

**EFFECT OF GOVERNMENT SPENDING ON ECONOMIC  
GROWTH FOR SUB-SAHARAN AFRICA**

**BY**

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## DECLARATION

This is to certify that this thesis is the result of research undertaken by **SUZZIE OFOSUAH DARKOH** towards the award of the MASTER OF PHILOSOPHY (MPHIL) DEGREE in the Department of Economics, University of Ghana.

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## **DEDICATION**

This work is dedicated to God Almighty, my family, Nana Opoku Tenkorang, Michael Minlah, MPhil colleagues, friends and all who in diverse ways contributed to the success of this work.



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My greatest thanks and praise goes to Jehovah God Almighty for giving me the direction, strength, wisdom and courage to finish this work successfully. Indeed, with God all things are possible. I would like to thank my supervisors; Mr George Kwaku Tsikata and Dr. Michael Danquah for their rich advice, patience, guidance and commitment at every step of the thesis process.

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Though I received a lot of guidance and support from my supervisors and colleagues, I claim sole responsibility for any errors, omissions or misrepresentation that may be found in this work.



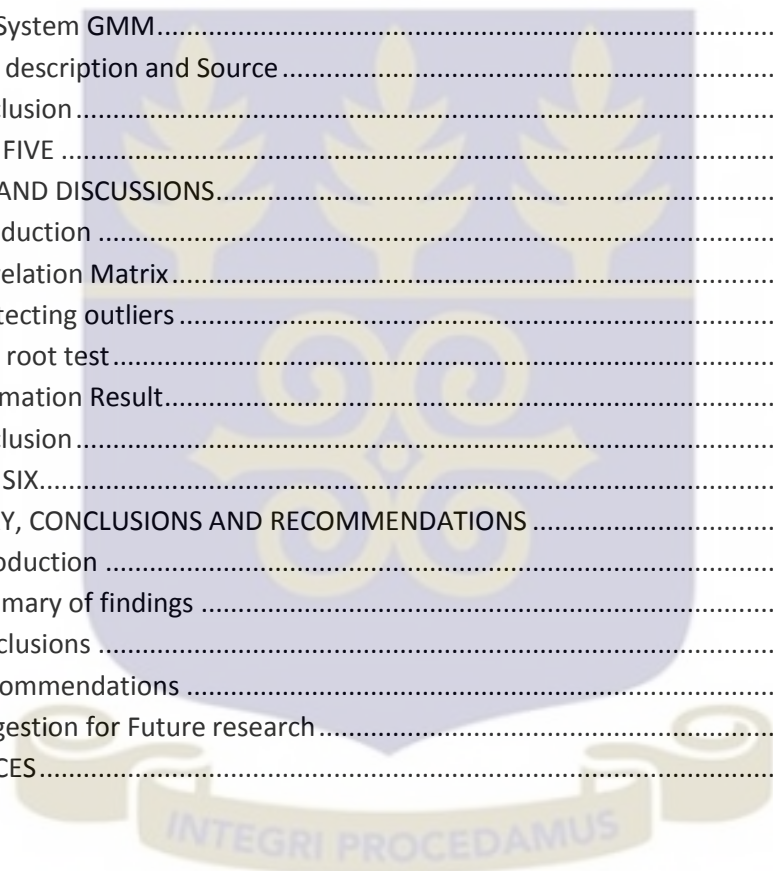
## ABSTRACT

Governments' role in fostering accelerated economic growth is very significant and plays a key role in poverty reduction for most developing economies, for which most Sub-Saharan African countries are dominant. The effect of public spending on economic growth with its attending policy implications has ignited the interest of researchers both theoretically and empirically. The study set out to determine the effect of total government spending on economic growth in Sub-Saharan Africa. The study used pooled OLS, Fixed and Random effects together with system GMM panel estimation technique to model the relationship between government expenditure and economic growth. Control variables like official development assistance, foreign direct investment, trade, debt, capital, labour force and household consumption were also included in the model. The study found a positive relationship between government expenditure and economic growth. Also, a positive relationship was found between economic growth and trade openness, foreign direct investment, consumption, capital and labour force while ODA was found to be negatively related to economic growth. The study recommends that governments should embark on expansionary fiscal policies in the form of investing in infrastructure particularly investing in human capital which in turn will increase the productivity of labour leading to economic growth. Government promotion of more trade liberalisation policies in order to increase import and exports is recommended. Also, deliberate attempt should be made to ensure that economies attract foreign direct investment. Governments should endeavour to reduce the effect of aid on economic growth by reducing the over reliance on aid and finding alternative way of funding government infrastructure.

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## LIST OF ABBREVIATIONS

APRM	African Peer Review Mechanism
ERP	Economic Recovery Programmes
GDP	Gross Domestic Product
IMF	International Monetary Fund
NEPAD	New Partnership for Africa's Development
OECD	Organization for Economic Cooperation and Development
R.H.S	Right Hand Side
SAP	Structural Adjustment Programmes
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
VIF	Variance Inflation Factor
WDI	World Bank Development Indicators



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the study

The role of the government in fostering accelerated economic growth is very eminent with respect to its scope and importance especially in less developed countries (Ketema, 2006). In administering its role, government spends on providing quality education, good health care and security for its citizenry, good transport systems, pay salaries of public servants, purchase weapons for the military etc. According to Gupta and Verhoeven (2001), provision of goods and services efficiently is imperative, not only in the debate on government size and private sector role, but likewise in macroeconomic stabilization and economic growth. Blanchard (2007) considered Government Spending as the purchase of goods and services by the federal, state or local government and does not include government transfers such as Medicare, Social Security payments or interest payments on the government debt. Blanchard (2007) similarly explained Economic growth as an increase in real GDP over a period of time.

Government expenditure plays a key role in poverty reduction for most developing economies, for which most Sub-Saharan African countries are dominant. This can be done if government channels its spending into programs (e.g. infrastructure) that will bridge the gap between the rich and the poor. Due to high population growth and increase demand for goods and services, governments spend to meet the expectations of its citizenry. Governments may also spend in an attempt to stimulate private investment leading to economic growth. In the process, governments end up increasing its expenditures (Twumasi, 2012). Covering about 23,638,000 square kilometres total

land area, Sub-Saharan Africa is made up of forty-eight (48) countries grouped under four (4) sub-regional blocks. With a GDP growth rate of 4.0 percent in 1980, Sub-Saharan Africa experienced a slowdown in GDP growth with a negative 1.2 percent and a negative 0.9 percent in 1983 and 1992 respectively. It reasonably shot up to 6.1 percent in 2006 and later fell to 4.2 percent in 2012 with the average GDP growth rate between 1980 and 2012 being 3.1 percent (World Bank, 2013). A critical look at these GDP growth rate figures suggests an unstable and uneven trend in growth rates for Sub-Saharan Africa. From the late 1970s to early 1980s, the economic status of most Sub-Saharan African countries steadily deteriorated due to huge macroeconomic imbalances which led to a dip in economic performance.

Among these imbalances included increase in budget deficits and current account balances (Dramani, 2010). For macroeconomic balance to be restored to fuel growth, governments embarked on tighter fiscal policies which were either to increase taxes mainly on the formal sector or decrease expenditures (Ferroni and Kanbur, 1991). These periods were called the lost decades of Africa's development. The International Monetary Fund (IMF) and World Bank later recommended structural adjustment programs to support the enactment of these policies (Dramani, 2010). Among countries which employed these programs were Ghana, Kenya, Zambia and Senegal.

For instance, as a structural reform, Kenya's government identified a National Development Plan which was implemented through the 1997-2001. The plan recognized private sector investment as a driving force of growth for that period (Gachino, 1998). GDP growth rate for Kenya in 1997 was less than 1 per cent but rose to 3 per cent in 1998 and by the end of implementing the development plan in 2001;

GDP growth rate had shot up to 4 per cent. Government spending (% of GDP) nonetheless was stable at 16 per cent from 1997 through to 1999 but decreased by 1 per cent in 2000. By 2001, it increased to 16 per cent (World Bank, 2013). Ghana on the other hand, introduced the Economic Recovery Programme (ERP) in April 1983. The ERP was implemented over the 1983-1986 with the aim of sustaining economic growth. In 1986, the government of Ghana supplemented the ERP with Structural Adjustment Programme (SAP) which was to correct some structural discrepancies in the economy. After the inception of ERP/SAP, Ghana's growth rate rose from a negative growth rate of 5 per cent in 1983 to a positive rate of 8 per cent in 1984 while government spending increased from 6 per cent to 7 per cent in 1983 and 1984 respectively (Aryeetey and Fosu, 2005).

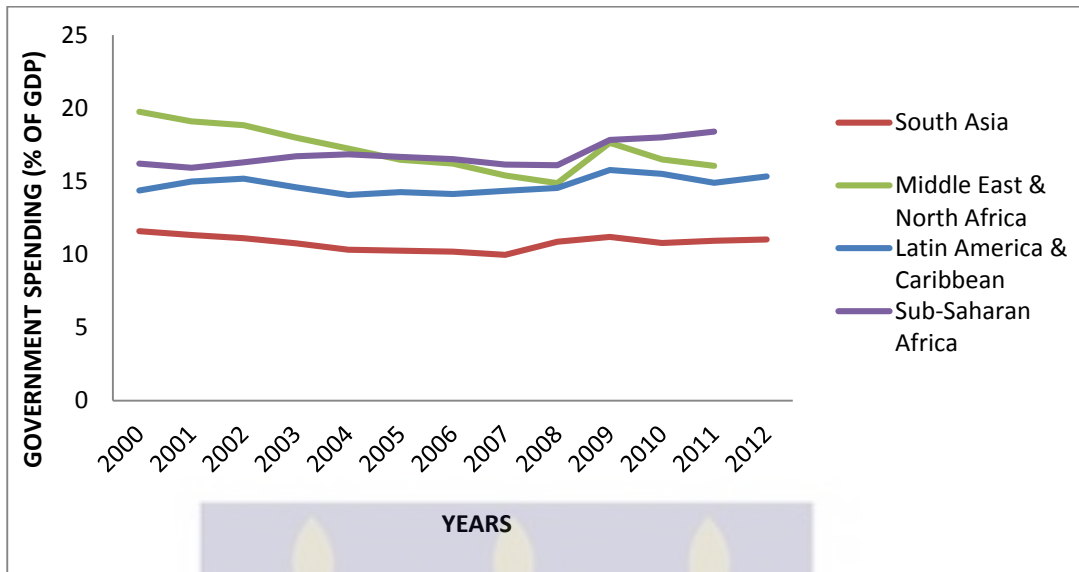
Dramani (2010) noted that, after so many years of executing these reform programs, their outcomes in countries were barely satisfactory. The basic question that comes to mind is the extent to which these fiscal policies and reforms affect growth. More so, even if these reforms have an effect on growth, which area of government spending (capital vs. recurrent) which in itself is a fiscal policy should be given maximum concentration.

Nkurunziza et al. (2003) stated that, Sub-Saharan African countries have low economic growth rates which make it almost impossible to catch up with developing countries. Modebe et al. (2012) also argued that, government spending in most developing countries had steadily increased over the years without any significant increase in economic growth and development. Basu et al. (2005) and Ndambiri et al. (2012) recommended that, Sub-Saharan African countries need a sustained and a substantial

increase in real per capita GDP growth rates, coupled with significant improvements in social conditions. It is therefore clear that, although several factors may contribute to a country's growth performance, government spending on social and economic infrastructure may be an important ingredient in growth acceleration and poverty alleviation in Sub-Saharan Africa. Available data from World Bank (2013) buttresses Nkurunziza et al. (2003) argument about Sub-Saharan Africa's growth rates.

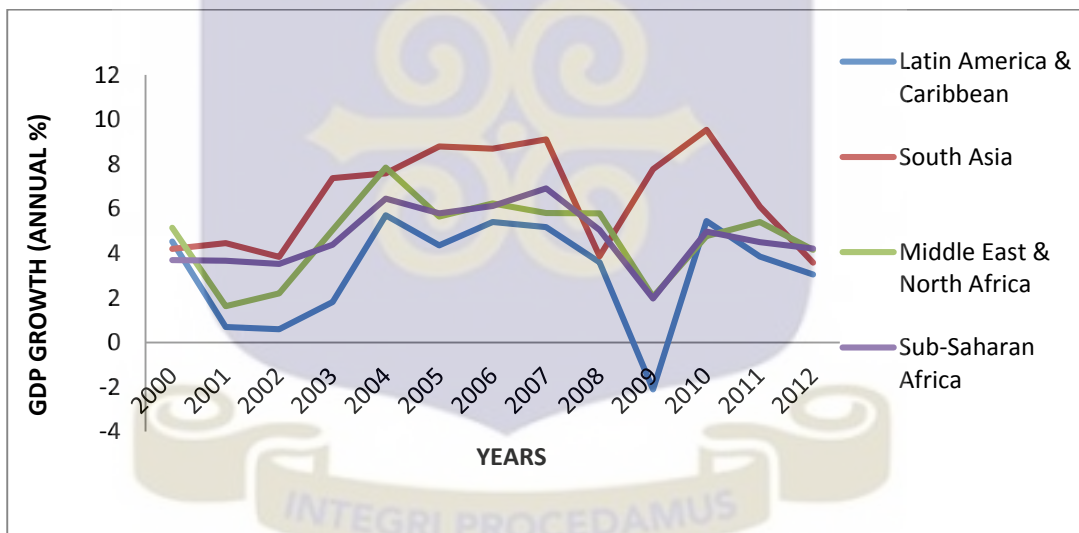
Between 1980-2012, Sub-Saharan Africa's economic growth measured by GDP growth rate was 3.1 per cent while government spending (% of GDP) was 16.8 per cent against South Asia's 5.9 per cent and 11 per cent for average growth rate of GDP and government spending respectively. It can be seen that, South Asia's spending on average for the period was considerably less than that of Sub-Saharan Africa but the former's growth rate average was significantly higher than the latter's.

Similarly, GDP growth averaged to 2.8 per cent while government spending (% of GDP) also averaged to 13.2 per cent for Latin America and the Caribbean. Comparing Latin America's average spending to that of Sub-Saharan Africa shows a substantial difference of 3.6 per cent in growth rate but an insignificant difference of 0.3 per cent in government spending. Interestingly, Middle East and North Africa also witnessed Sub-Saharan Africa's trend in average growth rate and spending figures for the same duration. Recording an average government spending (% of GDP) of 20.7 per cent, GDP growth rate averaged 3.6% for Middle East and North Africa. The information is displayed in figures 1.1 and 1.2



**Figure 1. 1: Trends in Government Spending from 2000-2012**

Source: World Bank (2012)



**Figure1. 2: Trends in GDP growth from 2000-2012**

Source: World Bank (2012)

### 1.1 Problem Statement

In recent years, the effect of government spending on economic growth with its attending policy implications has ignited the interest of researchers both theoretically

and empirically. However, few works on the theme have virtually been carried out especially for Sub-Saharan Africa. Theoretical and empirical studies on the impact of government spending on economic growth are also ambiguous and inconclusive. In theory, Keynesian school of thought assumed that an increase in government spending is likely to increase aggregate demand and eventually result in an increase in income. Wagner (1893) on the other hand also postulated that economic growth rather has an effect on spending. There is also the conventional view which argues that government spending is a source of economic unsteadiness or stagnation, although theoretical, there are diverse options.

Empirical investigations are however not in support of the conventional view (Yasin, n.d.). Whilst some studies have significantly shown a positive relationship between government spending and economic growth, others have concluded a negative or no correlation between government spending and real output growth. Yasin (n.d.) found a positive effect of government spending on economic growth for Sub-Saharan Africa. Gupta et al. (2002) in his study established a positive relationship between government spending and growth for low income countries. Muritala et al. (2001) also carried out a study and found a positive relationship between government expenditure and economic growth in Nigeria. Kweka et al. (1999) found a negative relationship between government spending and economic growth in Tanzania. Nketiah-Amponsah (2009) found a negative effect of government spending on economic growth for Ghana. It is against this background of seeming contradictions that the study seeks to analyse the impact of government spending on economic growth in Sub-Saharan Africa using panel estimation technique.

Lastly, Sub-Saharan Africa is divided into four sub-regional blocks: East, South, Central and Western Africa. Limited research works available were carried out without considering the above-mentioned sub-regional blocks within the region (see Yasin, n.d; Fan et al, 2003; Sobhee, 2010). This study will therefore look at each region's spending effect on economic growth.

## **1.2 Objectives of the study**

It is the desire of every government to properly allocate and put to efficient use its scarce resources as the results are greater (Ketema, 2006). Inappropriate allocation and mismanagement of scarce resources will lead to a downturn in economic performance and growth. In this light, the main objective of the study is to assess empirically the long run effect of government spending on economic growth for some selected Sub Saharan African countries. Specifically, the study seeks:

- i. To estimate the effect of total government spending on economic growth in Sub-Saharan Africa.
- ii. To analyse the effect of government spending on economic growth by each sub-region in Sub-Saharan Africa (East, West, South and Central Africa).

## **1.3 Research Questions**

The research questions to be addressed in this study are:

- i. What is the effect of total public spending on economic growth in Sub-Saharan Africa?
- ii. Which sub-region's government spending contributes positively to economic growth in Sub-Saharan Africa?

#### **1.4 Relevance of the study**

Though the objective of the study is similar to other empirical studies, this study will contribute to literature by incorporating most current data in the analysis. The study will also employ most recent panel estimation techniques. Similar literature examined the effect of public spending on growth using Random effects and Fixed Effects. Though previous studies used Variance Inflation Factor (VIF) to deal with the issue of multicollinearity, they did not account for endogeneity which is likely to exist when using panel or cross-sectional data. Thus, this study will adopt the System Generalized Methods of Moment to deal with the issue of endogeneity which if not accounted for, may lead to spurious results.

The study also seeks to direct policy makers to know which sub-region's government spending impacts positively on economic growth. Thus, in channelling limited resources, decision makers will know which sub-region to invest more resources in order to boost economic growth in Sub-Saharan Africa.

From the study, policy makers would know the effect of government spending on economic growth for Sub-Saharan Africa and this will allow them make conscious decisions when it comes to government spending expansion or reduction for the sub-region.

Lastly, this work will also be an addition to the stock of literature on the topic and serve as a guide for further studies.

### **1.5 Organization of the study**

The study will be organized into six chapters; Chapter one will constitute the general background to the study, problem statement, objectives of the study, research questions, relevance of the study and the organization of the study. Chapter two will give a general overview on economic growth and government spending in Sub-Saharan Africa. Chapter three will review literature on the subject matter. The focus of chapter four would be a briefing on the research design or methodology, type of data, and source of data. Chapter five will also focus on data analysis; summarize the main findings of the study and make inferences. Chapter six which is the final chapter is made up of summary of the study, conclusions and recommendations based on the findings of the study.

### **1.6 Limitation of the Study**

The study does well to disentangle the effect of government expenditure on economic growth. However, lumping all Sub-Saharan African countries together in one model may pose as a limitation to this study. There is a possibility of sub-sub-regional heterogeneity. Therefore, it would be quite interesting to have separate models for each sub-region. Again, empirical literature reveals that Total Government Expenditure can be disaggregated into Recurrent and Capital Expenditure which have different effects on economic growth. Though the study initially wanted to delve into looking at the effect of disaggregated government expenditure on economic growth, time constraint and data availability posed as a major setback to achieving this objective. A disaggregated analysis on government expenditure on economic growth would be more policy focus.

## CHAPTER TWO

### OVERVIEW OF ECONOMIC GROWTH AND GOVERNMENT

#### SPENDING FOR SUB-SAHARAN AFRICA

##### 2.1 Introduction

This section reviews literature on the overview of economic growth and government spending in Sub-Saharan Africa.

##### 2.1.1 Overview of Economic Growth in Sub-Saharan Africa

The composition and growth rate of Africa from 1960 to 1973 was very quick in the first half of the century. Growth in Sub-Saharan Africa could to a large extent be easily compared to that of south Asia's (Collins and Bosworth. 1994).The same story cannot be told especially in current times. This is primarily due to the fact that, Sub-Saharan Africa experienced a growth decline in the 1970s with many countries in the sub-region turning in to autocracy and dictatorship. Whereas Sub-Saharan African countries experienced a downturn in growth during that period, South Asian countries were fast developing.

A typical example is Nigeria and Indonesia where Nigeria had a good headway in economic performance and was greatly superior to Indonesia in growth terms around 1970. But over the next quarter-century, this pattern has not been the same. The tables have turned and Indonesia is far advancing in growth than Nigeria. It is noteworthy that, both countries are oil producers with a large agricultural sector.

Sub-Saharan Africa has also recorded a fall in its aggregate per capita GDP at almost 1 percent per annum since 1980. Out of 54 countries, 32 in the region are said to be poorer now than during 1980. More so, reports from research institutions suggest that Sub-Saharan Africa is the lowest-income region in the world (Collier et al, 2014). Many people have tried to come out with plausible reasons for the fall or somewhat slow growth in Sub-Saharan Africa. The cause of slow growth until recently was greatly attributed to overvalued exchange rate relative to market rates and trade policies by the World Bank, International monetary fund and bilateral donors (Collier et al, 2014). There has also been high restriction on tariffs and quantitative trade in Sub-Saharan Africa than other less developed economies of Asia and Latin America. Terms of trade were also volatile and had declined over the years.

Bloom and Sachs (1998) have also credited Sub-Saharan Africa's slow growth to its low life expectancy and high population growth account. According to them, high population growth induces low income because of cheap labour. Low income is a disincentive to work hard thereby causing productivity to fall and a disadvantage to growth.

However, this proposition is highly debatable because cheap labour due to high population growth will be an incentive for workers to work hard and not shirk at work. A high population growth means it is very likely to have a large number of the population in the labour force and an employer could easily find a substitute to replace a shirking employee. Workers will therefore be serious with their productivity which will eventually lead to growth in the long run. Also, slow growth in Sub-Saharan Africa has been linked to "the curse of the tropics" (Sachs and Warner, 1997).

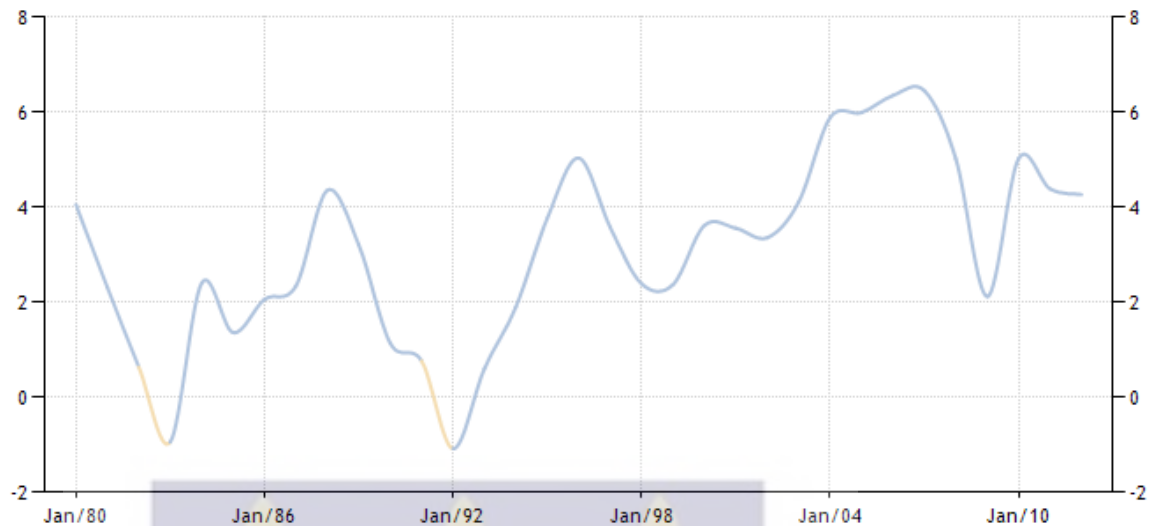
Based on their argument, life expectancy in Sub-Saharan Africa is low as compared to other regions due to bad climate which affects the health of its people negatively. Also, productivity from the agricultural sector is generally low due to unreliable rainfall which has also led to loss of soil fertility, poor harvest and food insecurity.

To add to their explanation, they also noted that Sub-Saharan Africa seems to have a wide cultural and ethnic difference which makes it almost impossible to have an interconnected economy. Ethnic differences may have a negative impact on growth when governments are undemocratic. An important factor that may hinder growth in Sub-Saharan Africa is small population size of countries in the region as compared to countries in other regions in the world. These countries in Sub-Saharan Africa are also battling with low levels of income making it economically disadvantaged. Governments of small states may find it difficult performing some of its administrative duties or providing services at minimum cost given its fixed costs.

Also, producers are not able to exploit large economies of scales due to low incomes and small domestic markets which make it very difficult to compete with larger economies. Investors are also not motivated to invest as they may deem production in these areas as more risky (Collier and Dollar, 1999a). Though the sub-region has recorded widespread corruption, it has been able to achieve greater heights in terms of economic governance and public finance management through various reform implementations creating a sound environment for investments and private sector growth (Bouoiyour et al, n.d.).

According to Chuhan-Pole et al. (2013), economic growth in Sub-Saharan Africa pulled up in the mid-1990s after many years of poor performance. Since 1996, per capita GDP has been growing at 2.4 percent per year on average thereby increasing GDP per person by about 50 percent. Numerous reasons have been given to account for this turnaround. This includes improved macroeconomic policies, increased foreign aid and a significant reduction of debts by countries in the sub-sub-region. Also, during 2000s, a significant role was played by buoyant commodity prices and the extension of mineral resource exploitation in a number of countries. GDP per capita in resource-rich countries including Angola, Nigeria, and Zambia, on average grew 2.2 times faster during 1996-2011 than in resource-poor countries such as Ethiopia, Rwanda, and Mozambique .

A significant part of Sub-Saharan Africa's recent growth is driven by these resource-rich countries and may continue to do so, given the spate of recent mineral discoveries. It has been anticipated that, by 2020, only 4 or 5 countries in the sub-region will not be caught up in mineral exploitation. The authors also stated that, higher population growth in resource-poor countries as compared to resource-rich countries may account for the difference in growth performance (overall GDP grew only 1.3 as opposed to 2.2 times faster in resource-rich countries relative to resource-poor ones). Below is a diagram showing GDP growth in SSA from 1980 to 2012.



**Figure 2.1: GDP growth (annual %) in SSA, 1980-2012.**

Source: World Bank (2012)

Fig 2.1 shows the annual GDP growth rate for SSA from 1980-2012. Growth in SSA rebounded sharply in 2010 resulting from a combination of factors such as the global recovery from the Global financial crisis and so on. GDP in SSA is estimated to have increased from 1.7percent in 2009 to 4.7percent in 2010 compared to pre-crisis (2000-2008) average growth of 5percent. Overall sub-regional growth in 2010 decreased as a result of slower growth rate of the sub-regions' largest economy, South Africa which grew by 2.8percent. GDP growth rate in SSA remained robust at 4.6percent in 2012. Excluding the SSA largest economy, South Africa, GDP growth rate was at 5.8percent in 2012.

In terms of contribution of agriculture to growth, Chuhan-Pole et al. (2013) pointed out that, the three fast growing resource-poor countries named above contribute about 2.5 percentage points per year compared to only 1 percentage point provided by three fast growing resource-rich countries. The contribution of manufacturing or other (non-

mineral) related industries remained modest in both groups. Below is the growth trend of some selected composition of GDP.

**Table 2. 1: Sub-regional Sectoral Composition of GDP**

Sub-region	Sector	1960s	1970s	1980s	1990s	2000s
East	Services	35.5	36.9	43.8	50	53.4
	Industry	12.8	14.5	14.5	16.1	17.9
	Agriculture	51.7	48.6	42.5	34.3	28.8
Central	Services	35.5	36.9	43.8	50	53.4
	Industry	12.8	14.5	14.5	16.1	17.9
	Agriculture	51.7	48.6	42.5	34.3	28.8
Southern	Services	40.1	42.1	44.1	46.8	50.6
	Industry	26.2	31.9	36	36.7	35.9
	Agriculture	37	26	19.9	16.5	13.6
Western	Services	37.6	40.9	47.3	43.9	45.7
	Industry	17.4	19.4	18.7	20	20
	Agriculture	44.8	39.7	34.1	36.1	34.3

Source: World Bank (2013)

From the table, it can be seen that the largest contributor of growth for most of the sub-regions is agriculture, followed by services and then industry. Though agriculture contributes most, it reflects a diminishing growth over the years. That proportional decrease is being absorbed by industry and services.

### 2.1.2 Overview of Political Developments in Sub-Saharan Africa

Alban Ahoure stated in *Africa in focus*, 2011 that improved governance which constitute political stability, government efficiency and corruption control mitigates high public efficacy and effective allocation of scarce resource allocation. Sub-Saharan Africa is believed to be blessed with enormous natural resources and the onus lies on countries in the sub-region to implement good governance capable of attaining economic growth in order to alleviate the high levels of inequality (Bouoiyour et al, n.d.).

Sub-Saharan African countries have been under colonial rule and this has had an effect in their doings in the past including governance. The colonial era exhibited an autocratic rule with the whites solely responsible for decision making and directing the affairs of the people in the colonies. During the 1970s and 1980s, Sub-Saharan African governments were close to autocracy than democracy because most of these countries were governed by small educated elites who lived in urban areas with little interest in agriculture (Collier and Gunning, 1999).

Despite the fact that SSA has being home for many countries who have performed abysmally poor in adhering to the rule of law, freedoms of association and expression, elections and civic mobilization, widespread corruption, most of these countries have nonetheless committed to providing democratic governance to its citizenry (Freedom house, 2013). For instance, in 2001, the New Partnership for Africa's Development (NEPAD) was launched out of which came African Peer Review Mechanism (APRM) to harness sub-regional policy integration in Africa through good governance and democracy (Ottosen, 2010).

Countries in the sub-region embraced democratic transformation in the 1990s and early 2000s. This transformation was however uneven among countries. A report on African Governance by the Economic Commission for Africa (ECA) mentioned that, the road to political governance in some countries had been smooth whilst others retrogressed in the process. Thus, on the whole, there has been a marginal process to democracy and good governance in Sub-Saharan Africa over the years.

Prior to the 1990s and early 2000s, a number of Sub-Saharan African countries had been through various phases in their journey to democratization in the 1990s. From colonial states, these countries changed to post-colonial states and finally to neo-colonial. Both the post-colonial and neo-colonial era had similar traits with primary characteristics of one-party rule, military regimes and dictatorships.

The neo-colonial period gradually developed into various forms of democratic transition (Africa in focus, 2011). Thirty-five (35) out of the fifty-four (54) Sub-Saharan African countries were under military or one-party rule at the end of 1980s. By the end of 1993, at least 35 countries had given in to multiparty rule. The fight for democracy by many countries in the sub-region was made possible with the assistance of international developmental agencies such as United Nations Development Programmes (UNDP), World Bank etc. These agencies provided facilities such as aid and trade concessions that easily made for good governance.

There has been series of dialogues and debates by scholars from all over the African continent and the international fraternity to examine the dimensions of both democratic

and authoritative governance and their growth impacts in Sub-Saharan Africa. There is the conventional wisdom that, democracy complements economic growth and other goals of development. Nevertheless, it is believed that, democracy alone does not promote economic growth but rather a combination of democracy and strong rule of law.

Alesina and Rodrik (1994) stated that democratic governments are sometimes refrained from making good economic policies and reforms which impede growth in the long run due to pressures from particularistic interests and often undermine investment. Autocratic governments conversely are alleged to oppose these pressures especially when it has to do with income redistribution.

Sub-Saharan African countries have been noted to practice weak democracy due to high levels of corruptions, weak institutions, poor tax compliance and ineffective collection of government revenues to finance expenditures. This leads to low investment levels and slower economic growth (Polterovich et al, n.d.). In their assertion, they vehemently mentioned that democracies with a strong rule of law enhance economic growth and lower growth rates are associated with weak democracies. Also, they stated that economies with poor rule of law would thrive well and produce higher growth rates under autocratic regimes than democratic regimes. A country with good governance and deepened democratic processes is more likely to attract direct foreign investors and aid for economic growth due to its good business climate.

## 2.1. Overview of Aid and FDIs in Sub-Saharan Africa

The growth of Sub-Saharan Africa has over the years been supported by international capital flows, foreign aid and remittances from donor organisations such as Organization for Economic Cooperation and Development member countries (OECD), Arab countries, China, World Bank, and International Monetary Fund despite its vast natural resources (Diakhate, 2012). Tax revenues available to governments in Sub-Saharan Africa are often inadequate to finance their expenses. They therefore resort to foreign assistance to balance their national budget (Africa in focus, 2011). International capital flows to Africa such as foreign direct investment, banking lending and investor purchases of equity grew from \$15 billion in 2000 to \$87 billion in 2007 (McKinsey Global Institute, 2010). Also, FDI flows to Africa have been steadily increasing over the last few years from \$ 20 billion in 2001 to \$50 billion in 2012, a rise of 5 per cent from 2011 (Economic Report on Africa, 2014). Despite the fact that there has been a continuing global financial crisis and donor countries continue to tighten their aid budgets, total aid to Africa increased from \$51.3 billion in 2011 to \$56.1 billion in 2012. (Economic Report on Africa, 2014).

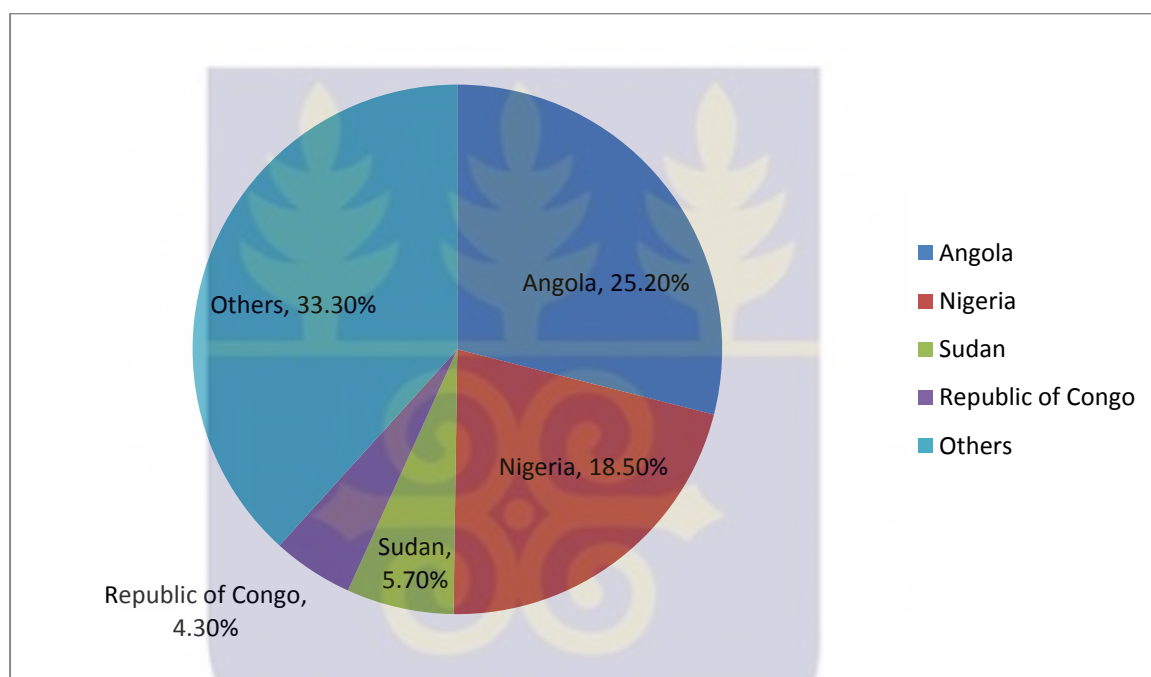
According to the McKinsey Global Institute (2010), at least \$500 million was made available to more than 20 African countries in the sub-region in the form of foreign direct investments. Kenya's horticulture sector benefited from foreign direct investment and increased its export from \$275million to \$700 million in 2000 and 2007 respectively. Instead of countries in Sub-Saharan Africa to rather put into an effective use their vast natural resources to fund development, bad governance and corruption by their governments serve as a limitation thereby making them compete for limited external aid available to them.

Murithi (2005) revealed that Uganda Revenue Authority in 2005 made about fifty-seven (57) percent from tax collection with the remaining percentage being unaccounted for. It is likely the government fell on donor aid to cover for the shortfall in revenue. It is also disheartening to note that, tax mobilization was inefficient probably either due to a dysfunctional tax administration or corruption or both.

According to Chand and Moene (1997), inefficient revenue mobilization is as a result of fiscal corruption in most developing economies. To ensure maximum amount of tax revenues, stringent measures should be put in place to reduce corruption (Gupta, 2007). Governments in developing countries must try to tackle corruption as an issue so as to obtain efficient and appropriate tax revenues and not depend on foreign aid to supplement domestic budgets since aid are merely stepping stones to long-run development. Huge dependence on aid has caused improper fiscal management by most governments. Collier and Dollar (1999) have argued that the effectiveness of foreign aid also depends largely on the policy environment irrespective of the state size. A sound policy environment is envisaged to increase investor confidence and induce them to also provide aid.

Though aid may be very important to a country's development, Oswaldo De Rivero (2002) suggests that recipients of aid should be extra careful since donor countries may indirectly use it as a tool for control, manipulation and dominance. The reality on grounds is that, aid packages come along with some conditions to be met by the recipient and these conditions usually undermine the total freedom of recipient countries. Donor countries deliberately devise aid packages to favour their economic

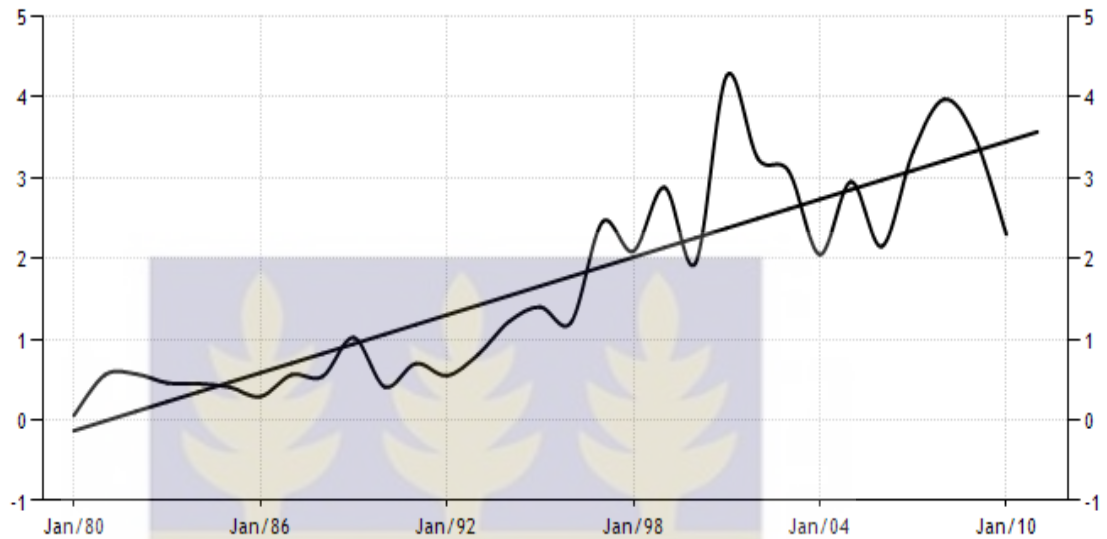
and political ambitions. Donor countries ship their non-competitive goods and make recipient of aid buy them at relatively cheaper prices. Donor countries also sometimes formulate trade policies between recipient countries and other European partners, thereby limiting recipient countries from formulating their own trade policies (Diakhate, 2012).



**Figure 2. 2 :** Country shares of FDI flows to Sub-Saharan Africa (1980-2012).

**Source:** UNCTAD 2012 (FDI Statistics)

Figure 2.2 shows that over the past 32 years, Angola received 25.20percent of the total SSA FDI followed by Nigeria (18.50percent), Sudan (5.70percent) and the Republic of Congo (4.30percent). Other SSA countries excluding Angola, Nigeria, Sudan and Republic of Congo received 33.0percent of total SSA FDI from 1980-2012.



**Figure 2.3: FDI, net inflows (% of GDP) to SSA, 1980 - 2010.**

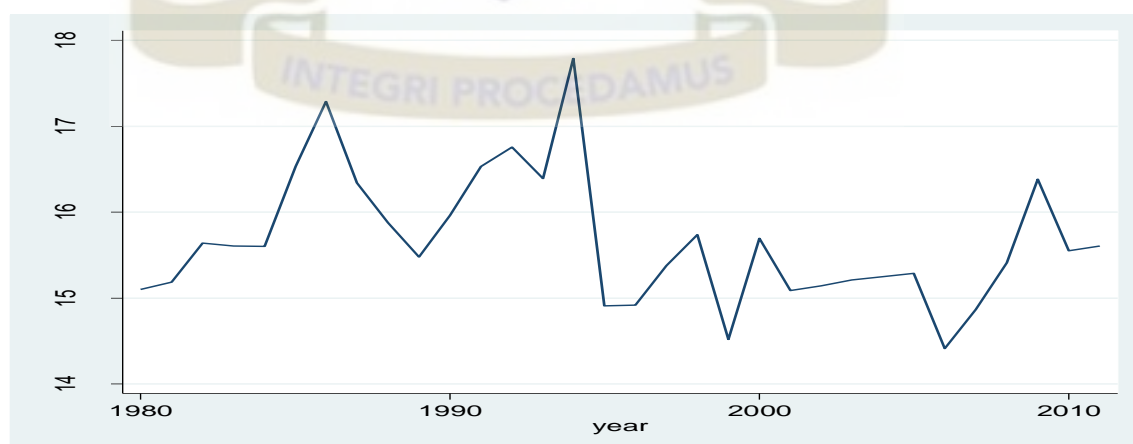
Source: UNCTAD 2012 (FDI Statistics)

Figure 2.3 shows the trend of FDI, net inflows (% of GDP) in Sub-Saharan Africa from 1980 - 2010. The share of FDI in GDP in SSA averaged at 0.796 per cent during the period between 1970 and 1980. Though this average dropped to 0.472 per cent in the 1980s, it rose steadily to 1.486 per cent in the subsequent decade. Currently, the share of FDI in GDP averages at 3.481 per cent. Despite these observed increases in FDI inflows into the sub-region, the share of FDI in GDP in the sub-region remains below significant.

## 2.2 Overview of Government Spending in SSA

Government expenditure for all African countries put together grew at a rate of 3.7 percent over the period 1980 to 2005 but with reference to Sub-Saharan African

countries, expenditures grew at 4.9 percent over the same period. These growth rates have increased steadily over each decade from 2.3 percent in the 1980's to 4.3 percent in the 1990's and 4.8 percent after 2000. Country specific, Botswana, Burkina Faso, Ghana and Uganda's total expenditure have grown at an annual rate of about 7 percent since the year 2000 (IMF, 2008). Figure 2.4 showing the trends in government spending for SSA. It can be seen that government spending gradually increased from 10.35 percent in 1960 to a little above 14 percent in 1972. However, spending decreased to almost 13 percent in the middle 1970s and began to rise after 1976. SSA recorded high spending figures in the early 1990s and this was probably because most countries in the region had liberalized themselves financially from most international programs and policies binding their spending rates. Government spending however fell again in the late 1990s to early 2000s and picked up in 2010. On average, government spending for SSA from 1960 to 1970 was 12.22 per cent and this increased to 14.79 per cent from 1971 to 1980. Spending further increased to an average of 16.90 percent from 1981 to 1990. The period 1991 to 2000 recorded a slight drop in spending from 16.90 per cent (1981-1990) to 16.89 per cent on average. Government spending from 2001 to 2010 was 16.86 per cent on average for SSA.



**Figure 2.4: Government spending trends in SSA, 1980-2010**

Source: WDI (2013)

There are various compositions of government spending but Fan et al. (2003) revealed that, the top three most prioritized sectors of government expenditure for Sub-Saharan Africa in 2005 were education, health and defence. Other expenditures including government spending on fuel and energy, mining, manufacturing and construction, subsidies and general administration accounted for about half of total government spending in Sub-Saharan Africa for 2005.

**Table 2. 2: Trends and structure of public expenditure in Sub-Saharan Africa, 1988–2011: some major components.**

Year	General government final consumption expenditure (% of GDP)	Health expenditure, total (% of GDP)	Military expenditure (% of GDP)	Public spending on education, total (% of GDP)
1988-1991	17.43884914		2.99499905	
1992-1995	17.24509743	5.707883357	2.377926647	
1996-1999	15.75034843	6.142585787	1.726236891	3.538705
2000-2003	16.08196727	6.092893633	1.867965473	3.5641525
2004-2007	16.41948422	6.628642672	1.621914755	3.9811975
2008-2011	17.16060883	6.574701898	1.523631244	4.088175

Source: World Bank (2013)

Table 2.2 shows some major components of government expenditure in SSA. It can be seen that consumption expenditure compared to the others continue to be the highest component of government spending for Sub-Saharan Africa. Consumption expenditure

(as a percentage of GDP) recorded high figures in the 80s for Sub-Saharan Africa. However, figures fell in the late 90s and picked up in the 2000s. This was partly because most countries were under IMF policies in the 1990s and these policies including SAP limited the extent to which governments spend. However, government spending in the 2000s increased because most countries wined themselves from these initiatives and programs by IMF, World Bank and other institutions. For example, the share of consumption expenditure (as a percentage of GDP) in total expenditure for Sub-Saharan Africa was 17.08 per cent on average for 1988-1989 but fell to 16.76 per cent on average for the period 1990-1999 and again decreased to 16.54 per cent on average from 2000 to 2011.

Health and education expenditures (as a percentage of GDP) have recorded slight increases over the years for Sub-Saharan Africa, although the importance of these relative to other expenditure items has declined. This can be seen from table 2.2 below. For example, the share of public health spending in total expenditure increased from an average of about 6.06 per cent during 1995–1999 to about 6.43 per cent from 2000-2011. Also, the share of education in total expenditure increased from an average of 3.52 per cent from 2000-2002 to 3.89 per cent from 2003-2005. From 2008-2010, an average of 4.08 per cent was recorded for the sub-sub-region.

Military Expenditures (as a percentage of GDP) have on the other hand declined over the years for Sub-Saharan Africa. Conflicts have been very pervasive in most countries in the sub-sub-region during 19980s and early 1990s and this caused the share of military expenditure in total expenditure to be high for that period. However, the journey to democracy for most Sub-Saharan African countries started in the middle

1990s and gained full force in 2000s. Thus, the share of military expenditure in total expenditure dwindled considerably for the sub-region. For example, the share of military expenditure in total expenditure decreased from an average of 3.09 per cent from 1988-1989 to 2.22 per cent from 1990-1999 and eventually to an average of 1.67 per cent from 2000-2011 for Sub-Saharan Africa.



## **CHAPTER THREE**

### **LITERATURE REVIEW**

#### **3.1 Introduction**

This chapter discusses theoretical literature in support of the study. The chapter also reviews literature on various economic growth theories beginning with early growth theories. Some government expenditure models and the reasons why government intervenes in the market are briefly explained in this chapter. The chapter will be concluded by reviewing and identifying gaps in various empirical works done on the effect of government spending on economic growth in Sub-Saharan Africa. This chapter will be divided into two sections. The first section would consider theoretical review and the second will discuss empirical literature on the subject.

#### **3.2 Theoretical Literature**

This section provides an extensive overview of some growth theories by various authors. It reveals the stylized and contrasting theories in relation to growth.

##### **3.2.1 Economic Growth Theories**

Over the years, there have been various growth theories by economic researchers that try to identify the fundamental causes of economic growth in an economy. From the theoretical viewpoint however, there still remain some controversies over the determinants of economic growth since these theories provide mixed postulations.

Roy Harrod and Evsey Domar (Harrod, 1939; Domar, 1946) propounded the Harrod-Domar growth theory where they postulated that, high rate of unemployment necessitates growth. Smith and Malthus in their classical models explained that in the absence of technology, population increase and fixed land is necessary for economic

growth (Ketema, 2006). Robert Solow and TW Swan (1956) also propounded the Solow-Swan model which is now commonly termed as the Solow model. According to Solow's model, saving rate, population growth and technological advancement are vital for economic growth.

Solow (1956) begins his analysis using a simple Cobb-Douglas production function.

$$Y = f(K, L, A) \dots\dots\dots (1)$$

Where Y is output, K is the stock of physical capital, L is labour force and A is the level of technology. Solow (1956) in his assertion explains capital as output saved and invested but not consumed. Solow (1956) also assumed a single good economy with no government intervention to affect long run economic growth. Equation (1) can be subject to intense calculus to obtain equation below:

$$k^{\bullet} = sy - (n + \delta)k \dots\dots\dots (2)$$

But at the steady state,  $k^{\bullet} = 0$ . Hence equation (2) now become

$$0 = sy^* - (n + \delta)k^* \dots\dots\dots (3)$$

$$(n + \delta)k^* = sy^* \dots\dots\dots (4)$$

But according to Solow, at the steady state,

$$y^* \equiv k^{*\alpha} \dots\dots\dots (5)$$

Hence, equation (5) now becomes,

$$(n + \delta)k^* = sk^{*\alpha} \dots\dots\dots (6)$$

Taking  $k^*$  to the R.H.S and dividing through by  $s$  gives us:

$$\frac{(n + \delta)}{s} = k^{*\alpha-1} \dots\dots\dots (7)$$

Hence  $k^*$  becomes

$$k^* = \left( \frac{s}{n + \delta} \right)^{\frac{1}{1-\alpha}} \dots\dots\dots (8)$$

But by employing the idea that  $y^* = k^\alpha$ , we finally get

$$y^* = \left( \frac{s}{n + \delta} \right)^{\frac{\alpha}{1-\alpha}} \dots\dots\dots (9)$$

Therefore, Solow (1956) explained that output is determined by saving rate, depreciation rate and the population growth rate. The analysis made by Solow (1956) brings out three important growth issues. Economies which devote a larger proportion of their output to investment are likely to be richer than those which did not. Though this proposition was not well elaborated on, some economists have attempted to explain it.

Logically, rich economies are expected to have essential institutions to enhance investment in physical capital, human capital and technological knowledge. Another prediction made was that, an economy's growth will be faster if its capital stock is

farther away from its steady state. Finally, Solow (1956) predicted that, capital accumulation which comprises of both saving and investment cannot explain long-run economic growth. This is mainly due to the fact that, an increase in saving rate for example increases per-capital income and does not have any long-run growth rate effect. Permanent growth effects are seen only by changes in technology and all other changes have level effects. One limitation of Solow's (1956) analysis is that capital stock (K) was considered only to be physical capital and not both physical and human capital.

Mankiw, Romer and Weil (1992) however included human capital accumulation to Solow's postulation which affects both the theoretical and empirical analysis of growth. Theoretically, the nature of growth processes can be altered when human capital is measured accurately. Lucas (1988) argued that, returns to all reproducible capital (human plus physical) are constant when human capital is held constant though returns to physical-capital accumulation are decreasing. Empirically, a cross-country differences analysis may differ when human capital is included. Human capital omissions will alter its impact on physical-capital accumulation and population growth on income per capita.

Adolf Wagner (1893) also argued out public spending as an endogenous factor determined by the growth of national income. Wagner's model can be seen as

$$G = f(Y) \dots\dots\dots (10)$$

Where G is Government Spending and Y is Output.

In support of Wagner's theory is Rostow (1960) who came out that, public expenditure increases may be as a result of society's pattern of economic growth and development.

Peacock and Wiseman (1961) also postulated the Peacock-Wiseman theory to add to Wagner’s hypothesis. They suggested that, public sector expenditure increases due to social crises.

Keynesian (1936) also postulated another growth theory where public spending is seen as an exogenous factor in determining growth through its multiple effect on aggregate demand. Keynes analysis is made using a conceptual AD-AS framework in an open economy.

$$Y = C + I + G + NX \dots\dots\dots (11)$$

Where Y is Aggregate Output, I is Investment, G is Autonomous Government expenditure, NX is Net Exports (exports minus imports) and C is Autonomous Consumption. From the above-stated equation, all the variables are positively related to Output. This means that, any change in Government Spending will affect Output and shift the AD curve depending on the strength of the multiplier.

Autonomous consumption can be further broken down into an autonomous and induced part shown below as:

$$C = a + bY^d \dots\dots\dots (12)$$

Where **a** is autonomous consumption and  $Y^d$  is disposable income. By totally differentiating the Autonomous Consumption function, we have

$$dY = da + b dY + dI + dG + d(X - M) \dots\dots\dots (13)$$

$$dY - b dY = da + dI + dG + d(X - M) \dots\dots\dots (14)$$

Now, assuming  $da$ ,  $dI$  and  $d(X - M)$  are constant:

$$dY = \left( \frac{1}{1-b} \right) dG \dots\dots\dots (15)$$

$$\frac{dY}{dG} = \left( \frac{1}{1-b} \right) = m \dots\dots\dots (16)$$

With m being the basic expenditure multiplier which explains how much aggregate output change as a result of a change in government spending. Keynes also explained the effect of government spending on economic growth in three propositions.

- A rise in government expenditure will induce aggregate output to increase. But the extent of the rise will depend on the quantum of the expenditure multiplier.
- The size of the expenditure multiplier will cause a tax increase to negatively affect aggregate output.
- Either an increase in government expenditure or a reduction in taxes will cause aggregate output to increase by the size of the expenditure multiplier all other things being equal.

A contradiction to Solow’s theory and other growth theories was given by Kremer (1993). An increase in population and technology is predicted by most growth models to cause an increase in growth but Kremer (1993) provided an argument that, an increase in technology leads to an increase in population and not necessarily an increase in output per worker.

The aforementioned theories are old growth theories and below are some new growth theories including the endogenous growth theory where output per capita grows permanently despite absence of exogenous technical progress. Endogenous growth models include the AK model and that postulated by Romer, Grossman and Helpman.

These two models are characterised by the assumption of non-decreasing returns to the set of reproducible factors of production. The AK model was adopted mainly to neutralize the diminishing marginal productivity of capital. This model assumes private investment brings about certain externalities (spill-over like technical progress, education etc.) which benefits society as a whole. The AK model is given as

$$Y = AK \dots\dots\dots (17)$$

Where Y=Output, A is level of technology and K is capital stock

The model also assumes that there are no diminishing marginal returns and capital has two separate effects on output. This can be directly through production and indirectly through technological improvements from learning by doing. The indirect also comprise Phelps' "Embodied Technical Progress", Arrow's "Learning by doing" or Lucas' "Human Capital". Phelps work tries to enhance capital efficiency whiles Arrow aims at improving labour effectiveness. The AK model also assumes that an increase in population, human-capital accumulation and saving rate leads to growth. A counter reaction different from the line of argument raised by the AK model was made by Jones (1995). Jones (1995) noted that after the post war period, despite the fact that population, human-capital accumulation and saving rate rose progressively, growth showed no visible trend. A decreasing return to produced factors was concluded on by Jones (1995) instead of the increasing or constant returns to produced factors proposed by the AK model.

The second endogenous model is by Romer (1990), Grossman and Helpman (1991) where technical progress is considered to be an independent production factor than a by-product. Romer explained that, saving ratio or exogenous technology is not only a

growth accelerator but growth can be directly influenced by knowledge-generating activities such as research and innovations. Through knowledge, new ideas are obtained and used in the production of consumer goods and services to enhance economic growth in the long run. It is also worthy of note that, devoting more resources to research yield more discoveries.

Another new school of growth was by Bond, Leblebiciouglu and Schiantarelli (2004) who found a relationship between investment and output per worker and long term growth rate. According to them, a rise in investment induces higher long-term growth. Their outcomes predicted that some endogenous growth models best fit real growth patterns than Solow's postulation.

### **3.2.3 Government Intervention and growth**

Market failure is explained as when free markets are not able to allocate resources efficiently to obtain the best results (Datta-Chaudhuri, 1990). The conventional view of every market is to be Pareto improved. Ali-Nakyea and Addo (2009) explain Pareto Improvement to be when the welfare of society is enhanced without making others worse off. However, most markets have failed at been Pareto Improved because individual welfare are improved at the expense of others all other things being equal. Thus, most markets have been said to be Pareto-Optimal especially when exchanges of goods and services are done involuntary.

In most public finance literature, the reason why markets fail can be attributed to the existence of externalities, information asymmetry and natural monopolies. Governments intervene to rectify some distortions created by the market. Datta-

Chaudhuri, 1990 cited Scitovsky, 1954 that in an economy, the market mechanism could be allowed to be in-charge of production and government interfere with investment allocation. Scitovsky suggested that, once governments invest resources efficiently, issues of output, employment and income could easily be dealt with by the market. Governments enact specific policies to improve the efficiency of the market. Governments may also provide subsidies and compensation to firms and individuals to assist in its production and consumption.

Nevertheless, the introduction of governments into the market does not ensure complete efficiency in the allocation and distribution of resources. The government is still faced with the issue of inefficient provision of goods, management of natural resources and environmental quality. In the course of resolving problems created by the market, governments may spend in its administration. More so, the findings of Sobhee (2010) provided a counter agreement to the need for government sector in economic growth issues. Sobhee (2010) stated that state control enhancement over market imperfections would expand public sector spending base. In Sub-Saharan Africa, government expenditure as a percentage of GDP averages over 15 percent. As such, it is very important to involve the government in models that try to explain economic growth.

#### **3.2.4 Government Expenditure Types**

Government expenditure may include expenditure on both marketed and non-marketed goods (Nakyea and Addo, 2009). Most non-marketed goods are produced by the market in limited quantities due to low price signals associated with them. Marketed goods on the other hand are often expensive and government subsidizes the price of such goods given to consumers by the market. Government may also decide to supply such goods

for free to a point beyond which it will not assist again. An example is when government decides to provide free education from Junior Secondary School to Senior Secondary School level beyond which parents would have to provide at a fee. Government expenditure has three main effects. The Allocative effect looks at how government through its expenditure is able to put scarce resources to effective use in producing goods and services. There is also the Redistributive effect which considers how government through its expenditure bridges income gaps to achieve maximum social welfare in the society. Lastly is the Stabilization effect which also looks at how government through its expenditure is able to accomplish specific targets in the economy.

### **3.2.5 Theories of Government Expenditure**

There are many theories associated with the determinants of government expenditure.

#### **3.2.5.1 Musgrave and Rostow's Theory of Expenditure**

Musgrave (1969) and Rostow (1960) postulated the development model of government expenditure growth. According to Musgrave (1969), public sector investment as a proportion of total investment of an economy is noted to be high due to the fact that, public capital formation is a great necessity at this stage. Public sector investment includes basic social infrastructure overheads like education, potable water, law and order, good roads and highways and good health systems. Government after achieving the developmental stage seek assistance from private sectors in the economy.

Musgrave (1969) and Rostow (1973) described the development stage as the take-off stage of every country's growth since it pushes the economy into the middle stages of

economic and social development (Ketema, 2006). Government is therefore said to spend extensively in this area. These authors also noted that, market failures which hindered an economy's swift movement towards maturity necessitated the involvement of government in the economy. At the maturity stages of a nation's development, a nation's expenditure shifts from infrastructure to education, health and welfare services. To support their assertion is the "Hirschmanian" condition (as cited in Nakyea and Addo, 2009) which stipulates that the provision of infrastructure at the early stage of development is a "permissive force" for investor motivation.

### **3.2.5.2 Wagner Law of Increasing State Activities**

Wagner (1893) also proposed an expenditure model, which states that as per capita income increases, government expenditure also increase. Wagner's model assumes that as a nation grows, there will be pressure on government to provide more goods and services to meet the growing economy. Government may also need to provide certain commercial services like banking facilities which comes at a cost. Also, as an economy grows, there is the need for government to come up with regulations and legislations to ensure law and order. Government is able to achieve this by spending.

### **3.2.5.3 Peacock and Wiseman's Theory of Expenditure**

An alternative model of the determinants of government spending has been proposed by Peacock and Wiseman (1961) which suggests that government expenditure is likely to increase in times of crisis like wars, droughts and famine because people are willing to pay extra tax. According to Peacock and Wiseman (1961), when government spending increases temporarily during crisis, people expect expenditure to fall back to normal in the near future after the crisis is over. Government revenue is however

displaced upwards and it may become difficult for government to reduce its expenditure even after the crisis to the initial level. Barro (1987) in a study in the United Kingdom from provided an argument in support of Peacock and Wiseman (1967). Relatedly, Barro (1987) finds that temporary increase in government military spending has an effect on macroeconomic variables like interest rate as compared to a permanent increase.

#### **3.2.5.4 Ernest Engel's Theory of Public Expenditure**

Ernest Engel propounded the Engel's law which suggests that consumers change their budget for food as their income increase. According to the German economist, the share of income that goes to food products is less than the share of income that goes to other needs such as expensive jewelries etc.

It is believed that a nation's early development may include building of roads, potable water, harbors etc. but this may change as the nation develops. One would expect the share of government expenditure to capital formation to fall over time. Engel findings which were obtained by comparing Individual expenditure pattern to national expenditure is referred to as the declining portion of outlays on foods (Muritala et al, 2011).

### **3.3 Empirical Literature Review**

Devarajan et al. (1996) conducted a study on disaggregated spending effect on economic growth for 43 developing countries for the period 1970 to 1990. Ordinary Least Squares (OLS) estimation procedure was adopted for this study. Empirical results

showed that while current expenditure had a positive and statistically significant effect on growth, capital expenditure had a negative effect on growth.

Al-Yousif (2002) carried out a study on defence expenditure on economic growth using Granger-causality test for six Arab Gulf sub-region countries. The period for the study was 1975-1998. Empirical results obtained were however mixed for the six countries. Whereas Bahrain, UAE, Iran and Saudi Arabia exhibited that defence expenditure had a positive effect on economic growth, Kuwait showed a negative effect while Oman revealed no relationship between the two variables. Similarly, using 10 OECD countries and multivariate Cointegration techniques, Ghali (1999) conducted a study on the effect of government size on economic growth. In conclusion, government size was found to have an effect on economic growth for all ten (10) countries. It is worthy of note that the study highlighted government spending effect on growth was made possible through international trade, exports, imports and investment.

Another study was done on the effect of decentralization on economic growth in Japan for the period 1997 to 2001. Iimi (2004) carried out this study by segmenting decentralization into fiscal decentralization and political devolution in terms of expenditure. A positive significant relationship was found between fiscal decentralization and economic growth while a negative relationship was found between political devolution and economic growth using both Ordinary Least Squares (OLS) and Instrumental Variables (IV) panel estimation technique.

Alfaro et al. (2004) carried out a study for some OECD and non-OECD countries using panel data estimation analysis. The purpose of the study was to assess the impact of

FDI on economic growth for the period 1975 to 1995. Empirical results showed that FDI alone may not impact economic growth in a weak financial market. However, once the financial market is well-developed, FDI may significantly impact on economic growth.

Loizides and Vamvoukas (2005) conducted a trivariate causality testing on government expenditure and economic growth for Greece, UK and Ireland based on cointegration analysis, error-correction model and Granger causality tests. The period for the analysis was from early 1950s to mid-1990s. The authors introduced a bivariate error correction model within a Granger causality framework, as well as adding unemployment and inflation (separately) as explanatory variables, creating a simple 'trivariate' analysis for each of these two variables.

By contrast, for Ireland and the UK, regression estimates showed one-way causality running from  $G$  to  $Y$ . These results are consistent with the Keynesian notion suggesting that the causal linkage flows from  $DG$  to  $DY$  both in the long run and the short-run. Thus, there is a high degree of support for this Wagner type phenomenon in the data for Greece. Government size granger causes economic growth in all countries of the sample in the short run and in the long run for Ireland and the UK; ii) economic growth Granger causes increases in the relative size of government in Greece, and, when inflation is included, in the UK.

Using Generalized Method of Moments panel estimation on 48 developing countries for the period 1970-1998, Moreira (2005) established a positive relationship between foreign aid and economic growth. Empirical estimates concluded that the effect of

foreign aid on economic growth though positive, was very high in the long run than in the short run. In the study, domestic savings and physical capital formation were used as controlled variables and similarly, a positive impact was established between these variables and economic growth. Interestingly, population growth rate was found to have a negative effect on growth rate of real per capita GDP.

Bobba and Powell (2007) also empirically tested the effect of aid on economic growth for 22 OECD countries from 1980-2003. Generalized methods of moments estimation procedure was adopted for the study. The study concluded that, aid allocated to political allies does not promote growth whereas aid allocated to non-political allies promotes growth.

Arpaia and Turrini (2008) assessed the impact of government expenditure on potential output for fifteen (15) European Union countries using pooled mean group estimation technique from 1970-2003. The regression results showed the existence of a long-run positive relationship between government expenditure and economic growth for all countries. However, in the United Kingdom, though a positive effect was found, government expenditure was noted to be growing at a less than proportionate rate relative to economic growth in the 1980s. This was attributed to the restructuring of the government sector at the time. The same pattern was also realized in Belgium, Greece, Austria, Denmark, Ireland, Spain, Italy, Germany, Netherlands, Finland, France, and Portugal in terms of government expenditure growth and potential output in 1980s. The study explained that, the reason for the lower pace in expenditure growth for Belgium, Denmark, and Ireland was the stabilization of debt-GDP ratios. The study was also

quick to add that, government expenditures relative to output picked up in countries such as Luxembourg, Sweden, and UK from 2000.

Alexiou (2009) empirically conducted a study on the relationship between economic growth and government spending in some countries in southern Europe for the period 1995 to 2005. Applying pooled OLS and GLS estimation techniques, empirical results obtained revealed that government spending had a positive and significant effect on economic growth. Introduction of control variables like capital formation, development assistance, private investment and trade-openness to the model also revealed a positive and significant effect on economic growth. The study however revealed that though population had a positive effect on growth, the effect was statistically insignificant.

Antonis (2013) empirically tested the relationship between economic growth and government spending in Greece from 1833 to 1938. Employing an Autoregressive Distributed Lag (ARDL) Co-integration method of analysis, Antonis (2013) established has a positive and statistically significant effect of economic growth on government expenditure in the long run. This result buttress Wagner's hypothesis. Another study consistent with Wagner's law was done by Akitoby et al. (2005) in which economic growth had a positive impact on government expenditure for some developing countries using Co-integration method of analysis. Henrekson (1993) carried out a study in Sweden and no evidence of a long run positive relationship was found to exist between economic growth and government spending using Co-integration method of analysis. Similarly, Huang (2006) conducted a study for China and Taiwan and found no relationship between economic growth and government spending using Bounds Test estimation technique. The period for his study was 1979-2002.

Calderón and Servén (2008) conducted a study on the effect of infrastructure expenditure on economic growth using infrastructure supply as a proxy for public spending in Sub-Saharan African countries. The study estimated growth and inequality equations as well as a standard set of control variables augmented by infrastructure quantity and quality indicators, and controlled for potential endogeneity of the latter. Empirical results reported that, infrastructure development and a better quality of infrastructure services affected growth positively in the long-run but has a negative impact on income inequality. Folster and Henrekson (2001) in another study were quick to add that the share of infrastructure to government expenditure is less than one-fifth for OECD countries and more than half for less developed countries.

Yasin (n.d). carried out a study on public spending effect on economic growth for Sub-Saharan Africa for the period 1987 to 1997. Fixed and Random effects estimation techniques were employed in the study. Empirical results obtained showed that government spending has a positive and significant effect on economic growth. Control variables like trade-openness, foreign development assistance, growth rate in population and private investment included in the model all had a positive and significant effect on economic growth.

Sobhee (2010) empirically estimated the effect of globalization on public spending in Sub – Saharan Africa after controlling for idiosyncrasies. The study sought to fill the gap by providing a more robust econometric estimate using Kaufmann *et al.* (2005) six measures of institutional quality. The study revealed that globalization has an impact on public spending, hence making it susceptible to external risks like a fall in

investment and export prices. Furthermore, economic growth was found to influence public expenditure to buttress Wagner's hypothesis. The study also indicated that institutional quality, Political Instability (PI) and Regulatory Quality (RQ), significantly affect public spending. From his findings, it was found that state control enhancement over market imperfections would expand public sector spending base.

Another study inconsistent with Moreira's findings in 2005 was carried out in 19 Sub-Saharan African countries by Ndambiri et al. (2012) from 1982-2000. Generalized Methods of Moments panel estimation technique was adopted for the study. Ndambiri et al. (2012) asserted that foreign aid had a negative impact on economic growth. However, control variables such as physical capital formation and exports were also found to have a positive impact on economic growth. This study is consistent with Keynes assertion that exports have a positive effect on economic growth.

Kweka et al. (1999) investigated the impact of government spending on economic growth in Tanzania from 1965-1996. Engle-Granger Cointegration and Error Correction Model methods of analysis were employed in the study. Total government expenditure does not have a significant impact on growth. Total government expenditure was thus disaggregated into expenditure on (physical) investment, consumption spending and human capital investment. Increased productive expenditure (physical investment) appears to have a negative impact on growth. Consumption expenditure relates positively to growth, largely because it contributes to private incomes and consumption, and in particular appears to be associated with increased private consumption whereas public investment impacts negatively on growth. Expenditure on human capital investment was insignificant in the regressions, probably

because any effects would have very long lags. The results confirm the view that public investment in Tanzania has not been productive, but counter the widely held view that government consumption spending is growth reducing. We also find evidence that aid and export appears to have had a positive impact on growth, especially allowing for the reforms in the mid 1980s.

Ketema (2006) conducted a research in Ethiopia on the impact of government spending on economic growth. Components of government spending included human capital, Investment and consumption. In the analysis, it was concluded that human capital expenditure was found to have a positive and significant impact on economic growth in the long run while expenditure on consumption and investment showed a negative and insignificant effect on economic growth for the period 1960/61-2003/04. The estimation technique employed was Johanson maximum procedure.

Nketiah-Amponsah (2009) carried out a study in Ghana by looking at the impact of government spending on economic growth for the period 1970-2004 using time series estimation technique. The study found out that aggregated government expenditure had a negative effect on economic growth.

Nurudeen and Usman (2010) also carried out a similar study in Nigeria using a disaggregated approach to determine the components (total capital expenditure, total recurrent expenditure, transport and communication, education and health) of government expenditure that enhances growth. The period for the analysis was 1970-2008 and the authors used co-integration and error correction methods to analyze the study. The econometric results indicated a negative impact of both total capital and

recurrent expenditures on economic growth in the long run. Contrary to this view is a study by Aladejare (2013). Expenditure on education was also found to have a decline on economic growth. The authors explained that, these key components had a negative impact on growth due to improper utilization of allocated funds to the sectors. Surprisingly, allocated funds were embezzled in most cases. However, government expenditure on transport, health and communication had a positive effect on economic growth in the long run.

Muritala et al. (2011) investigated on the theme for Nigeria from 1970-2008 using Ordinary Least Square (OLS) technique. Empirical evidence from the analysis suggests a positive relationship between real GDP as against the recurrent and capital expenditure. It could therefore be recommended that government should promote efficiency in the allocation of development resources through emphasis on private sector participation and privatization\commercialization.

Twumasi, 2012 also carried out a study in Ghana on fiscal policy impact on economic growth for the period 1981-2008. Stationarity of variables were checked using the DF-GLS test and the bounds. Empirical results showed a positive effect of fiscal policy on economic growth. Control variables like terms of trade, private investments and labour force were also found to have a positive impact on economic growth. Tax revenue on the other hand was found to have a negative effect on economic growth. This is also consistent with the Armey curve theory. In line with Twumasi's findings on tax revenue impact on economic growth are studies done by Romer and Romer (2007) and Afonso and Alegre (2008).

Aladejare (2013) empirically investigated the relationship between government expenditure and economic growth in Nigeria from 1961 to 2010 using a Vector Error Correction Model and Granger Causality approach. In the study, government expenditure was disaggregated into government capital expenditure and government recurrent expenditure. The econometric findings revealed that government capital expenditure impacted more significantly on economic growth than government recurrent expenditure. In addition, a unidirectional causality from economic growth to government expenditure was also observed by the author, thus supporting the Wagnerian hypothesis for Nigeria.

In conclusion, this study is an improvement on other studies on economic growth-government expenditure relationship in Sub-Saharan Africa for two reasons. Firstly, it considers current data. Recent studies on the theme for Sub-Saharan Africa was done from 1987-1997 (see Yasin, n.d.) but this paper looked at data from 1980 to 2011. Secondly, most empirical studies admit the problem of endogeneity with panel data in accounting for the impact of government spending on growth, but few of them account for it. This paper will therefore deal with this problem.

## CHAPTER FOUR

### METHODOLOGY AND DATA

#### (Theoretical and Empirical Model Specification)

#### 4.1 Introduction

This chapter discusses the theoretical framework and statistical techniques employed in determining the relationship between government expenditure and economic growth. This chapter has six (6) sections. Section 4.2 discusses the explanatory variables, followed by theoretical framework and model specification in Section 4.3 and 4.4 respectively. Section 4.5 looks at some diagnostic tests. The estimation technique employed is discussed in 4.6 Section 4.7 elaborates on the data source and finally, the conclusion of this chapter is given in the Section 4.8.

#### 4.2 Theoretical Framework

In order to analyse the effect of government spending on economic growth, a dynamic panel growth regression model is estimated. The framework to be used for this study has its basis from the neoclassical aggregate production function.

$$Y = f(K, L) \dots\dots\dots (18)$$

where Y denotes the level of output, K denotes the stock of capital and L is labour force. Following Grossman (1988) and Ram (1986), government expenditure can be included in equation (18) as an independent variable and formulated as:

$$Y = f(K, L, G) \dots\dots\dots (19)$$

Government expenditure can have a foreign component reflecting receipts for development assistance. These may include ODA and FDI. Introducing other variables such as trade openness, household consumption, square of government spending and debt service specifies equation (2) as

$$Y = f(K, L, G, ODA, FDI, T, HC, DS, GSQ) \dots\dots\dots (20)$$

In Cobb-Douglas form we obtain the following equation:

$$Y = K^{a_1} L^{a_2} G^{a_3} ODA^{a_4} FDI^{a_5} T^{a_6} HC^{a_7} DS^{a_8} GSQ^{a_9} \dots\dots\dots(21)$$

To obtain the marginal products of equation (20), we take the total derivatives and normalize using gross domestic product (Y) as follows

$$\begin{aligned} \frac{dY}{Y} = & \left(\frac{\partial Y}{\partial K}\right) \frac{dK}{Y} + \left(\frac{\partial Y}{\partial L}\right) \frac{dL}{Y} + \left(\frac{\partial Y}{\partial G}\right) \frac{dG}{Y} + \left(\frac{\partial Y}{\partial ODA}\right) \frac{dODA}{Y} + \left(\frac{\partial Y}{\partial FDI}\right) \frac{dFDI}{Y} \\ & + \left(\frac{\partial Y}{\partial T}\right) \frac{dT}{Y} + \left(\frac{\partial Y}{\partial HC}\right) \frac{dHC}{Y} + \left(\frac{\partial Y}{\partial DS}\right) \frac{dDS}{Y} + \left(\frac{\partial Y}{\partial GSQ}\right) \frac{dGSQ}{Y} \end{aligned} \dots\dots\dots(22)$$

From equation (21), the signs of all partial derivatives with respect to output are expected to be positive with the exception of debt service (negative), square of government spending and trade (uncertain). In particular, ODA, labour force, government spending, gross capital formation, household consumption, and FDI are all envisaged to have a positive impact on economic growth.

### 4.3 Description and Measurement of Variables

Explanation variables were selected for this study based on economic theory and existing empirical studies. The dependent variable to be considered in the analysis is Real GDP per capita and explanatory variables which were deemed essential for economic growth in Sub-Saharan Africa includes Initial Real GDP per Capita, Labour

force participation, Gross Fixed Capital Formation, Government Expenditure, Consumption Expenditure, Trade, Debt Service, Foreign Direct Investment (FDI) and Overseas Development Assistance (ODA), Regional Dummies and Interacted Variables of government expenditure the Regional Dummies. The above-mentioned variables are discussed below with much attention given to their expected relationship with Real GDP growth and a priori signs. Real GDP per capita is measured in US constant currency terms while all the fiscal variables are expressed as shares of GDP as published by the World Bank.

*Government Expenditure:* The relationship between Government Spending and economic growth has received widespread attention in recent times. Economic literature suggests that government outlays could crowd out interest-sensitive investment. Government spending reduces savings in the economy, thus increasing interest rates. This can lead to less investment in areas such as productive capacity, which includes the facilities and infrastructure used to contribute to the economy's output. Government spending may therefore not enhance growth with the above explanation. There are empirical works to support this assertion (see Devarajan et al, 1996; Nketiah-Amponsah, 2009; Ghura, 1995). However, if government spending is channelled to productive sectors of the economy then it can stimulate growth (see Yasin, n.d.). This study expects the coefficient of government spending to be positive although there is ambiguity in both the theoretical and empirical literature concerning the impact of government spending on economic growth. General government final consumption expenditure would be used as a proxy for government expenditure.

*The Square Of Government Expenditure:* This variable is included in the model of estimation in order to capture the possible non-linear (hump-shaped) relationship between government spending and economic growth. Economic literature suggests that government expenditure beyond a certain level does not promote economic growth. Armev (1995) explains the level of government expenditure in an economy and the corresponding level of economic growth. Empirically, there have been several debates on the appropriate size of government expenditure necessary for economic growth (see Herath, 2012; Barro, 1989). However, Ram (1986) provides evidence in support of a positive relationship between high government expenditure and economic growth. Despite these arguments, this study expects the coefficient of the square of government expenditure to be negative.

*Initial Real GDP per Capita:* The speed of adjustment of the dependent variable is measured by the coefficient of the lagged dependent variable in a dynamic panel model. This variable is introduced as a regressor so as to control for specification bias and also account for the persistence in real GDP per capita growth over time. It is expected from the theory of convergence that the coefficient of this variable would be negative. The first lag of real GDP per capita is used as a proxy for initial GDP per capita.

*Foreign Direct Investment (FDI):* Economic literature on the relationship between Foreign Direct Investment and economic growth gives different conclusions. Foreign Direct Investment flow into Sub-Saharan African countries have been increasing over the years and most countries within the sub-sub-region are adapting more FDI-induced strategies to attract foreign investment. Not only do Sub-Saharan African countries benefit from FDI flow, they also enjoy technological transfers and spill overs such as

the transfer of knowledge from rich /foreign countries to poor/domestic countries. Once knowledge is being transferred from a rich economy to a poor one, *ceteris paribus*, it is expected that the poor economy would learn and apply the knowledge being offered and bridge the knowledge gap between the two economies. Productivity for the poor/domestic economy is thus expected to increase alongside other spill over effects in the economy as a whole. FDI flows between countries also make it possible for scarce capital resources to be made available to countries with limited supply (see Alfaro *et al*, 2004). It has also been argued that FDI can only induce growth when there are efficient and sufficiently developed domestic financial markets available. Secondly, when the educational level of the workforce in the domestic economy is high to exploit FDI spill overs and a ready skilled labour market that fortify the capacity of the domestic economy to absorb the gains from FDI. It is remarkable to note that, some economists have explained trade openness as a key factor in obtaining FDI-growth results. However, some researchers have debunked the flow of FDI into domestic economies since they are of the proposition that, it would result in distortions (in prices and financial markets) which may hinder the efficient allocation of resource and further slow growth (see Carkovic and Levine, 2002; Blomstrom, Lipsey and Zejan, 1994). The exact effect of FDI on economic growth is therefore ambiguous both theoretical and empirical but a positive relationship is expected to exist between FDI and economic growth for this study. Net FDI inflow (per cent of GDP) is used as the measure of FDI.

*Gross fixed capital formation:* Gross fixed capital formation is explained as fixed assets accumulation. Private investment covers gross outlays by the private sector (including private nonprofit agencies) on additions to its fixed domestic assets. Economic theory suggests that increase in Gross fixed capital formation increases long run production

and leads to growth. In accounting, it is measured as the net additions to the (physical) capital stock of a country (or an economic sector). It can also be measured as the amount by which the total physical capital stock increases. In financial economics, it is referred to as savings drives, setting up financial institutions, fiscal measures, public borrowing, development of capital markets, privatization of financial institutions, and development of secondary markets (Ray, 2013). The coefficient of Gross fixed capital formation is expected to be positive and it is used as a proxy for Private Investment.

*Overseas Development Assistance:* It is believed that most governments in Sub-Saharan Africa have expenditures which are more than their revenues and as such most of these countries have been recommended in recent years to fuse Overseas Development Assistance in their developmental strategies and also escape poverty traps (Sachs et al., 2004). Overseas Development Assistance continues to be the largest external source of finance for Sub-Saharan Africa and Africa as a whole to finance domestic investment. Economic theory suggests that, Overseas Development Assistance of the right kind may promote economic growth in countries with good macroeconomic policies (see Burnside and Dollar, 2000). However, non-developmental aid may not necessarily spur economic growth (see Bobba and Powell, 2007). It is worthy to note that, there has been general concern that Overseas Development Assistance may not be a good option for governments when donor countries attach strings to them. Overseas Development Assistance may be very important to a country's development. Oswaldo De Rivero (2002) suggests that recipients of aid should be extra careful since donor countries may indirectly use it as a tool for control, manipulation and dominance. Though, the relationship between aid and economic growth has been ambiguous empirically, the coefficient of overseas development assistance for this study is expected to be positive.

Net Overseas development assistance (per cent of GDP) is used as a proxy for Overseas Development Assistance.

*Labour force as a percentage of total population:* As the population of a country grows, more people enter the labour force and high growth rates are achieved. Therefore if the proportion of labour force as a percentage of total population increases, then the growth of that economy is expected to increase. Furthermore, it is argued that a larger labour force if given the required training and skills would develop into a very strong human capital base which promotes economic growth. In addition, a high labour force would provide a very large market size for domestic producers; and this would lead to large scale production thereby resulting in the benefits of economies of scale. However, if the share of non-working-age of total population is high, then productivity growth is affected. The a priori sign for this variable should be positive.

*Debt Service:* In literature, government service their debt either through taxes or borrowing. Once the ratio of a country's external debt to its GDP is low, then it would be possible for more developmental goals and economic growth to be achieved (see Kasidi et al, 2013). However, when a new government succeed high external debt from a previous one and the debt-to-GDP ratio is also high, it may be impossible to obtain high developmental goals and hence growth may be slowed. The proxy for this variable is total debt service (per cent of GDP).The expected sign for this variable is negative.

*Household Consumption Expenditure:* Economic growth in most developing countries is consumption-led instead of production/investment-led. Economic literature explains that the more households consume, producers are motivated to produce more to meet

the high demand. This increases productivity and growth in the long run. Such an economy eventually moves from consumption-led growth into production/investment-led growth. A distinction between consumption and investment is key to the process of long-run economic growth. It has been argued that, by devoting more resources to investment and less to consumption in the present, an economy generates greater economic growth in the future. However, by devoting more resources to consumption and less to investment, economic growth turns to be less or even negative. For this study, the expected sign for the coefficient of consumption expenditure is positive and the proxy to be used is Household final consumption (per cent of GDP).

*Regional dummies:* Dummies are introduced into the estimation equation to ascertain if considerable differences exist between the four (4) sub-regional blocks of Sub-Saharan Africa with respect to the effect of Government Expenditure on economic growth. The three (3) sub-regional dummies included in the model were West Africa, East Africa and Central (Middle) Africa with Southern considered as the base category. Southern Africa was used as the base due to its stable economic growth compared to the three other sub-regions. Sub-regional dummies were classified such that, a value of 1 was assigned to countries in a given sub-regional dummy. These dummies are further interacted with the government spending index in order to determine how the effect of spending on growth differs across the sub-region. Table 4.1 below provides a summary of the explanatory variables, their proxies, and the expected sign of their coefficient in relation to real per capita GDP growth.

**Table 4.1: Summary of Explanatory Variables and their Expected Signs**

Variable	Indicator	Expected Sign of Coefficient
Real GDP per Capita		
Government Expenditure	Government spending (per cent of GDP)	Positive
Gross Fixed Capital Formation	Gross fixed capital formation by private sector	Positive
FDI	Net FDI inflows (per cent of GDP )	Positive
Trade	Sum of exports and imports (per cent of GDP )	Uncertain
Debt Service	Total debt service (per cent of GDP)	Negative
Overseas Development Assistance	ODA (per cent of GDP)	Positive
Labour force participation	Labour force as a percentage of total population	Positive
Household Consumption	Household final consumption (per cent of GDP)	Positive
Square of Government Expenditure		Negative
Export development index*Regional Dummies		Uncertain

#### 4.4 Model for Empirical Estimation

From equation (21), we log transform the equation and then with few modifications and introducing regional dummies, the dynamic panel model to be estimated is therefore written as:

$$\begin{aligned}
 LNGROWTH_{it} = & \beta_0 + \beta_1 LPART_{it} + \beta_2 LCONS_{it} + \beta_3 LDEBT_{it} + \beta_4 LFDI_{it} \\
 & + \beta_5 LGOV_{it} + \beta_6 LGOVSQ_{it} + \beta_7 LCAPRIV_{it} + \beta_8 LODA_{it} + \beta_9 LTRADE_{it} + \\
 & \beta_{10} \sum_1^3 D_i + \beta_{11} \sum_1^3 ED * D_i + e_{it}
 \end{aligned}
 \tag{23}$$

From equation 22, a dynamic long run model was also developed to include

$$\begin{aligned}
 LNGROWTH_{it} = & \beta_0 + \alpha LNGROWTH_{it-1} + \beta_1 LPART_{it} + \beta_2 LCONS_{it} \\
 & + \beta_3 LDEBT_{it} + \beta_4 LFDI_{it} + \beta_5 LGOV_{it} + \beta_6 LGOVSQ_{it} + \beta_7 LCAPRIV_{it} \\
 & + \beta_8 LODA_{it} + \beta_9 LTRADE_{it} \\
 & + \beta_{10} \sum_1^3 D_i + \beta_{11} \sum_1^3 ED * D_i + \varepsilon_{it}
 \end{aligned}
 \tag{24}$$

where,

*LNGROWTH* =log of real GDP per capita

*LPART* is the log of the ratio of labour force to population

*LCONS* is the log of consumption expenditure as a share of GDP

*LDEBT* the log of debt service as a share of GDP

*LFDI* is the log of net foreign direct investment inflows as a share of GDP

*LGOV* is the log of government expenditure as a share of GDP

*LGOVSQ* is the square of the log of government expenditure as a share of GDP

*CAPRIV* is the of log of private investment as a share of GDP

*LODA* is the log of Overseas Development Assistance as a share of GDP

$LTRADE$  is the log of the sum of exports and imports as a share of GDP

$D_i$  = Sub-regional dummy for four sub-regional blocks (East, Central, Southern and West Africa sub-sub-region).

$ED * D_i$  = Product (interaction) of government expenditure and the regional dummies.

$e_{it}$  = Idiosyncratic error term.

The index  $i$  represent countries and  $t$  indexes the time period in years. The coefficient of the log variables measure elasticities and allow for comparison with other studies.

#### **4.5 Some Diagnostic tests**

There is a need for various tests to be conducted on this study to ensure efficient, reliable, unbiased, consistent and precise prediction of the model to be estimated. Outliers and influential observations could lead to biased result when it comes to regression analysis. Therefore, to deal with outliers and influential observations, the study will employ the Cooks D outlier and influential observation test. The presence of heteroscedasticity, multicollinearity, outliers and unit roots will affect our results. Hence, there is a need to carry out these tests in our analysis.

##### **4.5.1 Stationarity (Unit Root) Test**

It is an established fact that Unit Root analysis is mostly considered in time series data. However, it would be very appropriate carrying out a unit root test in panel datasets to avoid spurious regression estimates which relates to the occurrence of unrelated regressions. According to renowned econometric economists Gujarati (1995 pp.713), “a stochastic process is said to be stationary if its mean and variance are constant overtime and the value of covariance between two time periods depends only on the

distance between the two time periods and not on the actual time at which the Covariance is computed". The Fisher unit root test will be employed to test the stationarity of the variables alongside the Im, Pesaran, and Shin (1995) panel unit root test. Two reasons for the Fisher unit root test are: Individual ADF regressions allow for different lag lengths and it does not necessitate simulating adjustment factors that are specific to the sample size and specification (Gujarati, 1995). The latter would be employed to confirm our results and ensure that our results are more robust. The joint null hypothesis for Im, Perasan and Shin test is each time series in the panel is non-stationary (Im et al., 1995). The test is based on the average of individual series ADF test and has a standard normal distribution once adjusted in a particular manner. After the test is carried out, if each variable is found to be stationary, then it would only be prudent to carry on with the panel data estimation.

#### **4.5.2 Heteroscedasticity**

Econometric literature clearly points out that, the problem of heteroscedasticity occurs when variance of the error terms differ across observations. Gujarati (1995) explains that the outliers in the variables, incorrect data transformation, incorrect functional forms and omission of important variables affect the variance of the error terms of the dependent variables not to be constant. To detect the presence of heteroscedasticity in the study, the white test will be applied. The problem can be solved by using robust standard errors. The robust standard errors relax OLS assumption that errors are both independent and identically distributed.

### 4.5.3 Multicollinearity

Multicollinearity exists when two or more independent variables are correlated in a regression model. There are two main types of multicollinearity: Perfect and Imperfect Multicollinearity. Perfect multicollinearity occurs when one of the regressors is a perfect linear combination of the other regressors. Imperfect multicollinearity also occurs when one of the regressors is high but not perfectly correlated with the other regressors. Multiple binary or dummy variables are potential sources of multicollinearity. Although OLS estimators are best, linear, unbiased and efficient, their variances and covariances will be large. The t-ratio of one or more coefficients become statistically insignificant whilst the R-squared tends to be very high (Gujarati, 1995). The afore-mentioned consequences make regression estimates less precise and reliable. Several ways can be used to detect the presence of multicollinearity. This includes auxiliary regressions, correlation matrix, eigenvalues and condition index. But this study will apply the variance inflation factor (VIF).

$$\mathbf{VIF} = (1/1 - R_j^2)$$

Where,  $R_j^2$  is the coefficient of determination for a regression with independent variable j on all the other independent variables. A VIF of 10 and above indicates a multicollinearity problem (Gujarati, 1995).

### 4.6 Estimation Techniques

To ensure the robustness of our estimation results irrespective of the econometric technique, four different panel data techniques will be employed for the exercise. We first estimate the model using standard pooled OLS estimators, which ignores the country effects. Fixed and Random effects panel estimations techniques will also be employed in the study to control for unobserved effects which are ignored by the pooled

OLS estimation procedure. However, fixed and random effects methods do not also control for potential endogeneity. Thus, the System Generalized Methods of Moments would also be applied to control for potential endogeneity after which results are compared to the above-stated panel estimation procedures for consistencies and meaningful conclusions. The following section discusses in detail the four panel techniques used for the study.

#### 4.6.1 Pooled OLS

Consider a linear panel data model

$$y_{it} = x'_{it}\beta + \varepsilon_{it} \quad i=1,\dots,N \quad t=1\dots T$$

.....(25)

This model may appear overly restrictive because  $\beta$  is the same in each time period. Parameters changing over time can however be allowed for by appropriately choosing  $x_{it}$ . The fact that  $x_{it}$  is written for some elements does not mean those elements may not be time varying. The usual assumptions for cross section data analysis is assumed for the model.

The two assumptions required for pooled OLS to consistently estimate  $\beta$  are as follows:

Assumption 1:  $E(x_t\varepsilon_t) = 0, t= 1,2,\dots,T$ .

Assumption 1:  $rank\left[\sum_{t=1}^T E(x'_t x_t)\right] = K$ .

While Assumption 1 does not talk about the relationship between  $x_s$  and  $\varepsilon_t$  for  $s \neq t$ , the idea of perfect linear dependencies among the explanatory variables is in effect ruled out by Assumption 2. In order to apply the usual OLS statistics from the pooled

OLS regression across  $i$  and  $t$ , homoskedasticity and no serial correlation assumptions must assumed. The weakest forms of these assumptions are the following:

Assumption 3: (a)  $E(\varepsilon_t^2 | x_t' x_t) = \sigma^2 E(x_t' x_t)$ ,  $t = 1, 2, \dots, T$ , where  $\sigma^2 = E(\varepsilon_t^2)$  for all  $t$ ;

(b)  $E(\varepsilon_t \varepsilon_s | x_t' x_s) = 0, t \neq s, t, s = 1, \dots, T$ .

The first part of Assumption 3 is a fairly strong homoskedasticity assumption; sufficient is  $E(\varepsilon_t^2 | x_t) = \sigma^2$  for all  $t$ . This implies that not only does the conditional variance not depend on  $x_t$ , but also the unconditional variance is the same in every time period. The conditional covariance of the errors across different time periods is restricted to be zero by Assumption 3b. In fact, since  $x_t$  almost always contains a constant, assumption 3b requires at a minimum that  $E(\varepsilon_t \varepsilon_s) = 0, t \neq s$ . Sufficient for 3b is  $E(\varepsilon_t \varepsilon_s | x_t' x_s) = 0, t \neq s, t, s = 1, \dots, T$ .

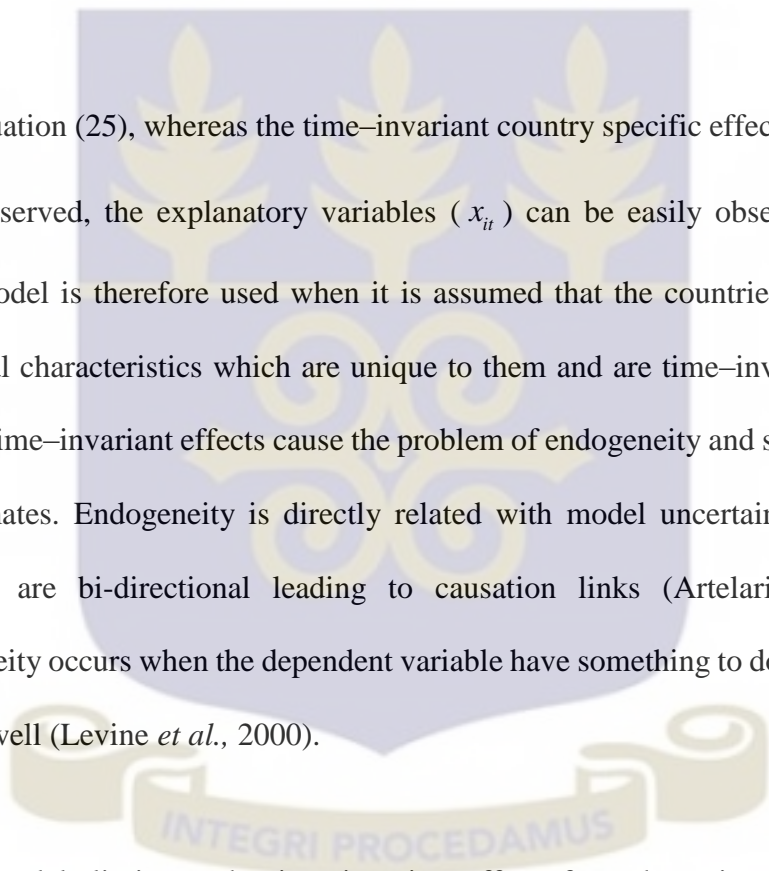
Assumption 3 implies more than just a certain form of the unconditional variance matrix of  $u = (u_1, \dots, u_T)'$ . Assumption 3 also implies  $E(u_i u_i') = \sigma^2 I_T$  denoting constant unconditional variances and zero unconditional covariances. However, it also effectively restricts the conditional variances and covariances. Heteroscedasticity and Serial correlation can be accounted for to guarantee correct inference and estimates.

#### 4.6.2 Fixed Effects (FE) versus Random Effects (RE)

In econometrics literature, when dealing with correlation between the time-invariant error term ( $\mu_i$ ) and the explanatory variables two different assumptions are made. The outcomes of the assumptions are Fixed Effects (FE) and Random Effect (RE) models. For Random Effect models, unobserved country-specific time-invariant error terms are assumed to be uncorrelated with the explanatory variables while Fixed Effect (FE)

models assume that the unobserved country-specific time-invariant effects are correlated with the explanatory variable. For Random Effects, country-specific characteristics are therefore taken as explanatory variables and included in the model. These individual characteristics need to be well specified in the estimation model. Some of the country-specific characteristics may include institutional, cultural, historical and geographical factors. These characteristics are often unique for each country and are time-invariant.

From equation (25), whereas the time-invariant country specific effects ( $\mu_i$ ) cannot be easily observed, the explanatory variables ( $x_{it}$ ) can be easily observed. The Fixed Effect model is therefore used when it is assumed that the countries possess certain individual characteristics which are unique to them and are time-invariant. Country-specific time-invariant effects cause the problem of endogeneity and subsequently bias the estimates. Endogeneity is directly related with model uncertainty since several variables are bi-directional leading to causation links (Artelaris et al, 2007). Endogeneity occurs when the dependent variable have something to do with explaining itself as well (Levine *et al.*, 2000).



The FE model eliminates the time-invariant effects from the estimation by using the within transformation to demean the variables. From equation (25), the within transformation process is described in the equation below:

$$y_{it} - \bar{y}_i = (x_{it} - \bar{x}_i)\beta + (\mu_i - \bar{\mu}_i) + (v_{it} - \bar{v}_i) \dots \dots \dots (26)$$

Where  $\bar{y}_i = \frac{1}{T} \sum_{t=1}^T y_{it}$ ,  $\bar{x}_i = \frac{1}{T} \sum_{t=1}^T x_{it}$ ,  $\bar{v}_i = \frac{1}{T} \sum_{t=1}^T v_{it}$ , and  $\bar{\mu}_i = \mu_i$ .

The within transformation process described in equation (26) calculates the mean of the variables and subtract the calculated mean from their actual values. The mean value ( $\bar{\mu}_i$ ) for the country-specific error terms ( $\mu_i$ ) is the same for actual values since they do not change over time. The country-specific effects through this process are controlled for from the equation. The Hausman test would be employed to choose between random effect and fixed effect for discussion.

#### **4.6.3 System GMM**

The system GMM estimator suggested by Arellano and Bond (1991) and Blundell and Bond (1998), employed here, exploits an assumption about the initial conditions to obtain moment conditions that remain informative even for persistent series, and it has been shown to perform well in simulations. The necessary restrictions on the initial conditions are potentially consistent with standard growth frameworks, and appear to be both valid and highly informative in empirical application. Bond et al. (2001) show that the system GMM estimator is the preferred approach for estimation of empirical growth models due to its superior ability in exploiting stationarity restrictions and also appears to give more reasonable results .

#### **4.7 Data description and Source**

Annual data from the World Development Indicators of the World Bank (2013) was used for the study. The study covers 49 SSA countries over the period 1980 to 2011 due to unavailability of data for 2012. Selection of Sub-Saharan Africa countries for the study was based on data availability of the variables. StataCorp's statistical package version 12 (STATA 12) is used for the computation of the empirical estimations.

The growth of the African economy for the period under investigation for all the countries was examined. The results indicate that, on average, Sub-Saharan African economies have grown to 6.10 per cent with a minimum of 4 per cent and a maximum of 9 per cent for the period under investigation. This rather indicates an impressive performance of the African continent. The standard deviation from the mean was 0.97. This indicates a very less spread growth for the continent.

The log of household consumption was used. The mean value for consumption was found to be 4.43 per cent with a standard deviation of 0.55. The results show how clustered consumption pattern among African countries are. Household consumption is less dispersed. Maximum consumption was found to be 5.5 per cent and a mean of -2 per cent. That is to say that many African countries still have a very low household expenditure. One reason that could be assigned to this is the high prevalence of poverty among African Nations.

The log of debt suggests that Sub-Saharan Africa had a positive debt and a standard deviation of 1.16. This indicates that debt for Sub-Saharan Africa countries used in the sample was highly spread. The highest debt observed for the period was 5.13 and a minimum of -6.03. The mean was however 0.80. This range gives an indication of the wide debt scale disparity gap among countries in the SSA region. This may be due to the heterogeneous source of financing government investment and infrastructural projects among African countries.

Again, log of trade which measure the sum of export and import to GDP had a mean of 4.08 and a standard deviation of 0.5. The maximum and the minimum values were 1.8

and 5.6 respectively. However, ODA ranged from -7 to a maximum of 5 and had a mean of 1.8. FDI had a similar pattern as ODA but widely spread. This is not surprising for the continent since Aseidu (2010) has observed that FDI inflows to African countries are unevenly distributed. The main variable of interest, government expenditure had a mean of 2.6 and a standard deviation of 0.6. This indicates that the variable under consideration is clustered around the mean value. The maximum value was observed to be 4 and a minimum of 0.7.

**Table 4.2: Summary statistics**

Variable	Obs	Mean	Min	Max
LGROWTH	736	6.104	3.998	9.130
		0.972		
LPART	736	0.938	0.261	0.536
		0.166		
LCONS	736	4.430	1.732	5.315
		0.516		
LDEBT	736	0.803	6.035	5.129
		1.163		
LFDI	736	.097	0.001	4.978
		1.907		
LGOV	736	2.645	0.716	4.242
		0.450		
LGOVSQ	736	7.197	0.513	17.994
		2.399		
LCAPPRIV	736	2.291	0.010	4.722
		0.794		
LODA	736	1.829	.0208	4.991

		1.352		
LTRADE	736	4.090	1.844	5.617
		0.533		
DUMCENT	736	0.485	0	1
		1.027		
DUMEAST	736	0.911	0	1
		1.279		
DUMWEST	736	0.876	0	1
		1.244		

---

Source: Author's estimate (2014) using STATA 12.

The overall average of the variables used across the various sub-regions were also provided. The result suggest that for central African, log growth was 6.4 with a maximum growth of 9. The force participation was found to be negative for the Central Africa with a mean of -0.93, a maximum of -0.62 and a minimum value of -1.18. Thus the labour force participation rates in these area is low compared with the overall average for African economies. The countries found in Central Africa seems to have a high level of opennness with an average of 4.2 log points. The observation were not that spread given the standard deviation of 0.5. For the region, the log of FDI was on the average low. It had an average figure of 0.85 for the period under consideration. The minimum level recorded for the period was -3.3 and a maximum of 5. This is presented in Table 4.3 below

**Table 4.3: Descriptive statistics for Central Africa**

Variable	Obs	Mean	Std. Dev.	Min	Max
LGROWTH	533	6.427545	1.204166	3.998296	9.129941
LGOV	366	2.564058	0.485535	0.827531	3.812484
LGOVSQ	366	6.809496	2.40228	0.684807	14.53503
LPART	283	-0.97118	0.148648	-1.32798	-0.62276
LCONS	389	4.332917	0.368479	2.339232	4.947445
LFDI	363	0.912412	1.644909	-6.25805	4.978126
LODA	571	1.449759	1.454792	-4.64945	4.685136
LTRADE	521	4.167805	0.514703	2.720685	5.617616
LDEBT	436	0.800141	1.300056	-5.97536	5.12915
LCAPPRIV	251	2.325742	1.048972	-2.97484	4.721637

Source: Author's estimate (2014) using STATA 12.

Table 4.3 suggest that government expenditure in Central Africa region high and very close to the log average of the whole Africa. The average log government expenditure for Central Africa was found to 2.56 and less spread. With a minimum value of 0.83 and a maximum value of 3.8, the role of government in central Africa could be said to be enormous given the rates of government expenditure. Central Africa has also benefited from foreign aid.

Similarly, the summary statistics were done for East African countries. The results are presented in Table 4.4. The log of growth for East Africa had a mean of 5.9 and a minimum 4. The maximum growth rate for the period under consideration was 9.12. Government expenditure was 0.716 to 4.24 with a mean of 2.64. Labour force participation was also negatives. Thus the growth of labour force participation was slow in the Eastern Africa. The mean is -0.92, a minimum of -1.34 and a maximum of -0.63.

**Table 4.4: Summary Statistic for East African countries**

Variable	Obs	Mean	Std. Dev.	Min	Max
LGROWTH	812	5.933493	0.952585	3.998296	9.129941
LGOV	668	2.638578	0.415801	0.716434	4.241943
LGOVSQ	668	7.134726	2.216376	0.513278	17.99408
LPART	452	-0.92014	0.185098	-1.34286	-0.63236
LCONS	698	4.520022	0.143428	3.891127	5.000638
LFDI	634	-0.1259	2.160823	-13.4953	4.973389
LODA	878	1.873034	1.421678	-7.00001	4.685136
LTRADE	808	3.924407	0.512427	2.382387	5.187351
LDEBT	721	0.699414	1.183123	-5.97536	5.12915
LCAPPRIV	453	2.118147	0.755751	-2.24443	3.505061

Source: Author's Estimate (2014)

The log of consumption for had a mean of 4.5 with a maximum and a minimum values of 5 and 3.9. This suggest that consumption had a minimal spread around the mean. The internal presence in Eastern Africa was obvious given the variable which measure openness, official development Assistant and FDI. The variables which captures international relations had means of 3.92, 1.87 and -0.13 respectively for LTRADE, LODA and LFDI.

**Table 4.5: Summary statistic for West African Countries**

Variable	Obs	Mean	Std. Dev.	Min	Max
LGROWTH	843	5.972823	.8351345	3.998296	9.129941
LGOV	660	2.566293	.4421854	1.277554	4.164997
LGOVSQ	660	6.781093	2.399731	1.632145	17.3472
LPART	417	-1.000734	.1557005	-1.34243	-0.69515
LCONS	694	4.381811	.7735829	-2.73232	5.233977
LFDI	603	.2434513	1.74447	-6.95034	4.973389
LODA	875	1.976361	1.33264	-4.72825	4.990801
LTRADE	815	4.060244	.4839597	1.843773	5.187351
LDEBT	724	.9079445	1.199737	-6.03545	5.12915
LCAPPRIV	418	2.293956	.6809773	-1.61963	3.953947

Source: Author's Estimate (2014)

The growth of West African economics is not on the average comparable to the growth of African economies. On the average, the growth of African economies were 6 log points. The government expenditure was on the average 2.6. The maximum value of log of government expenditure was 4.16 and a minimum value of 1.28. The minimum value of consumption was -2.73 and a maximum of 5.23. The average consumption for West African region is 4.38. The log of FDI was on the average 0.24 log points. The maximum value of FDI was -6.95 and minimum value was 4.97. Log of ODA was having a mean of 1.98 and a maximum value of 5.

#### **4.8 Conclusion**

This chapter discussed the model that will be estimated by the study. The methodology to be used in obtaining the regression results together with the diagnostic checks employed was also discussed. The software package used for the estimation was also mentioned. All the variables in the model were well elaborated on and their a priori expectations were made known. The sample size and period were also discussed in this chapter. Estimation results will be analysed in subsequent chapter.



## CHAPTER FIVE

### RESULTS AND DISCUSSIONS

#### 5.1 Introduction

Like every econometric analysis, this chapter discusses the series of activities that the study went through in an attempt to unravelling the relationship between economic growth and government expenditure. The chapter started with exploration of data used for the analysis. This involved general presentation of the mean, maximum and minimum values and standard deviations. Afterwards, the correlation matrix for the variables was presented. Subsequently, the chapter presented the results of some diagnostic tests in Section 5.5. The discussion of the empirical findings is presented in Section 5.6; followed by the conclusion in Section 5.9.

#### 5.2 Correlation Matrix

**Table 5.1: Correlation matrix**

LGROWTH	LGOV	LGOVSQ	LPART	LCONS	LFDI	LODA	LTRADE	LDEBT	
LGROWTH	1.0000								
LGOV	0.1916	1.0000							
LGOVSQ	0.1973	0.9894	1.0000						
LPART	-0.0861	-0.1021	-0.0817	1.0000					
LCONS	-0.3529	0.0197	0.0159	0.0305	1.0000				
LFDI	0.2654	0.0378	0.0585	-0.0262	-0.2052	1.0000			
LODA	-0.3828	0.1369	0.1316	0.0617	0.0976	-0.0491	1.0000		
LTRADE	0.4983	0.3914	0.4035	-0.0737	-0.1606	0.5078	0.0423	1.00	
LDEBT	0.2173	0.1568	0.1489	-0.0926	-0.0706	0.0375	0.0389	0.3157	1
LCAPPRIV	0.4598	0.1339	0.1311	0.0175	-0.2414	0.3534	-0.1624	0.4170	0.1163

Source: Author's estimate

This study started off with a conventional correlation matrix of the variables. Correlation between variables was employed as a first step in the analysis. The correlation analysis has the potential of identifying variables that are highly correlated and suspicious. It is argued that correlation of 0.7 could present a multicollinearity problem. The results from the correlation matrix indicated that apart from the square of government expenditure having a correlation of 0.9 with government expenditure, all the variables had a correlation coefficient which were less than 0.5. The result therefore suggests that there is no problem of multicollinearity present in the model under consideration.

From the correlation matrix in figure 5.1, the relationship between economic growth and the explanatory variables was also examined. The simple correlation suggests that, labour force has a positive relationship with economic growth as well as private investment. This sign direction is in conformity with the tradition growth theories which see increase population and private investment as factors that engender growth of a country.

The correlation matrix also suggested a positive relationship between trade and economic growth. This suggests that the more open an economy is the more likely that economy will be subject to growth. This result seems to support the trade liberalisation policies. This finding from the correlation matrix is consistent with other studies like Edwards (1998) and Ghali (1999).

The relationship between FDI and economic growth has been extensively argued in academic literature to have either positive or negative effect. The relationship between FDI and economic growth was found to be positive from the correlation matrix in this study. This result is consistent with Aboagye and Twumasi (2014) findings that foreign direct investment increases the rate of growth among Sub-Saharan African

countries. The official development assistant was found to be negative. This suggests that aid has a negative effect on economic growth. This result turns to support the aid infectiveness hypothesis.

The relationship between government spending and economic growth was found to be positive from the correlation matrix. The results tend to buttress the Keynesian hypothesis. Several studies by using correlation matrix have examined the relationship between government expenditure and growth (see Easterly et al, 1993). The square of government expenditure was found to be negative suggesting a possible minimum value that government expenditure should not move beyond. In addition, examining simple bivariate correlation in a conventional matrix does not take into account each variable's correlation with all other explanatory variables (Padachi, 2006).

### **5.3 Detecting outliers**

Outliers and influential observations could lead to biased result when it comes to regression analysis. Therefore, to deal with outliers and influential observations, the study employed the Cook's D outlier and influential observation test. In this test, each observation was examined and compared with the Cook's D statistic to determine whether these outliers have greater influence on the model to be estimated. From the result of the pooled OLS regression, any observation which has a mean that is greater than 0.005 was dropped and not included. This is because, values of Cook's D that are higher than  $4/N$  are considered large, where N is the number of observations used in the OLS regressions and would have the tendency to bias the regression estimates. For this study, the  $4/N$  was calculated to be 0.0054

#### 5.4 Unit root test

The study employed both the Im- Pesaran and Shin (IPS) unit root test and the Fisher type unit root test to test for unit root. The IPS test could give results which are not consistent with the true nature of the panel in that if just one of the series is stationary, the IPS test would pass the stationarity test. Therefore, as a robustness check, this study compares the IPS test to the fisher type unit root test.

**Table 5.1: Unit root test based on IPS**

Variable	Statistic
LCONS	-6.8517**
LPART	-3.4822***
LFDI	-7.9021***
LGOV	-3.8652***
LCAPRIV	-4.7181***
LODA	-12.2001***
LTRADE	-4.4519***
LDEBT	-11.8513***
LGROWTH	-8.25311**

**Source: author's computation (2014)**

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ ,

The unit root test base on the IPS suggests that all the variables were stationary at their levels for the panel estimation. The null hypothesis of panel containing unit root was rejected at 5per cent for consumption. However the remaining variables were stationary at 1per cent significant levels.

**Table 5.3: Fisher type unit root test**

	Inverse
LCONS	297.1972***
LFDI	418.8833***
LGOV	137.3667**
LCAPPRIV	240.6631***
LODA	294.879***
LDEBT	710.379***
LTRADE	182.980***
LGROWTH	1033.3408***

Source: Author's computation. *Note:* \*\*\*  $p < 0.01$  and \*\*  $p < 0.05$

Due to the inherent challenge in the IPS, the Fisher type panel unit root test was subsequently employed to verify the stationarity status of the variables employed in the regression analysis. The result of the fisher type unit root test is presented in Table 3. As a measure of robustness, four different unit root test statistics were computed. All the four tests strongly reject the null hypothesis that the panel data contain unit roots. Choi (2001) argued that, when the number of panels is finite, the inverse  $\chi^2$  test is powerful and applicable. The study has a fairly large sample number of panels and as a consequence, on the basis of the inverse  $\chi$  test, the null hypothesis of unit root is strongly rejected. Also, aside the inverse chi-square which has finite sample properties, the other statistics works very well with a large panel set. Hence the test is applicable in both situations. Therefore, the conclusion is that at least one of the panels has no unit root

and this removes the tendency of possible spurious regressions or unrelated regressions.

This result is also consistent with the findings from the IPS unit root test

## 5.6 Estimation Result

**Table 5.4: Regression Results for Pooled OLS and Fixed Effect Using LGrowth as the dependent variable**

VARIABLES	Pooled OLS			Fixed Effect		
	1	2	3	1	2	3
LG0V	0.391*** (-0.046)	0.952*** (-0.305)	1.126*** (-0.297)	0.0182*** (-0.002)	0.662118*** (-0.117)	0.403* (-0.211)
LGOVSQ		-0.140** (-0.056)	-0.176*** (-0.055)		-0.110*** (-0.024)	-0.104*** (-0.025)
LPART		-0.204* (-0.110)	-0.354*** (-0.108)		0.325287** (-0.148)	0.281* (-0.15)
LCONS		-0.644*** (-0.060)	-0.831*** (-0.061)		-0.220*** (-0.042)	-0.212*** (-0.043)
LDEBT		0.009 (-0.019)	0.026 (-0.018)		-0.045*** (-0.007)	-0.044*** (-0.007)
LFDI		-0.028** (-0.011)	0.023** (-0.011)		0.011*** (-0.004)	0.011*** (-0.004)
LCAPPRIV		0.134*** (-0.027)	0.110*** (-0.026)		0.001 (-0.010)	-0.0002 (-0.010)
LODA		-0.488*** (-0.017)	-0.443*** (-0.019)		-0.052*** (-0.011)	-0.054*** (-0.0108)
LTRADE		0.4841*** (-0.048)	0.476*** (-0.0465)		0.1136*** (-0.0250)	0.117*** (-0.0254)
DUMCENT			-0.214*** (-0.027)			0.272* (-0.153)

Source: Author's estimate (2014). Note: Standard errors in parentheses, \*\*\* p<0.01,

\*\* p<0.05, \* p<0.1

**Table 5.4 CON'T: Regression Results for Pooled OLS and Fixed Effect**

VARIABLES	Pooled OLS			Fixed Effect		
	1	2	3	1	2	3
DUMEAST			-0.0852*** (-0.0237)			0.236 (-0.15)
DUMWEST			-0.164*** (-0.0264)			0.189 (-0.154)
Constant	5.030*** (-0.124)	5.917292*** (-0.545893)	6.705*** (-0.531)	6.017*** (-0.0571)	6.002066*** (-0.306271)	6.038*** (-0.31)
Observations	1,869	736	736	1,869	736	736
R-squared	0.037	0.7376	0.763	0	0.4566	0.314
Number of id2				44	44	44
Hausman				0.345**		

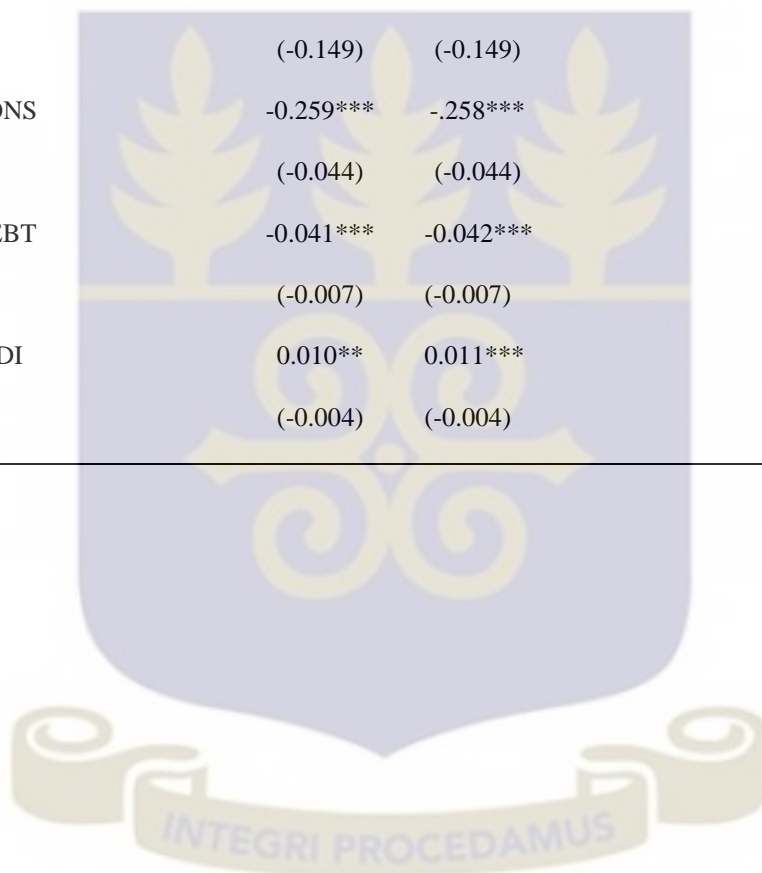
Source: Author's estimate (2014). Note: Standard errors in parentheses, \*\*\* p<0.01, \*\*

p<0.05, \* p<0.1



**Table 5.4 CON'T: Regression Results for Random Effect and System GMM**

VARIABLES	Random effect			System GMM		
	1	2	3	1	2	3
LGOV	0.020 (-0.021)	0.619*** (-0.125)	0.972*** (-0.151)	0.0331*** (-0.005)	21.066*** (-6.745)	0.339*** (-0.033)
LGOVSQ		-0.101*** (-0.025)	-.120*** (-0.025)		-4.146*** (-1.296)	-0.068*** (-0.006)
LPART		0.218 (-0.149)	0.257* (-0.149)		0.378 (-1.505)	-0.214** (-0.093)
LCONS		-0.259*** (-0.044)	-.258*** (-0.044)		0.205 (-0.474)	-0.065*** (-0.018)
LDEBT		-0.041*** (-0.007)	-0.042*** (-0.007)		-0.163*** (-0.056)	0.002 (-0.002)
LFDI		0.010** (-0.004)	0.011*** (-0.004)		0.027 (-0.023)	0.005*** (-0.001)



**Table 5.4 CON'T: Regression Results for Random Effect and System GMM**

VARIABLES	Random effect			System GMM		
	1	2	3	1	2	3
LCAPPRIV		0.003388 (-0.01027)	0.00359 (-0.0102)		-0.13019 (-0.123882)	0.0190*** (-0.006)
LODA		-0.07106*** (-0.011325)	-0.0643 (-0.0114)		0.205511** (-0.0951)	-0.010*** (-0.00181)
LTRADE		0.140804*** (-0.149327)	0.131*** (-0.0264)		-0.16623 (-0.301415)	0.00765 (-0.0141)
DUMCENT			-0.214*** (-0.0775)			-0.110*** (-0.014)
DUMEAST			-0.278*** (-0.0723)			0.0167** (-0.0053)
DUMWEST			-0.297*** (-0.0749)			0.0174 (-0.0154)
L.LGROWTH			1.003***		(-0.00473)	0.987*** (-0.0189)
Constant	6.029*** (-0.142)	6.061525*** (-0.323972)	5.970*** (-0.322)	0.0789** (-0.0308)		-0.308 (-0.199)
Observations	1869	736	736	1869	736	736
R-squared						
Number of id2	44	42	42	44	42	42
Hausman	35.88***					
AR (2) test				0.1066		2.124
Hansen/Sargan probabilities				0.345	0.7878	0.7878

Source: Author's estimate (2014). Note: Standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



The results presented for the study is based on the OLS, Fixed effect and Random effect, and finally the system GMM. The motive of using these four estimation approach was to ascertain the consistency of our results. The study first presents results obtained by regressing only government spending on growth for Sub-Saharan African countries without accounting for the influence of other variables to serve as the base equation. The result from the OLS, Fixed effect and the GMM revealed that the effect of government expenditure on economic growth is consistently positive for all the estimation techniques.

The effect of government expenditure on growth for OLS is statistically significant at 1%. The same could be said for fixed effect and the Random effect estimation procedure. To be more specific, a change in government expenditure by 1% could lead to an increase in economic growth by 0.7% from the pooled OLS result in column 1. In column 3, the Pooled OLS model was augmented to include other explanatory variable as controls. Government expenditure was still positive and statistically significant with a coefficient of 1.12%. The positive effect of government expenditure is consistent with the findings of Calderón and Servén (2008), Sobhee (2010) and several other empirical works.

Due to the possibility of some of the explanatory variables been endogenous, the fixed effect, the random effect and the System GMM were estimated. The same observations were made from the fixed effect, random effect and the system GMM. Results for fixed effect, random effect and system GMM showed a positive sign between government spending and economic growth. The respective effects were statistically significant at 1% respectively for all the methods used. To be more specific, from the base line

equation, an increase in government expenditure by 1% would lead to an increase in economic growth by equation 1.2% and 0.8% for fixed effect and the system GMM respectively. This result could be attributed to the fact that most developing economies spend much on infrastructure and other growth engendering activities and hence propelling economic growth.

Similarly, the fixed effect and random effect as well as the System GMM models were augmented for other explanatory variables. The results found were still consistent with that of the pooled OLS estimation. The study also found a positive effect of government expenditure on economic growth. The coefficient was 0.4% for fixed effect and 0.9% for random effect model. The significant levels were 10 per cent and 1 per cent respectively for both estimations.

Results for system GMM were no different from that of fixed effect. The effect of government expenditure on economic growth was found to be positive and statistically significant at 1 per cent. From the results, if government expenditure increases by 1 per cent, economic growth would increase by 0.34 per cent. This when compared to the fixed effect has a reduced estimate of the impact. This suggests that the fixed effect estimation may have overestimated the effect of government consumption. The role of government expenditure was found to be significant and tend to support the Keynesian hypothesis rather than the neoclassical argument that government expenditure is growth reducing. The finding from the GMM is still consistent with already cited studies like Sobhee (2010) and others.

The square of government expenditure was also found to be negative and statistically significant at 1per cent for both fixed effect and random effect estimations. This result suggests a non-linear (inverted U) relationship between government expenditure and economic growth. That is, as government expenditure increases for Sub-Saharan Africa initially, the Keynesian hypothesis seems to hold and at a later stage the effect has the tendency of becoming either negative or increases at a decreasing rate. The implication is that as government expenditure increases, with time, the effect of government expenditure on economic growth increases at a decreasing rate. Therefore, government expenditure though having a positive effect on economic growth could lead to reduction in economic growth if excessively used.

Results from the fixed effect and random effect estimations indicate a statistically significant coefficient for labour force (LPART). The coefficient is statistically significant at 10per cent. Labour force was found to be positively related to economic growth. The result indicates that an increase in labour force would result in an increase in economic growth by 0.28per cent and 0.26per cent for the fixed effect model and random effect models respectively. The effect of labour force in the GMM equation was also found to be positive just as in the fixed effect estimation. The result from the GMM estimation is also consistent with other studies that followed the fixed effect estimation. The coefficient of labour force in the system GMM estimation was significant at 5per cent. The result (Column 8) indicates that an increase in labour force would lead to 0.21 per cent increase in economic growth. The result from the fixed effect, random effect and GMM contradict that of the Pooled OLS result which indicated that labour force has a negative effect on economic growth shown in column 3 of Table 5.4.

This study is consistent with Romer and Romer (2007) and Afonso and Alegre (2008). They found a positive effect of labour force on economic growth. This is consistent with the argument of Jayaraman & Singh (2007). These authors asserted that, there can be no growth without the involvement of labour as a factor input hence, the positive and significant coefficient. This result however contradicts the works of Aryeetey and Fosu (2005), and Asiedu (2010) who found a negative effect of labour on output. However, the Pooled OLS result seems to confirm the works of Aseidu (2010) and Aryeetey and Fosu (2005).

Again, the effect of household consumption has been predicted to have a positive effect on economic growth in situations where household consumption is focused on investment or productive expenditure and not on recurrent expenditure. The study finds a positive relationship between growth and consumption expenditure by household. Similar results were obtained by Kweka et al. (1999) in their study. Consumption expenditure by households was also found to be significant but had a weaker effect in the GMM model. The effect was statistically significant at 1 per cent. The result showed that an increase in consumption would result in an increase in economic growth by 0.06 per cent. When compared with the fixed effect model, the system GMM estimate for consumption effect on economic growth is greater. That is, the fixed effect model seems to underestimate the effect of consumption on economic growth.

Increased debt for an economy is seen as growth reducing. Results obtained for debt effect on growth was consistent for all four estimations (column 4, 6 and 8). Debt was found to have a negative effect on economic growth (also see Chuhan-Pole et al, 2013). This is primarily because, debt servicing puts pressure on government to finance

interest payment which are not growth engendering. Therefore, it is expected that debt would be negatively related to economic growth. An increase in the debt level of Sub-Saharan African countries would lead to deterioration in growth by 0.04per cent. Fixed and Random effects results obtained were however not consistent with Aryeetey and Fosu (2005) who did not find a statistical relationship between debt and economic growth. The system GMM and Pooled OLS results were rather consistent.

Private Investment forms one of the basic components in economic growth as predicted by growth models. Therefore, the study examined the effect of Private Investment on economic growth. Private Investment was found to positively affect economic growth. This is statistically significant at 1per cent for both the OLS and the system GMM estimation. However, for the fixed effect and the random effect estimations, the result was not statistically significant. The results indicated that an increase in Private Investment by 1per cent would lead to an increase in economic growth rate by 0.019per cent. Even though, the fixed effect results were not significant, they had a positive effect on economic growth. The result is consistent with the growth theory underlining this study. Capital accumulation or investment, according to theory propels growth.

Foreign direct investment was found to be positively related to economic growth. This is consistent with the empirical finding of Alfaro *et al*, (2004). This finding however is in sharp contrast to studies by Blomstrom, Lipsey and Zejan (1994) and Carkovic and Levine (2002) who found no significant relationship between economic growth and FDI. The result indicates that for both fixed effect and random effects, FDI effect on growth was statistically significant at 1per cent. However, the impact was found to be very weak. The results show that if FDI increases by 1per cent, economic growth would increase by 0.011per cent and 0.010per cent as shown in the fixed effect and the random

effect models respectively. Also, the result for system GMM (column 8) was also positive and statistically significant at 1%. The effect was found to be 0.004 per cent points due to a 1 percentage change which when compared with the Pooled OLS coefficient in column 3 was very minimal effect.

The findings are consistent with the argument that FDI inflows are accompanied with spill over effects such as technological advancement which enhance the production techniques of the host country. Therefore, the long-standing impression among policymakers that foreign direct investment is more conducive to long-run growth and development than other forms of capital inflows (Walsh & Yu, 2010) is confirmed in this study. As Tsikata, Asante and Gyasi (2000) outlined in their study, FDI inflows provide a source of capital investment and bridge the gap that exist between saving and investment required to spur growth in developing and middle income countries. This foreign investment comes in to also fill the gap of inadequate capital for expansion and economic growth.

Overseas Development Assistance (foreign Aid) was found to be negatively related to growth. The negative effect was consistent in both the fixed effect and the random effect estimations. The result indicates that as Overseas Development Assistance increased by 1per cent, economic growth reduced by -0.05 and -0.06. That is Overseas Development Assistant does not engender growth. This result differs from the findings of Moreira (2005) but confirms findings from Ndambiri et al. (2012).

Estimation results from fixed effect and random effect suggest openness of an economy to international trade leads to economic growth. The positive effect of trade openness

and economic growth is due to the exposure of the opened economies to international economies and access to wider market. To be more specific, an increase in trade openness results in an increase in economic growth by 0.11 for the fixed effect model and 0.13 in the random effect model. Studies that confirm the positive relationship of this study include Alexiou (2009), Ndambiri et al. (2012) and Aladejare (2013).

This positive effect of trade on economic growth could be explained through various channels (Thomas, 2007). Trade policies aimed at increased openness would lead to increased imports of capital and intermediate goods that embody modern technology and this helps to increase productivity for domestic production as well as exports. Implicitly embedded in this view is the fact that, the level of technological improvement is a positive function of the degree of openness. Increased foreign exposure of the export sector results in positive externalities such as the diffusion of knowledge and other spill over effects. These eventually lead to productivity enhancement and the development of more competitive industries. The absorption of technological know-how is expected to reflect in a rise in the share of industry as a whole in the economy and exports in particular. It is also assumed that openness leads to greater levels of foreign direct investment (FDI) which then serve as a channel for the transmission of technological innovations from trade partners.

Sub-regional dummies were included in the model to estimate sub-regional effects on economic growth with respect to government spending. Using Southern Africa as the base, it was found from the fixed effect model that Central African dummy has a positive effect on economic growth. This implies that, compared with Southern Africa, government expenditure would contribute more to economic growth in Central Africa.

This result was found to be statistically significant at 10per cent. However, the remaining dummies were not significant. The random effect estimation showed a positive and statistically significant effect for all the dummies include in the model. This means that sub-regional difference plays a significant role in ensuring economic growth.

## 5.9 Conclusion

The study sought to find the effect of government expenditure on economic growth and this chapter presented the results obtained. A unit root test which showed that the variables are stationary at their levels was conducted using IPS and Fisher tests. The study then examined the outlier effect using the Cook's D procedure. This procedure removed observations that may have extreme influence on the estimation and narrowed our sample size to 736. The study then presented results obtained from our four estimation procedures. A positive but decreasing effect of government expenditure on economic growth was found for all the methods used. Based on these results, the study moves on to present the final chapter.

The result from the GMM estimation suggests that, there is existence of expectation in the growth model. That is the lagged dependent variable was found to be significant at 1per cent. This means that a previous year growth in Sub-Saharan Africa will be able to lead to economic growth of the current year by 0.98per cent. This shows that past effect of economic growth affects the current levels of growth. The result implies that if government embarks on policies that lead to economic growth, growth will continue for subsequent years. This may be due to that fact that, increased growth in the sub-sub-region may serve as a signal for boosting investment and investor's confidence in the

economy. Therefore, as subsequent investment increases, due to positive expectations, economic growth would also increase.



## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

The goal of this final chapter is to present the summary of findings, conclusions and recommendations. Whereas the summary presents a brief overview of the research problem, objective, methodology and findings, the conclusion captures the overall outcomes regarding the findings of the study in light of the hypotheses. Recommendations also present specific remedies to be implemented by specific bodies. The chapter also presents the limitations and direction for future research.

#### 6.2 Summary of findings

Many theories and empirical works have sought to examine the effect of government expenditure on economic growth. Despite these attempts, there is still an inconclusive result on the specific role of government expenditure to economic growth. Therefore, this study sought to examine the relationship between government expenditure and economic growth in the Sub-Saharan Africa. This is not out of place since in developing economies, every government is considered as a major player in the development process. Governments of developing economies provide massive infrastructure and social interventions that result in huge government expenditure.

The study specifically investigated the effect of government expenditure on economic growth. The study also sought to find the effect of sub-regional dummies on economic growth. The study used the fixed effect and random effect estimation as well as the system GMM estimation technique to model the relationship between government expenditure and economic growth. Control variables included in the study

were Official Development Assistance, Foreign Direct Investment, Trade, Debt Service, Private Investment, Labour force, Private Investment, Consumption and the Sub-regional dummies.

To examine the stationarity of the variables used, panel unit root tests were conducted. The two basic tests that were done were the Im-Pesaran-Shin unit root test and the Fisher type unit root test. The unit root test result showed that all variables used in the study were stationary at their levels. This implied that using these variables in the regression analysis would not result in any spurious regression. Also the correlation matrix showed that there is no strong correlation among the variables that were used. With these information captured, the study then proceeded to model the relationship between economic growth and government expenditure.

From the results, it was found that, there is a positive relationship between government expenditure and economic growth. This relationship is in support of the Keynesian hypothesis that government expenditure engenders growth. However the relationship was found to be non-linear in nature. As the square of government expenditure was found to have a negative effect on economic growth.

Also, a positive relationship was found between economic growth and trade openness and foreign direct investment while ODA was found to be negatively related to economic growth. Similarly, labour force and consumption were found to be positively related to economic growth. Again, private investment had a positive effect on economic growth. The dummy for the sub-regional effect were found not to be

significant in the GMM estimation but in the fixed effect, central Africa had a positive and significant effect on economic growth.

### **6.3 Conclusions**

The study has empirically examined the effect of government expenditure on economic growth for 42 Sub-Saharan African Countries. The empirical evidence revealed the following findings:

1. Both the long-run and short-run results found statistically significant positive effects of trade openness on economic growth in Sub-Saharan Africa. Thus, the study found that the classical argument that trade openness resulting from comparative advantage leads to economic growth is valid in both the long-run and short-run
2. The study also found a positive and significant effect of FDI on real GDP. This reemphasises the significant role that FDI plays in the growth process of Sub-Saharan Africa.
3. Government expenditure, gross fixed capital formation (K) and labour force exerted a positive and statistically significant effect on economic growth. This is an indication that government expenditure, gross fixed capital formation and labour force are critical in achieving sustained economic growth in Sub-Saharan Africa.

### **6.4 Recommendations**

First, government expenditure which was used as a policy variable was found to be positive and significant. This implies that government expenditure is growth enhancing. It would be recommended of governments to embark on expansionary fiscal policies in the form of investing in infrastructure particularly infrastructure that would boost human capital. This if done will increase the productivity of labour and enhance

growth. However, it is worthy to note that, greater care must be taken by governments in the Sub-Saharan Africa on excessive spending since the square of government spending from our empirical results had a negative but non-linear effect on growth.

Secondly, given that the study found a positive causal effect of trade liberalisation on economic growth, governments in the Sub-Saharan Africa should embark on more trade liberalisation policies in order to increase import and exports. That is, export promotion should be intensified as part of trade liberalisation policies. Export promotions can excellently be done through trade fair organizations. In addition, there should also be diversification of our exports. Government should endeavour to add more value to their exports to increase the export volume of countries. This if adhered to would promote growth in the sub-region. Governments should also try its best to reduce taxes on imported items intended for production. This will encourage the private sector to come on board in complementing government's effort to achieving economic growth and development.

Also, deliberate attempts through FDI-induced measures should be made to ensure that countries attract foreign direct investment while ensuring that maximum satisfaction is derived from Overseas Development Assistance. Our empirical results on Overseas Development Assistance revealed that Sub-Saharan African countries suffer from the "Dutch" disease. It is highly advisable that governments in the sub-region try their utmost best to reduce over reliance on aid for developmental purposes and find alternative ways of funding government infrastructure. This will go a long way in dealing with the "Dutch" disease if not drastically eliminating it.

## 6.5 Suggestion for Future research

Based on the limitations of this study, future research could consider an analysis on disaggregated expenditure when examining the effect of government expenditure in the sub-sub-region. If done, results obtained from such an analysis would be much appreciated as well as assist policy-makers identify the type of government expenditure that either negatively or positively impacts on growth for Sub-Saharan Africa.

According to Halit (2003), trade openness measures can be divided into two groups: namely measure of trade volumes and measure of trade restrictions. This study however considered the measure of trade volumes. In this regard, future research could consider using many more measures of trade openness.

Again, future research could analyse the effect of government expenditure on growth by concentrating on oiled economies and non-oil economies since the effect of oil and natural resource would have a greater effect on growth and also determine the extent to which economies spend.



## REFERENCES

- Abdallah, A. N. and Addo, S. (2009). *Public Sector Economics and Finance*. Black Mask Limited.
- Afonso, A and Alegre, J.G. (2008). 'Economic Growth and Budgetary Components'. A Panel Assessment for the EU. European Central Bank, 2008.
- Africa in Focus (2011), 'Governance in the 21<sup>st</sup> century'. Human Science Research Council.
- Aladejare, S. A. (2013). 'Government spending and economic growth; evidence from Nigeria'. *Munich Personal RePEc Archive*, 43916: 1-23.
- Alesina, A. and Rodrik, D. (1994) 'Distributive Politics and Economic Growth'. *Quarterly Journal of Economics*, 109(2): 465-90.
- Alexiou, C. (2009). 'Government Spending and Economic Growth: Econometric Evidence from the South Eastern Europe (SEE)'. *Journal of Economic and Social Research* 11(1): 1-16
- Alfaro, L., Kalemni-Ozcan, S., & Sayek, S. (2009). Foreign direct investment, productivity and financial development. *The World Economy*, 32(1), 111–135.
- Alfonso, A. and Alessandro, T. (2008). 'Government Expenditure and Economic growth in the EU. Long-run tendencies and Short-term adjustment'. *Economic Papers*, 300:1-52.
- Al-Yousif. Y. K. (2002). 'Defence Spending and Economic Growth: Some Empirical Evidence from the Arab Gulf Sub-region'. *Defence and Peace Economics*, 13(3): 187-197.
- Antonis, A. (2013). 'Wagner's Law versus Keynesian Hypothesis : Evidence from pre-WWII Greece', *Panoeconomicus*, 4: 457–472.

- Arellano, M. and Bond, S. (1991). 'Some test for specification of panel data: Monte Carlo evidence and an application to employment equations' *Review of Economic Studies*, 58: 277-297.
- Arney, D. (1995). *The Freedom Revolution*. Washington, D.C.: Regnery Publishing Co.
- Artelaris P., Arvanitidis P. and Petrakos G. (2007) 'Theoretical and methodological study on dynamic growth sub-regions and factors explaining their growth performance'. Paper presented at the 2nd Workshop of DYNREG in Athens, 9-10 March.
- Aryeetey, E. and Fosu, A.K. (2005). 'Economic Growth in Ghana: 1960-2000'. Draft Chapter for AERC Growth Project Workshop, Cambridge.
- Asiedu, M. (2010). *Trade liberalization and economic growth in Ghana: 1986-2007* (Unpublished master's thesis). Kwame Nkrumah University of Science and Technology, Kumasi.
- Ayibor, E. R (2012). *Trade liberalization and Economic growth in Ghana*. Department of Economics University of Cape Coast (Unpublished thesis)
- Balgati, B. H. (2005), "*Econometric Analysis of Panel Data*" (3<sup>rd</sup> ed.), New York: Wiley.
- Barro, R.(1987). 'Government Spending, Interest Rates, Prices and Budget Deficits in the United Kingdom, 1701-1918;'. *Journal of Monetary Economics*,20: 221-247.
- Basu, A., Calamitsis E. A. and Ghura D. (2005). 'Adjustment and Growth in Sub-Saharan Africa'. Economic Issues based on IMF Working Paper 99/51.

- Bloom, D. E. and Sachs, J. D. (1998). 'Geography, Demography, and Economic Growth in Africa'. *Brookings Papers on Economic Activity*, 2: 207-290
- Blundell, S. and Bond, M. (1998). 'Initial conditions and moments restrictions in dynamic Panel Data models'. *Journal of Econometrics*, 87: 115-144.
- Bobba, M. and Powell, A. (2007) 'Aid and Growth: Politics Matters'. Working Paper No. 601 (Washington: Inter-American Development Bank).
- Bond, S., Leblebicioglu, L. and Schiantarelli, S. (2004). 'Capital accumulation and Growth': A new look at the empirical evidence. Economics Papers W08, Economics Group, Nuffield College, University of Oxford.
- Bond, S. Hoeffler, A. and Temple, J. (2001). 'GMM Estimation of Empirical Growth Models'. Department of Economics, University of Bristol, 8 Woodland Road, Bristol BS8 1TN, UK and CEPR
- Bouoiyour, J. and Naimbayel, D. (undated). 'Economic growth in Sub-Saharan Africa: is governance a source of inequality between countries?' *Centre d'Analyse Théorique et de Traitement des données économiques (CATT)*
- Burnside, C. and Dollar, D., 2000, 'Aid, policies and growth'. *American Economic Review*, 90(4): 847-869.
- Calderón, C. and Servén, L. (2008). 'Infrastructure and Economic Development in Sub-Saharan Africa'. Policy Research Working Paper 4712.
- Carkovic, M. and Levine, R. (2002). 'Does Foreign Direct Investment Accelerate Economic Growth?' A paper presented to University of Minnesota. 1-23.
- Chand, Sheetal and Moene, Karl O. (1997). 'Controlling Fiscal Corruption'. IMF Working Paper, 1: 1-17

- Chuhan-Pole, P.,Christiaensen, L., Dennis., A., Kambou G.,Angwafo, M., Buitano, M., Korman, V.,Pardo, C.G. and Sanoh, A. (2013). 'Africa's pulse'.Office of the Chief Economist for the Africa sub-region.
- Choi, I. (2001), 'Unit Root Test for Panel Data'. *Journal of International Money and Finance*, 20:249-272.
- Collier, P. and Gunning, J.W. (1999). 'Explaining African Economic Performance'. *Journal of Economic Literature*.37 (1): 64-111.
- Collier, P. and Gunning, J. W. (2014). 'Why Has Africa Grown Slowly?' *American Economic Association*.13 (3): 3-22.
- Collier, P. and Dollar, D. (1999a). 'Aid, Risk and the Special Concerns of Small States'.Working Paper, Mimeo, Policy Research Department, World Bank, Washington DC.
- Collins, S. M., Bosworth, B. P., Asia, E., and Asia, S. (1994). 'Economic Growth in East Asia : Accumulation versus Assimilation'.*Brookings Papers on Economic Activity*, 2: 135-203.
- Datta-Chaudhuri, M. (1990). 'Market Failure and Government Failure'.*The Journal of Economic Perspectives*, 4(3):25-39.
- Devarajan, S., Swaroop, V. And Zou, H. (1996). 'The Composition of Public Expenditure and Economic Growth'. *Journal of Monetary Economics*, 313-344.
- Dramani, LatifAG (2010). *Convergence and Economic Integration in Africa: the Case of the Franc Zone Countries*. No. RP\_200. 2010.
- Edwards, S. (1998). Openness, productivity and growth: What do we really know? *Economic Journal*, 108(447), 383-398
- Evsey, D. (1946). 'Capital expansion, Rate of growth and employment'. *Econometrica*14 April: 137-147. Reprinted in Stiglitz and Uzawa 1969.

- Kasidi, F and Said, A. M. (2013). 'Impact of External Debt on Economic Growth: A Case Study of Tanzania'. *Advances in Management & Applied Economics*, 3(4):1-18.
- Fan, S and Rao, N. (2003), 'Public Spending in Developing countries: Trends, Determination, and Impact', *EPTD Discussion Paper No. 99*, USA.
- Ferroni M. and Kanbur, R. (1991). 'Poverty- Conscious Restructuring of Public Expenditure'.  
Social Dimensions of Adjustment in Sub-Saharan Africa Working paper 9: 1-34.
- Fisher S. (1993). 'The Role of Macroeconomic Factors in Growth'. *Journal of Monetary Economics*, 32: 485-512.
- Folster, S. and Henrekson, M. (2001). 'Growth effects of government expenditure and taxation in rich countries'. *European Economic Review*, 45:1501-1520.
- Ghali.K.H.(1999). 'Government size and economic growth: evidence from a multivariate Cointegration analysis'. *Applied Economics*, 31(8): 975-987.
- Grossman, G. M. And Helpman, E. (1991). *Trade, knowledge spillovers, and growth*. National Bureau of Economic Research Cambridge, Mass., USA.
- Gujarati, D. N. (1995). *Basic Econometrics, 3rd Edition*. New York: McGraw-Hill.
- Gupta, A. S. (2007). 'Determinants of Tax Revenue Efforts in Developing Countries' *Working Paper for International Monetary Fund*, 184: 1-40
- Gupta, S. and Verhoeven, M. (2001). 'The efficiency of government expenditure Experiences from Africa'. *Journal of Policy Modelling*, 23: 433-467.
- Gupta, S., Clements, B., Baldacci, E., and Mulas-Granados, C. (2002). 'Fiscal adjustments, expenditure composition, and growth in low-income countries'. *Working Paper for International Monetary Fund*, 27: 1-40.

- Harrod, R. (1939). 'An Essay in dynamic theory'. *Economic Journal*, 49; 14-33.  
Reprinted in Stiglitz and Uzawa 1969.
- Henrekson, M. (1993). 'Wagner's Law: A Spurious Relationship?' *Public Finance*,  
48(2): 406-415.
- Herath, S. (2012). Size of government and economic growth : a nonlinear analysis,  
*Economic Annals. LVII* (194), 7–30.
- Huang, C.-J., (2006). 'Government Expenditures in China and Taiwan: Do They  
Follow Wagner's Law?' *Journal of Economic Development*, 31:139-148.
- Imi, A. (2004). 'Decentralization and economic growth revisited; An Empirical Note'.  
Japan Bank for International Corporation Institute. *JBICI* 17: 1-13.
- Im, K., Pesaran, H., and Shin, Y. (1995). 'Testing for unit roots in heterogeneous  
panels'. DAE Working Papers. Amalgamated Series No. 9526, University of  
Cambridge.
- Jayaraman, T. K., & Singh, B. (2007). *Foreign direct investment and employment  
creation in pacific island countries: An empirical study of Fiji*. (ARTNET Working  
Paper No. 35/07.) Asia-Pacific Research and Training Network on Trade. Retrieved  
September 25, 2014, from <http://www.unescap.org>
- Jones, C I. (1995). 'Time Series Tests of Endogenous Growth Models' *Quarterly  
Journal of Economics*, 110: 495-525.
- Kasidi, F and Said, A. M. (2013). 'Impact of External Debt on Economic  
Growth: A Case Study of Tanzania'. *Advances in Management & Applied  
Economics*, 3(4): 1-18.
- Kaufmann, D., Kraay, A. and Mastruzzi, M. (2005). 'Governance matters IV:  
Governance indicators for 1996–2004'. Washington DC: World Bank.

- Ketema, T. (2006). 'The Impact of Government Spending On Economic Growth. The Case of Ethiopia'. Thesis submitted to School of Graduate Studies, Addis Ababa University.
- Keynes, J.M. (1936). *General Theory of Employment, Interest and Money*. London: Macmillan.
- Kremer, M. (1993). 'Population Growth and Technological Change: One Million B.C to 1990'. *The Quarterly Journal of Economics*, 108(3): 681-716.
- Kweka, J. P. and Morrissey, O. (1999). 'Government Spending and Economic Growth, Empirical Evidence from Tanzania (1965-1996)'. *Centre for Research in Economic Development and International Trade (CREDIT) Research Paper*, 6: 1-46.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*. 46: 31-77.
- Loizides, J. and Vamvoukas, G. (2005). 'Government Expenditure and Economic Growth: Evidence from Trivariate Causality Testing'. *Journal of Applied Economics*, 8 (1): 125-152.
- Lucas, R. E. (1988). 'On the mechanics of economic development'. *Journal of Monetary Economics*, 22: 3-42.
- Magnus, B., Lipsey, R. E. and Zejan, M. (1994). 'What explains developing country growth?' Oxford University Press. Working Paper No. 4132
- Mankiw, N. G., Romer, D. and Weil, D. A. (1992). A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics*, 107(2): 407-437.
- McKinsey Global Institute (2010). Lions on the move: The progress and potential of African Economies. 1-8.

- Modebe, N.J., Okafor, R. G., Onwumere, J.U.J. and Ibe, I. G. (2012). 'Impact of recurrent and capital expenditure on Nigeria' economic growth'. *European Journal of Business and Management*, 4(19): 66-75.
- Moreira, S. B. (2005). 'Evaluating the Impact of Foreign Aid on Economic Growth: A Cross-Country Study'. *Journal of Economic Development* 25, 30(2): 25-49.
- Muritala, T., and Taiwo, A. (2011). 'Government expenditure and economic development: empirical evidence from Nigeria'. *Munich Personal RePEc Archive*, 37293:1-10.
- Murithi, P. (2005). *The African Union: Pan-Africanism, peacebuilding and development*, Ashgate Publishing Limited, United States; 112.
- Musgrave, R. A. (1969). *Fiscal Systems*. New Heaven: Yale University Press.
- Ndambiri H. K., Ritho C., Ng'ang'a S. I., Kubowon, P. C., Mairura F.C., Nyangweso P.M., Muiruri E. M. and Cherotwo F. H. (2012). Determinants of economic growth in Sub-Sahara Africa: a panel data approach. *International Journal of Economics and Management Sciences*, 2(2): 18–24.
- Nketiah-Amponsah, E. (2009). 'Public spending and economic growth : evidence from Ghana (1970 – 2004)'. *Development Southern Africa Journal*, 26(3):477-497.
- Nkurunziza, J. D. and Bates, R. H. (2003). 'Political institutions and economic growth in Africa' Center for International Development Working Paper, No. 98.
- Nurudeen, A. and Abdullahi, U. (2010). 'Government Expenditure and Economic Growth in Nigeria, 1970-2008: A Disaggregated Analysis'. *Business and Economics Journal*, 4: 1-11.
- Olivier Blanchard, (2007). *Macroeconomics 5*. Pearson Prentice-Hall, 2007,

- Oswaldo de Rivero.(2002). ‘The Myth of Development: The Non-Viable Economies of the 21st Century’. *Taylor Francis*, 12(2): 232-234.
- Ottosen, H. L. (2010). ‘NEPAD’s Contribution to Democracy and Good Governance in Africa’. Working Paper for the International Institute for Democracy and Electoral Assistance.1-15.
- Peacock, A. T., and Wiseman .J. (1961).‘The Growth of Government Expenditures in the United Kingdom’. Princeton: Princeton University Press.
- Polterovich, V. and Popov, V. (2007).Democracy and Growth Reconsidered: Why Economic Performance of New Democracies is not encouraging. TIGER Working paper Series 102:1-43.
- Ram, R. (1986). ‘Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time-Series Data’. *American Economic Review*, 76: 191-203
- Ray D. Bollman (2013). ‘Canada’s rural labour market and the role of immigrants’. Presentation to the Annual Rural Policy Conference of the Canadian Rural Revitalization Foundation October 24 to 26, 2013. Thunder Bay, Ontario.
- Robert J. Barro (1989). ‘The Ricardian Approach to Budget Deficits’. *The Journal of Economics Perspectives*, 3(2): 37-54.
- Romer, P. (1990).‘Endogenous technical change’. *Journal of political Economy*, 98: 71-102.
- Romer, C. D. And Romer, D. H. (2007). ‘The macroeconomic effects of tax change: estimate based on a new measure of fiscal shock’. National Bureau of Economic Research (NBER) working paper no. 13264.

- Rostow, W. W. (1960). *The Stages of Growth*. Cambridge: Cambridge University Press.
- Sachs, J. D. and Warner, A. M. (1997). 'Sources of slow growth in Africa'. *Journal of African economies*, 6(3): 335-376.
- Scitovsky, T. (1954). 'Two Concepts of External Economies'. *Journal of Political Economy*, 62: 143-151.
- Sobhee, Sanjeev K (2010). "Would Better Institutional Quality Contribute towards Reducing the Size of Government in Sub-Saharan Africa?." *Margin: The Journal of Applied Economic Research* 4.3 (2010): 265-278.
- Solow, R. M. (1956). 'A contribution to the theory of economic growth'. *The Quarterly Journal of Economics*, 70: 65-94.
- Swan, T. (1956). 'Economic growth and capital accumulation'. *Economic Record* 32: 334-361. Reprinted in Stiglitz and Uzawa 1969.
- Tsikata, G. K, Asante, Y and Gyasi, E. M. (2000). *Determinant of foreign direct investment in Ghana*. ODI: London
- Twumasi, R. A. (2012). 'The Impact of Fiscal Policy on Economic Growth in Ghana. Thesis unpublished, April, 2012. Department of Economics, University of Ghana.
- United Nations Conference on Trade and Development (2012). United Nation, New York.
- Wagner, Adolph (1893). *Grundlegung der Politischen Okonomie*. 3rd ed. Leipzig: C. F. Winter.
- William, E. and Rebelo, S. (1993). 'Fiscal Policy and Economic Growth: An Empirical Investigation'. *Journal of Monetary Economics*, 32: 417-58.

World Bank (2010). World Development Report, Oxford University Press.

World Bank (2011). World Development Indicators, Washington, DC, World Bank

World Bank (2012). World Development Report, Oxford University Press.

World Bank (2013). World Development Report, Oxford University Press.

Yasin, M. (n.d.). 'Public Spending and Economic Growth. Empirical Investigation of Sub-Saharan Africa'. *Southwestern Economic Review*: 59-68.

