive accuracy is acceptable . Hence it can be used to predict the future conditions of the budget deficit in Sudan.

As it was presented by the theoretical literature presented in chapter two as well as the empirical literature in chapter three in explaining the potential impact of government budget deficit on economic growth, the conventional analysis of budget deficit demonstrates the possible channels through which budget deficit could affect economic growth. Under the conventional view the persistent budget deficits will decrease the national saving, which will in turn leads to reduction in domestic investment and increase in borrowing from abroad. Also it is argued that lower budget deficit will lead to lower interest rate, lower interest rates lead to more investment, more investment leads to higher production, the higher production leads to higher growth rates of the economy.

Similarly, it is widely argued that the analysis of the budget deficits will remain incomplete if it does not discuss the main causes of budget deficits. For example the political factors that could give rise budget deficits and the favorable effects that public spending could have on income distribution. Because unfair distribution of income could retard growth process. The inequality could translate itself into political unrest, which means that more resources will be needed for political settlement. The unrest which in turn reduces the amount of the resources that could have otherwise been devoted to economic growth projects.

6.4 Conclusions and Recommendations

6.4.1Conclusions

The study was carried out to determine empirically the extent to which budget deficit could be influenced by key macroeconomic variables in Sudan for the period 1980 to 2017. The specific objectives include: to identify the major determinants of budget deficit in Sudan, provide an analytical (empirical) linkage between budget deficits and a set of macroeconomic variables such as Real Growth rates of Gross Domestic Product, inflation rates, government expenditures, government revenues, exchange rates, Imports and exports. Also the study aimed to investigate the nature of the relationship between these macroeconomic variables and government deficit and it impact on the rate of economic development in Sudan from1980 to 2017.Based on the findings presented in the previous section ,the study will propose a suitable policy implications that could overcome the budget deficit problems and at the same time promote sustainable economic development in Sudan .To achieve these objectives ,using data from secondary sources. The study employed the Ordinary Least Square in estimating the equation. Preliminary test of stationarity and co integration of variables using the Augmented Dickey Fuller (ADF) tests were conducted respectively. The overall results of the regression indicate that there is a significant relationship between the budget deficits and the key macroeconomic variables hypnotized by this study to determine budget deficits in the Sudan. Accordingly the inflation rates and exports are found to be positively associated with budget deficits while real GDP growth rate, government expenditure, exchange rates and total revenue are negatively linked to budget deficits during the study period. Thus the study concludes that budget deficit causes poor macroeconomic performance by reducing the surplus available to an economy hence retards economic growth..

It worth mentioning here that economic empirical literature addressing the problems of poor performance of the Sudan's economy gives a number of policy factors such as inflation and exchange rate and non-policy factors like natural disasters, civil wars, political instability, and unfavorable terms of trade as the main causes of the budget deficits and deteriorated economic performance in Sudan . Before proceeding to recommendations and policy implications; the next paragraphs will present different views directly or indirectly related to the causes of the poor growth performance in the Sudan order to support and augment the findings of this study Before proceeding to recommendations and policy implications, the next paragraph will present some of empirical literature related to the findings of this study,

Regarding saving constraints on economic growth in the Sudan some economists argue that increasing the efficiency of financial sector and monetization of the traditional subsistence sector of the Sudan's economy could reduce the saving constraint on economic growth. A study by Mekki [169](1984) for the period (1960/61 – 1979/80) his result confirmed that the per capita for the period had positive significant impact on the savings. Also he noted that the marginal propensities to save for the period was 0.05 a figure which comparable to that of 0.08 estimated by Mekki and Thirwall when they regressed Gross Domestic Saving on Gross Domestic Product with intercept both figures are small and insignificant. This was believed to imply that the effort to monetize the subsistence sector could have a favorable effect on the saving constrain on growth.

It has been argued that due to the poor saving performance, as is the case in many poor African economies, Sudan resorted to foreign saving. For example, Elbadewi

[169] Monetization, Financial Intermediation and Self-Financed Growth in the Sudan (1960/61-1979/80)" Monograph series No.18, Development Studies and Research Center DSRC, University of Khartoum. pp. 36-58

and Murega[170] (2001) argued that " the poor performance of sub Saharan African economies has been reflected in low saving and investment rates both of which declined substantially in the 1970s and the 1980s. A worrisome feature of saving and investment in Sub Saharan African is the region's heavy dependence on foreign saving, mostly overseas development assistance."

Shaykh [171](2001) again argued that " as a result of limitedness of fund for investment, both from domestic and foreign sources, the domestic saving had decreased from 13 percent of gross domestic product in 1976 to only 1 percent in 1980. The average saving rate for the period 1982 – 1989 was about 4 percent of gross domestic product while the real saving rate for the same period was less than 1 percent of gross domestic product. This deterioration in saving was attributed to the poor performance of government budget which was negative throughout the period under consideration. The private sector saving was about 8 percent of gross domestic product. Also he further argued that the unrealistic exchange rate policies prevailing at that time discouraged inflow of expatriate remittances and foreign capital, hence affected the national savings and investments. The weakness of fiscal and monetary policies, poor performance of public budget and money financing of budget deficit created severe aggregate demand problems. Not only economic surplus is very low but it has not been utilized properly to generate economic growth.

Ahmed [172](1991) argued that most of economic and financial resources, both saving and investment funds, have never been used systematically to aid the process of capital accumulation and technical change in the Sudan. He further says that " the Sudan economy generated a sizeable surplus on average amounted to 29.2 percent

[170] "Can Africa's saving collapse be reversed" World Bank Economic Review, vo. 15,no 5.
[171] Ibid 183
[172] The Institutionalization of Capital Accumulation and Economic Development in the Sudan" Monograph series No.38, Development Studies and Research Center DSRC, University of Khartoum .

of the GDP during the period 1960 – 1978. But it did not generate rapid economic growth or achieve high level of capital accumulation. Most of it has been absorbed in defense, security, bureaucracy and luxury consumption". Also Ahmed(1991) attributes poor saving and investment performance to lack of institutionalization of capital accumulation. He argued that "the declining rates of savings, investment and capital accumulation during the 1970s and 1980s are indicatives of lack of institutionalization of the process of capital accumulation. Instead there has been system pattern of enhancing unproductive and non- developmental activities. Also he further argued that most of public schemes and corporations which are assumed to generate revenues have themselves become dependent on government subsidies and financial support. This situation of the poor performance of public entities enhanced the process of their privatization. Also the privatization project benefited a large numbers of bureaucrats and become a drain of domestic public resources. It reduced the state capacity to accumulate capital but it also benefited the private sector to accumulate considerable profit used to import or purchase luxury goods.

In explaining the question of what factors cause this poor economic performance in the Sudan; Ali and Elbadawi[173] (2003) argued that over the last decades, eighties and nineties of the last century, a huge empirical literature has been developed in an attempt to explain the long run economic growth in different countries. This empirical growth literature is said to have identified at least sixty two statistically significant explanatory variables influencing the growth performance of different economies. Out of the identified sixty two variables, three explanatory variables have consistently been reported as significant in all studies. These variable are, per captia income (reflecting the country's economic development), initial life expectancy at birth (reflecting the health dimension of the human capital of the

[173] Ibid 3

country), and the initial primary school enrollment ratio (reflecting the educational dimension of the human capital and its quality).

Easterly and Levine [174](2001) argued that, for explaining the determinants of economic growth and income differences across countries and across regions of the same country as well as income difference overtime, more research is needed on the impact of factors such as technology and externalities. They further argued that it is the total factor productivity rather than the factor accumulation that accounts for most of income and growth differences overtime and across countries.

Label[175] (2000) identified a number of economic and non-economic factors as determinants of Africa's weak economic performance, "The dimensions of Africa's economic crisis are widely known. Apart from stagnant per capita incomes, many observers have noted the impact of drought and famine, explosive rates of population growth, chronic inflation, and burgeoning external debt arising from deepening balance of payments deficits. Yet, for the most part, these measures have been but symptomatic of deeper underlying causal forces that are only now being addressed."

According to some economists poor economic performance in Sudan can be attributed to exogenous factors. Shaykh (2000) argued that there are economic and no- economic variables that retard economic growth and operate as obstacles to the exploitation of the vast resources the country is endowed with. He gave inflation and exchange rate as examples of economic factors and civil wars, political instability, adverse climatic factors, like persistent drought, desertification and floods as examples of non-economic factors. He argued that these exogenous factors destroyed the production base in rural areas and led to mass migration to urban areas. The consequences of this influx of people from rural areas are

[174] "It's not Factor Accumulation: Stylized Facts on Growth Models" World Bank Review, vo. 15, no 5.

[175] " Managing Africa's Economic Recovery", Center for Economic Research on Africa, Montclair State University, new Jersey.

shortage of services at destination points, unemployment, and involvement of these migrants in unproductive activities besides the severe shortage of labor in the agricultural sector hence the overall result is deterioration in productivity and poor economic growth rates. Also shaykh[176] (2000) further argued that the political instability in the country created unfavorable environment for both domestic private investment and foreign investment. And the instability of the governments did not enable the concerned government bodies to plan ahead for development and implement them to the end of its time limit nor did the economic reform programs complete their supposed time limits.

Also Deng[177] (2004) listed the devastating effects of war in Sudan as follows: Destroys physical infrastructure, induces the best human capacities to seek refuge abroad (if they are not killed) or to be used in the destruction of existing assets, including knowledge, acquired before the on-set of conflict, diminishes fiscal resources and damages financial management systems, weakens networks of civic engagement, reduces service delivery capacities, inhibits the functioning of governance structures, especially democratically accountable mechanisms at all levels.

African Development bank: Sudan Country dialogue paper (2003) identified four constraints as the major obstacles of economic growth in Sudan: external debt burden, physical infrastructure , the financial sector constraint and the civil war in Sudan which entailed a massive brain drain also deprived the country of qualified human resources affecting the formulation of public policies and the effectiveness of the public administration. The war also diverted the Government's attention away from focusing on growth, development, capacity building and absorbed substantial amounts of the fiscal revenues.

[176] Ibid 130

[177] 18. Deng, A. Laul (2004). " Challenges of the Post-conflict Economic Recovery and Reconstruction in the Sudan", The Institute of Development, Environment and Agricultural Studies, Yambio Rumbek Sudan.

Using four sector model, Mehrabi[178] (2000) argued that reducing export tariff could help to increase economic growth and welfare. "We find that economic growth and social welfare can be increased substantially by a reduction in import tariffs and export taxes. To do so, we find that a replacement of these taxes by a broad-based consumption tax can improve economic efficiency while at the same improving the distribution of income on behalf of Sudan's rural farm population. Mehrabi, possibly made the above mentioned argument before June 2000 because Sudan applied the Value Added Tax (VAT) system in June 2000.

In my view, Sudan had adopted inappropriate economic reform policies especially in the first reform period (1977/78-1984/85), for example, the devaluation of the currency was made without considering the responsiveness of the basket of export goods to price change and the ultimate result of such polices was loss of revenue without increasing the revenue or rectifying the trade balance disequilibrium.

For Musa[179] (2002) diagnoses the poor performance as break down in fiscal discipline and inefficiency of public enterprises. "In Sudan, the most critical policy issue over the ten-year period of 1975-85 was the breakdown of the fiscal discipline, which was first observed in the middle and late 1970s and which has remained uncorrected to date. He further argued at that time the IMF diagnosed the illness of the economy as one of fundamental disequilibrium. Among the factors listed by the IMF as causes and which predominated its programs, are: distortion in the allocation of resources between sectors, resulting from distorted cost/price structure; pervasive public sector inefficiency, and over involvement of the state sector and the suppression of the private initiative"

[178] 51." Sudan's Tax Structure and Economic Development", Center for Economic Research on Africa, Montclair State University, new Jersey.

[179] The Impact of Public Enterprise Reforms on the State Budget in the Sudan". African Training and Research Center in Administration for Development, Tagier, Morocco.

Also the inappropriate economic reform policies, especially those adopted in 1980s, and inconsistency between internal and external policy targets, inefficiency of multiple exchange rate regime were blamed for the ill functioning of the Sudan's economy. Bannaga[180] (2000) argued that appropriate economic policies with consistent targets and unified efficient exchange could enhance productivity of the economy and expected to be associated with high level of investment and inflow of capital seeking for higher rate of return.

Suliman[181] (2005) argued that the problem of tax evasion, slacks in tax collection in addition to inelastic tax system in Sudan did not enhance government revenue productivity. He also argued that his findings imply that a committed tax reform is crucial for augmenting tax revenue yield as well as for fiscal consolidation and macroeconomic stability.

6.4.2 Recommendations and policy implications

- The Result of this study indicates real economic growth reduces budget deficit. The economic growth performance can be improved by supporting growth in the real sectors of the economy through providing basic production infrastructure which can form a solid foundation for promoting productivity particularly in rural areas where there is high potentiality for livestock and agricultural production. Rural water project, electricity, roads, credit facilities and secure marketing for the seasonal product .Limitedness of basic social services and production infrastructure are structural causes of social unrest, conflicts and wars in the Sudan. Addressing the community needs on the services will ensure stability, prevent eruption of conflicts and secure the sustainability of development plans. Additionally in the absence of

[180] Adjustment Policies and Current Account Balance: Empirical Evidence from Sudan", IDPM – University of Manchester .

[181] The Impact of trade Liberalization on Revenue Mobilization and Stability in Sudan", African Development Review , Volume 17. (Abstract).

conflicts and wars the resources used to be allocated for military operations, protection of civilian and resolution of conflict could alternatively be diverted to development activities.

- To improve government budget position there is a need to reduce government size and minimize its operational expenses, remove subsidies from fuel consumed by private vehicles and provide support for and encourage public transport. Also explore means to reduce subsidies from wheat flour and how to alleviate the impact of such policy measures on the poor.
- Also to promote budgeting processes, there is a need for encouraging participatory planning and budgeting system at the locality, State and central government levels. Similarly the government undertake a countrywide advocacy campaigns aimed to inform all the concerned stakeholders of their expected key roles in the budgeting process.
- Increase government revenue through. Tax reform that focuses on direct taxes and enhance revenue that is brought about by transformation in real national income.
- Inflation increases budget deficit and budget deficit negatively affects real economic growth. To curb inflation, this study recommends banning of monetary financing of budget deficits as it is considered to be the root cues of inflation. Nowadays; the monetary financing of budget deficit is prohibited in many contemporary economies for its negative impact on the economy.
- Boosting national exports through diversifying export oriented products, strengthening exports' infrastructure; ensure quality control, availability of marketing services particularly for seasonal products and prices liberalization including exchange rate.

- The result of the study indicates that devaluation of national currency increases budget deficits. The intervention of government in exchange market in Sudan led to presence of official market rates and black (parallel) market rates. The existence of two rate is believed to have distorted the prices of foreign exchange . The failure to unify to these rate has encouraged speculation activities and negatively affected particularly distorted imports and exports prices. Hence this study calls for liberation of foreign exchange market. control black market rate due to the failure to unify the different types of exchange rates (official, parallel, and black market rates)) as well as non-policy (structural and demographic factors) are the main causes behind the current account deterioration in Sudan.

6.4.3 Suggestions for Further Research

1. Good governance and economic growth in Sudan
2. impact of infrastructure development on economic growth in Sudan
3. Economic growth and government expenditure in Su

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APENDEX

(A-1)

Year	(constant 2010 US$)	Real GDP Grouth rate	Inflation Rate	official exchang Rate	Gov Reve % GDP	Gov exp %GDP	BD Budget Deficit % GDP		8.Exports of goods and services (% of GDP)	9. Import and servi GDP)
	155 28248	0.01 5	0.220265652	0.005	0.134	0.159677383	-0.025677383		0.105811122	0.231461
1981	16658654344	0.074375637	0.249771795	0.009	0.099671305	0.129120285	-0.02944898		0.096191284	0
1982	17651287989	0.059586664	0.305902494	0.013	0.086509099	0.098520924	-0.012011824		0.099350649	0
1983	18015346103	0.020625017	0.260580591	0.013	0.084281385	0.094764095	-0.01048271		0.105979886	0
1984	17112974212	-0.05008907	0.336368828	0.025	0.093963067	0.09651816	-0.002555093		0.084583158	0
1985	16038100844	-0.06281044	0.461691452	0.025	0.11113015	0.12343058	-0.01230043		0.057466569	0
1986	16906373314	0.05413811	0.286425566	0.025	0.120078732	0.138047205	-0.017968473		0.047402945	0
1987	19310609153	0.142208846	0.258913533	0.045	0.074356219	0.127646086	0.053289867		0.055223264	0
1988	19246673306	-0.00331092	0.788625963	0.045	0.066061708	0.069577049	-0.003515341		0.037955053	0
1989	20965669470	0.089313937	0.367386519	0.045	0.055824714	0.069547887	-0.013723173		0.053413815	0
1990	19818836076	-0.05470054	0.662355884	0.045	0.067186931	0.057799459	0.009387472		0.040213891	0
1991	21307411140	0.075109106	0.887728458	0.045	0.08528843	0.08690303	-0.0016146		0.033350258	
1992	22708983110	0.065778614	1.092336552	0.1	0.068066085	0.072686617	-0.004620532		0.052460763	0
1993	23746499592	0.045687492	0.974873483	0.1328	0.053531334	0.055906256	-0.002374922		0.04230379	0
1994	23985443577	0.010062282	1.592669752	0.216	0.033480768	0.048350991	-0.014870223		0.046905562	0
1995	25423872772	0.059970923	1.045550287	0.4	0.052364705	0.054943559	-0.002578853		0.049694656	0
1996	26928743520	0.059191248	0.325622539	1.2426	0.052329241	0.055585016	-0.003255775		0.0745483	0
1997	29774232839	0.105667363	0.475834473	1.5765	0.045939273	0.054165556	-0.008226283		0.053436299	0
1998	31057056883	0.043085041	0.176622709	1.9945	0.053181279	0.062249137	-0.009067858		0.067020937	0
1999	32021097644	0.031040957	0.158235779	2.516	0.040357709	0.064787644	-0.024429934		0.077794095	
2000	34053114158	0.063458678	0.098531366	2.5714	0.083630718	0.090778596	-0.007147878		0.159845571	0
2001	36266689313	0.065003604	0.016071032	2.587	0.089820869	0.103707655	-0.013886786		0.113978615	0
2002	38597648770	0.064272739	0.073889725	2.6334	0.079843185	0.104036237	-0.024193053		0.139789993	0
2003	41583019315	0.077345917	0.096700607	2.6082	0.106395371	0.122821973	-0.016426602		0.148278627	0
2004	43197815736	0.038833073	0.156738093	2.5826	0.134447392	0.153126861	-0.018679469		0.177579629	0
2005	46433219017	0.074897381	0.086248638	2.4358	0.118823257	0.138055274	-0.019232016		0.191781581	0
2006	51106401195	0.10064308	0.093767867	2.1715	0.111062297	0.138045723	-0.026983425		0.190736627	0
2007	56994834761	0.1152191	0.06669434	2.0159	0.120471663	0.14436124	-0.023889577		0.218865604	0
2008	61441550872	0.078019633	0.142495839	2.0913	0.106409681	0.12050986	-0.01410018		0.240955357	0
2009	63433392297	0.032418476	0.039594768	2.3952	0.108032971	0.124812903	-0.016779931		0.159688063	0
2010	65634109237	0.034693351	0.195807528	2.4948	0.09040427	0.106781888	-0.016377618		0.197434982	0
2011	64342607849	-0.01967729	0.210015803	2.7972	0.086874617	0.103306372	-0.016431755		0.175676328	0
2012	64678192683	0.005215593	0.348762038	4.5	0.072668764	0.080406914	-0.007738149		0.092191917	0
2013	67520612417	0.043947111	0.349034002	5.69	0.054395709	0.072347795	-0.017952085		0.088405518	0
2014	69329767682	0.026794118	0.338951741	6.1	0.044347358	0.060493189	-0.016145832		0.081491345	0
2015	72731117404	0.049060452	0.179037584	6.2212	0.034374713	0.045792782	-0.011418069		0.081822261	
2016	74181431434	0.000314682	0.351337156	6.63592	0.02981252	0.039857312	-0.010044792	0.05509862	0.087667411	
2017	76083281033	-0.008106897	0.379504612	7.179230909	0.020159487	0.028979393	-0.008819907	0.037348042	0.071912447	

Year	GDP	GDPG	inf	exch	TR	EXP	BD	X	M
1980	15505428248	0.015	0.220266	0.005	0.134	0.159677	-0.02568	0.105811	0.231462
1981	16658654344	0.074376	0.249772	0.009	0.099671	0.12912	-0.02945	0.096191	0.236526
1982	17651287989	0.059587	0.305902	0.013	0.086509	0.098521	-0.01201	0.099351	0.24418
1983	18015346103	0.020625	0.260581	0.013	0.084281	0.094764	-0.01048	0.10598	0.212399
1984	17112974212	-0.05009	0.336369	0.025	0.093963	0.096518	-0.00256	0.084583	0.164682
1985	16038100844	-0.06281	0.461691	0.025	0.11113	0.123431	-0.0123	0.057467	0.118814
1986	16906373314	0.054138	0.286426	0.025	0.120079	0.138047	-0.01797	0.047403	0.082222
1987	19310609153	0.142209	0.258914	0.045	0.074356	0.127646	-0.05329	0.055223	0.111342
1988	19246673306	-0.00331	0.788626	0.045	0.066062	0.069577	-0.00352	0.037955	0.076923
1989	20965669470	0.089314	0.367387	0.045	0.055825	0.069548	-0.01372	0.053414	0.093438
1990	19818836076	-0.0547	0.662356	0.045	0.067187	0.057799	0.009387	0.040214	0.070661
1991	21307411140	0.075109	0.887728	0.045	0.085288	0.086903	-0.00161	0.03335	0.117363
1992	22708983110	0.065779	1.092337	0.1	0.068066	0.072687	-0.00462	0.052461	0.144242
1993	23746499592	0.045687	0.974873	0.1328	0.053531	0.055906	-0.00237	0.042304	0.072357
1994	23985443577	0.010062	1.59267	0.216	0.033481	0.048351	-0.01487	0.046906	0.099197
1995	25423872772	0.059971	1.04555	0.4	0.052365	0.054944	-0.00258	0.049695	0.09803
1996	26928743520	0.059191	0.325623	1.2426	0.052329	0.055585	-0.00326	0.074548	0.157513
1997	29774232839	0.105667	0.475834	1.5765	0.045939	0.054166	-0.00823	0.053436	0.12515
1998	31057056883	0.043085	0.176623	1.9945	0.053181	0.062249	-0.00907	0.067021	0.15173
1999	32021097644	0.031041	0.158236	2.516	0.040358	0.064788	-0.02443	0.077794	0.16935
2000	34053114158	0.063459	0.098531	2.5714	0.083631	0.090779	-0.00715	0.159846	0.134197
2001	36266689313	0.065004	0.016071	2.587	0.089821	0.103708	-0.01389	0.113979	0.127955
2002	38597648770	0.064273	0.07389	2.6334	0.079843	0.104036	-0.02419	0.13979	0.174174
2003	41583019315	0.077346	0.096701	2.6082	0.106395	0.122822	-0.01643	0.148279	0.171698
2004	43197815736	0.038833	0.156738	2.5826	0.134447	0.153127	-0.01868	0.17758	0.200324
2005	46433219017	0.074897	0.086249	2.4358	0.118823	0.138055	-0.01923	0.191782	0.284019
2006	51106401195	0.100643	0.093768	2.1715	0.111062	0.138046	-0.02698	0.190737	0.266713
2007	56994834761	0.115219	0.066694	2.0159	0.120472	0.144361	-0.02389	0.218866	0.226665
2008	61441550872	0.07802	0.142496	2.0913	0.10641	0.12051	-0.0141	0.240955	0.195895
2009	63433392297	0.032418	0.039595	2.3952	0.108033	0.124813	-0.01678	0.159688	0.199982
2010	65634109237	0.034693	0.195808	2.4948	0.090404	0.106782	-0.01638	0.197435	0.172321
2011	64342607849	-0.01968	0.210016	2.7972	0.086875	0.103306	-0.01643	0.175676	0.15544
2012	64678192683	0.005216	0.348762	4.5	0.072669	0.080407	-0.00774	0.092192	0.155018
2013	67520612417	0.043947	0.349034	5.69	0.054396	0.072348	-0.01795	0.088406	0.14888
2014	69329767682	0.026794	0.338952	6.1	0.044347	0.060493	-0.01615	0.081491	0.113097
2015	72731117404	0.04906	0.179038	6.2212	0.034375	0.045793	-0.01142	0.081822	0.109186
2016	75422861766	0.0036	0.3432	6.3130	0.0323	0.0458	-0.0108	0.0657	0.0834
2017	77635068948	-0.0040	0.3693	6.7755	0.0240	0.3339	-0.0018	0.0507	0.0667

(A-2)

مستوي استقرار متغير معدل التضخم(الفرق الأول).

Null Hypothesis: D(INFLATION_RATE) has a unit root

Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.056488	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATION_RATE,2)
Method: Least Squares
Date: 05/09/18 Time: 08:36
Sample (adjusted): 3 36
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFLATION_RATE(-1))	-1.223447	0.173379	-7.056488	0.0000
C	-0.130042	4.315176	-0.030136	0.9761

R-squared	0.608773	Mean dependent var	-0.557119
Adjusted R-squared	0.596548	S.D. dependent var	39.60947
S.E. of regression	25.15911	Akaike info criterion	9.345340
Sum squared resid	20255.38	Schwarz criterion	9.435125
Log likelihood	-156.8708	Hannan-Quinn criter.	9.375959
F-statistic	49.79402	Durbin-Watson stat	2.027374
Prob(F-statistic)	0.000000		

مستوي استقرار متغير سعر الصرف مستقر عند(الفرق الثاني**(A-3)**
:

Null Hypothesis: D(OFFICIAL_EXCHANG_RATE,2) has a unit root

Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.579335	0.0001
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OFFICIAL_EXCHANG_RATE,3)
Method: Least Squares
Date: 05/09/18 Time: 08:41
Sample (adjusted): 5 36
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OFFICIAL_EXCHANG_RATE(-1),2)	-1.510845	0.270793	-5.579335	0.0000
D(OFFICIAL_EXCHANG_RATE(-1),3)	0.430665	0.189877	2.268126	0.0309
C	0.020766	0.061659	0.336794	0.7387

R-squared	0.586902	Mean dependent var	-0.008900
Adjusted R-squared	0.558412	S.D. dependent var	0.520883
S.E. of regression	0.346138	Akaike info criterion	0.805101
Sum squared resid	3.474531	Schwarz criterion	0.942513
Log likelihood	-9.881610	Hannan-Quinn criter.	0.850649
F-statistic	20.60061	Durbin-Watson stat	1.984550
Prob(F-statistic)	0.000003		

(A-3)

استقرار متغير الصادرات (مستقر عند الفرق الأول).

Null Hypothesis:
D(EXPORTS_OF_GOODS_AND_SERVICES_%_OF_GDP) has a unit root

Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.095054	0.0000
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXPORTS_OF_GOODS_AND_SERVICES____OF_
GDP_,2)
Method: Least Squares
Date: 05/09/18 Time: 08:44
Sample (adjusted): 3 36
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXPORTS_OF_GOODS_AND_SERVICES ____OF_GDP_(-1))	-1.221446	0.172155	-7.095054	0.0000
C	-0.058102	0.524597	-0.110755	0.9125

R-squared	0.611367	Mean dependent var	0.029267
Adjusted R-squared	0.599222	S.D. dependent var	4.830518
S.E. of regression	3.058058	Akaike info criterion	5.130460
Sum squared resid	299.2551	Schwarz criterion	5.220246
Log likelihood	-85.21782	Hannan-Quinn criter.	5.161079
F-statistic	50.33979	Durbin-Watson stat	1.999053
Prob(F-statistic)	0.000000		

(A-7)

مستوى استقرار متغير الناتج المحلي الاجمالي(مستقر عند المستوي)

Null Hypothesis: ANNUAL GROWTH RATE of GDP__ has a unit root

Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.028128	0.0002
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP_GROWTH__ANNUAL__)
Method: Least Squares
Date: 05/09/18 Time: 08:57
Sample (adjusted): 2 36
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_GROWTH__ANNUAL__(-1)	-0.861221	0.171281	-5.028128	0.0000
C	3.987516	1.098122	3.631213	0.0009

R-squared	0.433788	Mean dependent var	0.096621
Adjusted R-squared	0.416630	S.D. dependent var	6.035040
S.E. of regression	4.609482	Akaike info criterion	5.949553
Sum squared resid	701.1618	Schwarz criterion	6.038430
Log likelihood	-102.1172	Hannan-Quinn criter.	5.980234
F-statistic	25.28207	Durbin-Watson stat	1.956153
Prob(F-statistic)	0.000017		

(A-9)

استقرار متغير عجز الموازنة (مستقر في المستوى)

Null Hypothesis: _BD_BUDGET_DEFICIT AS % GDP has a unit root

Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.336770	0.0209
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(_7_BD_BUDGET_DEFICIT___GDP)
Method: Least Squares
Date: 05/09/18 Time: 09:23
Sample (adjusted): 3 36
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
_7_BD_BUDGET_DEFICIT___GDP(-1)	-0.725833	0.217526	-3.336770	0.0022
D(_7_BD_BUDGET_DEFICIT___GDP(-1))	-0.152877	0.170168	-0.898387	0.3759
C	-0.009523	0.003560	-2.674683	0.0118

R-squared	0.454408	Mean dependent var	0.000530
Adjusted R-squared	0.419208	S.D. dependent var	0.013979
S.E. of regression	0.010653	Akaike info criterion	-6.161768
Sum squared resid	0.003518	Schwarz criterion	-6.027089
Log likelihood	107.7501	Hannan-Quinn criter.	-6.115839
F-statistic	12.90950	Durbin-Watson stat	1.871811
Prob(F-statistic)	0.000083		

(A-10)

الاحصاءات الوصفية

	_7_BD_BUDGET_DEFICIT___GDP	EXPORTS_OF_GOODS_AND_SERVICES___OF_GDP_	GDP_GROWTH__ANNUAL__	OFFICIAL_EXCHANG_RATE	REVENUE_AS__GDP	IMPORTS_OF_GOODS_AND_SERVICES____OF_GDP_	GENERAL_GOVERNMENT_FINAL_CONSUMPTION_EXPENDITURE__CURRENT_US$_
Mean	-0.014167	10.38786	4.528662	1.678164	7.993501	15.59206	2.5+09
Median	-0.013993	8.649434	5.159928	1.785500	8.395605	15.33743	1.33E+09
Maximum	0.009387	24.09554	14.22088	6.221200	13.44474	28.40186	7.01E+09

Minimum	-0.053290	3.335026	-6.281044	0.005000	3.348077	7.066066	4.97E+08
Std. Dev.	0.010807	5.849254	4.549394	1.807308	2.722138	5.635737	2.26E+09
Skewness	-1.061773	0.740608	-0.544974	1.020576	0.041320	0.442745	0.875092
Kurtosis	6.254427	2.359850	3.374697	3.431090	2.007602	2.406040	2.194171
Jarque-Bera	22.65112	3.905689	1.992574	6.528214	1.487524	1.705321	5.568759
Probability	0.000012	0.141870	0.369248	0.038231	0.475322	0.426279	0.061767

Sum	-0.510007	373.9628	163.0318	60.41390	287.7660	561.3142	9.21E+1
Sum Sq. Dev.	0.004088	1197.482	724.3945	114.3227	259.3512	1111.654	1.79E+2
Observations	36	36	36	36	36	36	36

(A-11)

الارتباطات بين المتغيرات المستقلة

	EXPORTS_OF_GOODS_AND_SERVICES____OF_GDP_	GDP_GROWTH__ANNUAL__	GENERAL_GOVERNMENT_FINAL_CONSUMPTION_EXPENDITURE____OF_GDP_	IMPORTS_OF_GOODS_AND_SERVICES____OF_GDP_	INFLATION_RATE	OFFICIAL_EXCHANG_RATE	REVENUE_AS__GDP
EXPORTS_OF_GOODS_AND_SERVICES____OF_GDP_	1.000000	0.223875	0.612978	0.699949	-0.630322	0.358497	0.625484
GDP_GROWTH__ANNUAL__	0.223875	1.000000	0.184264	0.236476	-0.208785	0.058700	0.063061
GENERAL_GOVERNMENT_FINAL_CONSUMPTION_EXPENDITURE____OF_GDP_	0.612978	0.184264	1.000000	0.635324	-0.547757	-0.133103	0.916138
IMPORTS_OF_GOODS_AND_SERVICES____OF_GDP_	0.699949	0.236476	0.635324	1.000000	-0.545402	0.090108	0.564515
INFLATION_RATE	-0.630322	-0.208785	-0.547757	-0.545402	1.000000	-0.422856	-0.482224
OFFICIAL_EXCHANG_RATE	0.358497	0.058700	-0.133103	0.090108	-0.422856	1.000000	-0.167282
REVENUE_AS___GDP	0.625484	0.063061	0.916138	0.564515	-0.482224	-0.167282	1.000000

(A-13)

اختبار لكشف مشكلة الارتباط الذاتي للبواقي

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.352473	Prob. F(2,26)	0.7063
Obs*R-squared	0.950312	Prob. Chi-Square(2)	0.6218

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/09/18 Time: 12:30
Sample: 1 36
Included observations: 36
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000741	0.006081	-0.121882	0.9039
IMPORTS_OF_GOODS_AND_SERVICES__ __OF_GDP_	7.59E-05	0.000285	0.266529	0.7919
EXPORTS_OF_GOODS_AND_SERVICES__ __OF_GDP_	-4.45E-05	0.000294	-0.151161	0.8810
INFLATION_RATE	2.31E-06	3.91E-05	0.059147	0.9533
OFFICIAL_EXCHANG_RATE	1.48E-05	0.000711	0.020770	0.9836
GDP_GROWTH__ANNUAL__	2.76E-05	0.000213	0.129545	0.8979
GENERAL_GOVERNMENT_FINAL_CONSU MPTION_EXPENDITURE____OF_GDP_	1.68E-05	0.000761	0.022028	0.9826
REVENUE_AS___GDP	-4.88E-05	0.000930	-0.052467	0.9586
RESID(-1)	-0.181247	0.217299	-0.834091	0.4118
RESID(-2)	-0.031828	0.225410	-0.141200	0.8888

R-squared	0.026398	Mean dependent var	-5.69E-18
Adjusted R-squared	-0.310619	S.D. dependent var	0.004557
S.E. of regression	0.005217	Akaike info criterion	-7.443570
Sum squared resid	0.000708	Schwarz criterion	-7.003704
Log likelihood	143.9843	Hannan-Quinn criter.	-7.290045
F-statistic	0.078327	Durbin-Watson stat	1.596838
Prob(F-statistic)	0.999792		

(A-14)

اختبار لاختبار مشكلة اختلاف التباين

Heteroskedasticity Test: ARCH

F-statistic	0.611727	Prob. F(1,33)	0.4397
Obs*R-squared	0.636993	Prob. Chi-Square(1)	0.4248

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/09/18 Time: 12:33

Sample (adjusted): 2 36

Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.10E-05	4.07E-06	2.711132	0.0106
RESID^2(-1)	0.056185	0.071836	0.782130	0.4397

R-squared	0.018200	Mean dependent var	1.22E-05
Adjusted R-squared	-0.011552	S.D. dependent var	2.23E-05
S.E. of regression	2.24E-05	Akaike info criterion	-18.51800
Sum squared resid	1.66E-08	Schwarz criterion	-18.42912
Log likelihood	326.0649	Hannan-Quinn criter.	-18.48732
F-statistic	0.611727	Durbin-Watson stat	2.391154
Prob(F-statistic)	0.439715		

(A-15)

نتائج تقدير النموذج المصحح

Dependent Variable: _7_BD_BUDGET_DEFICIT AS % GDP

Method: Least Squares
Date: 05/09/18 Time: 12:43
Sample: 1 36
Included observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000351	0.005210	0.067350	0.9468
EXPORTS_OF_GOODS_AND_SERVICES__ __OF_GDP_	1.49E-05	0.000244	0.347173	0.7310
INFLATION_RATE	1.09E-05	3.63E-05	0.301431	0.7652
GDP_GROWTH__ANNUAL__	-0.000546	0.000204	-2.679748	0.0120
OFFICIAL_EXCHANG_RATE	-0.000657	0.000674	-0.974463	0.3379
GENERAL_GOVERNMENT_FINAL_CONSU MPTION_EXPENDITURE____OF_GDP_	-0.005973	0.000699	-8.541553	0.0000
REVENUE_AS___GDP	-0.005588	0.000877	6.372185	0.0000

R-squared	0.819452	Mean dependent var	-0.014167
Adjusted R-squared	0.782098	S.D. dependent var	0.010807
S.E. of regression	0.005045	Akaike info criterion	-7.568201
Sum squared resid	0.000738	Schwarz criterion	-7.260295
Log likelihood	143.2276	Hannan-Quinn criter.	-7.460734
F-statistic	21.93707	Durbin-Watson stat	1.780664
Prob(F-statistic)	0.000000		

(A-16)

اختبار مشكلة اختلاف التباين

Heteroskedasticity Test: ARCH

F-statistic	0.057781	Prob. F(1,33)	0.8115
Obs*R-squared	0.061176	Prob. Chi-Square(1)	0.8046

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/09/18 Time: 14:47
Sample (adjusted): 2 36
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.18E-05	4.64E-06	2.554160	0.0154
RESID^2(-1)	0.018817	0.078280	0.240376	0.8115

R-squared	0.001748	Mean dependent var	1.22E-05
Adjusted R-squared	-0.028502	S.D. dependent var	2.53E-05
S.E. of regression	2.57E-05	Akaike info criterion	-18.24709
Sum squared resid	2.17E-08	Schwarz criterion	-18.15822
Log likelihood	321.3241	Hannan-Quinn criter.	-18.21641
F-statistic	0.057781	Durbin-Watson stat	2.301853
Prob(F-statistic)	0.811526		

(A-17)

اختبار مشكلة اختلاف التباين لدالة معدل النمو في الناتج المحلي

Heteroskedasticity Test: ARCH

F-statistic	0.543791	Prob. F(1,33)	0.4661
Obs*R-squared	0.567399	Prob. Chi-Square(1)	0.4513

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/09/18 Time: 14:54
Sample (adjusted): 2 36
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.96790	4.589845	2.825346	0.0080
RESID^2(-1)	0.127449	0.172830	0.737422	0.4661

R-squared	0.016211	Mean dependent var	14.97832
Adjusted R-squared	-0.013600	S.D. dependent var	21.69771
S.E. of regression	21.84476	Akaike info criterion	9.061244
Sum squared resid	15747.38	Schwarz criterion	9.150121
Log likelihood	-156.5718	Hannan-Quinn criter.	9.091925
F-statistic	0.543791	Durbin-Watson stat	1.883878
Prob(F-statistic)	0.466077		