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**The Impact of External Debt on Economic Growth in
Selected Sub-Saharan Countries**

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Abstract

Purpose: The overarching goal of this research is to look at in Sub-Saharan Africa, what is the impact of external debt on economic growth in selected Sub-Saharan African countries from 2000 to 2020? These included Kenya, Uganda, Ethiopia, Tanzania and Nigeria. It was motivated by two specific objectives: to ascertain the external debt's effect on economic growth in a Sub-Saharan African sample between 2000 and 2010. (2000-2020). additionally, to determine whether external debt and economic growth in a sub-Saharan African country have a long-term relationship(2000-2020).From 2000 through 2020, The study analyzed World Bank and International Monetary Fund panel data.. The study investigated its stationary qualities of time series data using a unit root testing approach (ADF).

Methodology: The data were evaluated using fixed effect and random effects model estimation approaches. Both cointegration and ECM analysis were employed to examine and explain the relationship between external debt and economic growth in Sub-Saharan Africa, with external debt serving as the independent variable and economic growth serving as the dependent variable. A panel cointegration test was performed on the variables, which allowed for the assessment of the long run through cointegration. This implies that there are four cointegrating equations, which indicates the presence of a long-run relationship between external debt and economic growth as demonstrated by the Johansen cointegration coefficient. A second method utilized in this study was the variable test through ECM, which was used to estimate the short-run relationship between external debt and economic growth.

Findings: A negative correlation of -0.002076 between external debt and GDP is implied by holding inflation and investment constant. This indicates that a 1% increase in external debt results in a -0.002076 or 0.2 % decline in gross domestic product. Additionally, a significant link was found with an R-square of 0.730929 and an adjusted R-square of 0.50167.

Recommendation: The study recommends that the Sub-Saharan Africa and policymakers must try speedily to enact structural reforms aimed at reforming the public sector and sustainability of the external debt. Since reliance on external resources is both dangerous and unstable, the SSA must mobilize its own resources and adopt policies to reduce its external debt exposure, in order to reduce its undesirable economic effects. In other words, to prevent further debt accumulation, the SSA should expand the economy to generate more income and to increase domestic financing.

Keywords: *Sub-Saharan countries, External debt, Economic growth*

1.0 INTRODUCTION

In many developing countries, including African and Sub-Saharan countries, need funds and financial resources in order to finance development, especially infrastructure. However, Domestic resources, on the other hand, have frequently proven insufficient, with potentially disastrous consequences for investment from the private sector (Fajana, 2003). Therefore, most of the governments seek to borrow money, to meet their financial demands and close their budget deficits. Domestic resources on the other hand have frequently proven insufficient, with potentially disastrous consequences for investment from the private sector (Fajana, 2003)

Debt is thought to be a stumbling block to Africa's progress and development. The debt burden on the continent has become one of the most significant hurdles hampering recovery and development. According to Ayadi and Ayadi (2008), debt pushes out investment in Africa and lowering its burdens might help Sub-Saharan Africa's economy grow significantly. Despite the fact that the government need resources for public spending, borrowing is predicted to boost resource availability. The majority of Africa's external debt was accumulated for political motives disguised as underdevelopment. As a result, if borrowings are not handled wisely, they may soon put a burden on government budgets, as more resources are directed to debt servicing, less money is available for regular and development investment. Resource mismanagement can quickly lead to unsustainable debt levels, which has hampered the growth of emerging economies.

External debt is one of the most important issues confronting developing economies, those in Sub-Saharan Africa, for example. According to Pattillo et al. (2002), the repayment or "debt service" terms of external loans generate challenges for many countries, particularly in Africa. A revised debt strategy that includes concerted financing, debt reduction, and comprehensive macroeconomic adjustment, underpinned by a World Bank agreement and the aid of the International Monetary Fund, most middle-income economies alleviate their debt difficulties throughout the 1980s. Numerous these countries regained access to international capital markets, and the international banking and institutions of finance were spared major disruptions. Despite the presence of numerous debt restructuring and rescheduling agreements, the condition of financial issues and threat still exists in many deeply indebted low-income countries. One of the most prominent indications of the region's indebtedness concerns is rising debt reserving arrears. Despite favorable net inflows and rotating relief initiatives during the last six years, the region was only able to meet a third of its obligations. It's worth emphasizing that the accumulation of arrears dominates the region's debt stock's increased growth pace, which is the crux of the debt overhang problem (Olusegun, Olufemi, & Olubunmi, 2020).

Most developing countries' primary goal is economic growth and development; as a result, to invest in viable growth-accelerating projects, external borrowing is used to mobilize resources from a variety of sources. All countries, particularly developing economies, are concerned about long-term economic growth because of rising debt payment, foreign debt service in particular, and expanding shortfalls in the current account Reinhart and colleagues (2012). Malik and Atique claim that (2012). Atique and Malik claim that (2012). External borrowing is warranted not just because excessive borrowing on the local market can cause financial insecurity and the suffocation of the private sector (Panizza et al., 2010), on the grounds that developing countries at the beginning of their development require external borrowing due to a lack of domestic capital for investment (Todaro & Smith, 2006).

Theoretically, the majority of scholars believe that one of the most serious problems is external debt impeding economic development in emerging countries. Sachs (1989) proposed the debt overhang theory as the most widely accepted hypothesis for determining whether there is a negative correlation between economic growth and external debt. Creditors expect increased tax rates to cover international debt service payments as countries accrue external debt, based on the debt overhang theory. The debt overhang concept postulates that debt accumulation acts as a levy on future production. Discouraging government and private sector productive investment adjustment efforts. When a debtor country's economic performance improves, creditors receive a portion of the benefits of greater output or exports. This occurs when the debtor country's economic performance improves and a percentage of the earnings from the improvement is utilized to repay the loan (Karag & Fak, 1982). Despite the debt overhang theory' many persuasive theoretical justifications, There hasn't been much empirical research to back it up. The majority of empirical results now point to the fact that debtor countries' investment has declined in lockstep as due to the commencement of the debt crisis.

The foreign debt levels of SSA countries have risen steadily over the last Analysts and policymakers have been concerned about the region's potential financial problems over the past two decades. While Africa's foreign debt ratios look to be sustainable at the moment, the rapid growth of certain countries provides cause for concern (Africa, 2018). SSA's total external debt rose from 58.2% of regional GDP in 1990 to 72.0% in 1995, while the region's economy grew from 235.94 billion to 235.94 billion. 1994 had the highest external debt-to-GDP ratio of the investigated period at 78.2% (1990-2013). The overall external debt stock of SSA reached 235.94 billion dollars in 1995, indicating a surge from 58.2% to 72.00% of regional GDP 1994 had the highest external debt-to-GDP ratio of 78.2% during the era (1990-2013). Global external debt climbed by US\$55.63 billion in 2010, bringing total to \$269.08 billion, up from US\$213.44 billion in 2010. The external debt increased rapidly during the next three years, reaching US\$367.51 billion in 2013 (World Bank, 2015).

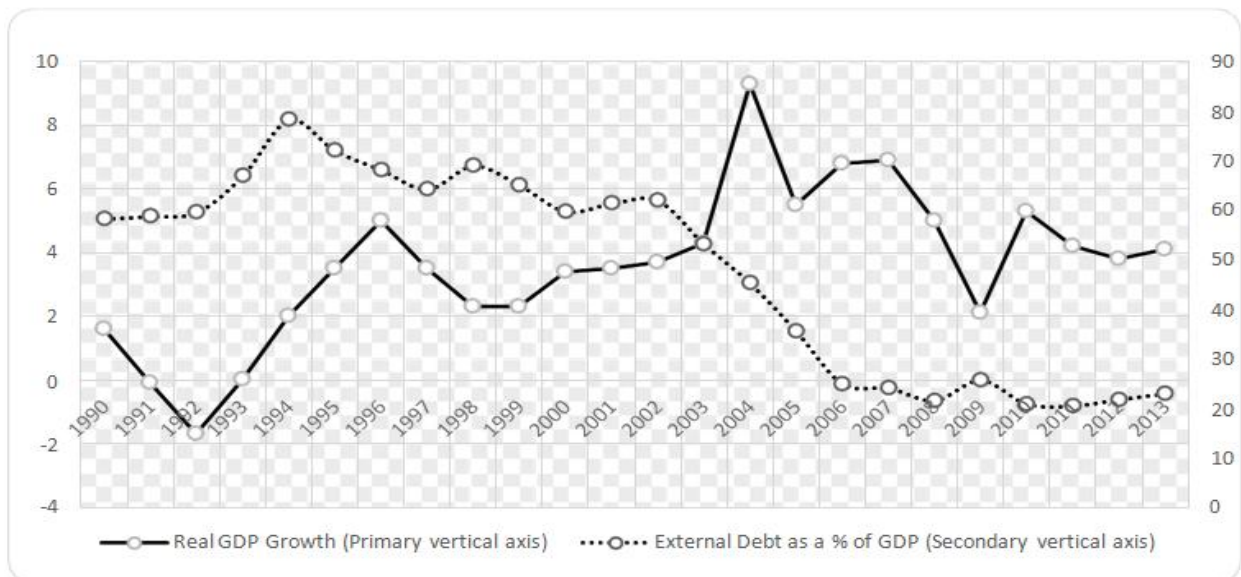


Figure 1: External debt (as a percentage of gdp) and gdp growth rate in sub-Saharan Africa, 1990-2013 (World Bank, 2015)

The Sub-Saharan Africa (SSA) region consists of 48 countries that are geographically located in the southern section of the Sahara. There are 23,638,000 square kilometers of land in total is covered by the region. And has a population of 962.4 million people, with a 2.7 percent annual population growth rate from 1990 to 2013, with a 2.8 percent annual GDP growth (WDI, 2015). According to their per capita income levels, the World Bank separates nations and SSA countries into groupings. The World Bank defines low-income economies as those having a GNI per capita of \$1,045 or less in 2014. Economies of the middle class have more than \$1,045 in GNI per capita high-income economies, but less than \$12,736 have a GNI per capita of at least \$12,736; the GNI per capita in low-income economies is less than \$1,045 but more than \$12,736. For the current fiscal year, the Economies with a lower-middle-class and a higher middle-income are divided by a per capita GNI of \$4,125 Six (6) upper-middle-income economies. There are fourteen (14) lower-middle-income economies and twenty-six (26) low-income economies in the SSA area, Equatorial Guinea and the Seychelles, on the other hand, are high-income economies.

This emphasizes the issue of external debt in the face of economic transition. A government with a budget deficit can borrow from the private sector or other overseas sources to pay down its public debt. The amount of money available domestically is quite limited due to the lack of a strong private sector and a well-established banking system. Despite these and other problems, many impoverished countries rely largely on international lenders and other forms of external financing. Infrastructure projects aimed at boosting development and growth account for a substantial amount of the external debt of Sub-Saharan Africa. However, debt service concerns persist in the region, owing in part to the region's failure to meet growth and development expectations. Debtor countries are experiencing significant growth and development, requirements for reducing debt servicing issues in a healthy and expanding global economy, however, none of these characteristics were realized in the early 1980s (Abott, 1993). Goals for expansion were set missed because debt servicing requirements ate up more and more of the limited foreign exchange resources available for development financing (Dauda, 2007).

SSA countries' external debts have recently increased, prompting fears among analysts and politicians about the region's potential debt crises. Total external debt stocks of SSA grew from 176.36 billion dollars in 1990 to 235.94 billion dollars in 1995. External debt climbed from 58.21 percent to 71.95 percent of GDP within the same time period. In 1994, the greatest 78.23 percent external debt-to-GDP ratio was reached. The overall stock of external debt was valued at US\$213.44 billion; by the end of 2010, it had risen to US\$269.08 billion, an increase of US\$55.63 billion. External debt increased by 98.43 billion dollars (from \$269.08 billion to \$367.51 billion) over a three-year period (2010-2013), reflecting a 77 percent increase over the previous decade's increase (2000-2010).

The primary purpose of this research is to examine how external debt affects economic growth in Sub-Saharan Africa. As a result, the purpose of this research is to determine if foreign debts benefit SSA by supporting economic growth or whether they add to the burden by increasing the debt burden. With respect to the specific objectives of this study, we intend to perform an empirical inquiry of the consequences of debt overhang and debt crowding out, as well as the influence of foreign debt on economic growth in a number of Sub-Saharan African countries. To determine whether or not foreign debt and economic development are linked in a few African countries, particularly in Sub-Saharan Africa.

2.0 METHODOLOGY

2.1 Research Design

The study's approach could be described as an ex-post factor design. As a result, the literature evaluation included a comparative examination of data and other material. The model was based on growth equation regression, and it used both the standard Dickey Fuller (ADF) and the Augmented Dickey Fuller (ADF) tests to determine whether or not the series was stationary in the first place.

2.2 Theoretical Framework

2.2.1 The Two Gap or Dual Gap Model

To gain a better understanding of the external debt issue, scholars have taken a variety of perspectives. Chenery's dual gap model (1996) is commonly used to analyze the need for international aid to close the gap between industrialized and underdeveloped countries, namely the there is a savings gap as well as a trading gap. The majority of these economies start out their development with a modest level of savings. However, it has change gaps that must be bridged in order to achieve the targeted pace of growth and engage in high-level investment. As Rostow points out, it is becoming simpler for economies to achieve the take-off stage. As Rostow predicted, if the gap is narrowed. Now the issue is how the void will be filled. Chenery views overseas trade as away of bridging these two divides and assisting the economy in reaching its target growth rate (Jhingan, 2007). If the savings gap is dominating, the economy is enjoying full employment, but not all of its foreign exchange revenues are being used, based on the assumption of full employment. It might have adequate foreign currency to buy more capital goods from other countries, but it lacks the spare to pursue new investment opportunities with domestic resources. As a result, additional foreign exchange may be used to import high-end items. Such a country has a scarcity of resources that are useful, which can be interpreted as a scarcity of savings. On the contrary, countries with a savings gap, or those with a foreign exchange gap, cannot close the gap by employing extra domestic savings.

Foreign exchange imbalances must be resolved in order to attain the desired rate of economic growth. Dual gap analysis is built on this foundation. Assume there is a country that needs to save and make prudent investments in order to attain the desired rate of economic growth. When domestic savings fall short of the level required to achieve the planned growth rate, a savings-investment gap occurs. Likewise, an export-import foreign exchange gap occurs when the maximum amount of import required to achieve the desired level of growth exceeds the maximum amount of export attainable. The gap between exports and imports in total value causes a foreign exchange gap (especially when imports exceed export). The resulting depreciation changes the difference between the local and international currencies. The savings gap, on the other side, is the difference between how much money people save and how much money they need to invest in the economy. National income account IDs can be used to explain the two differences. This can be presented in numerically as:

$$\begin{aligned} Y &= C + I + X - M \dots\dots\dots 1 \\ Y &= C + S \dots\dots\dots 2 \\ S &= Y - C \dots\dots\dots 3 \end{aligned}$$

Therefore,

$$C + I + X = C + S + M \dots\dots\dots 4$$

$$I - S = M - X \dots\dots\dots 5$$

Where, Y= national income or expenditure,

C = consumption spending,

I = investment spending,

S = savings,

X = export,

M = import,

The savings gap is (I-S), and the trade or foreign exchange gap is (M-X).

We have a savings constraint when the savings gap exceeds the foreign exchange gap; we have a foreign exchange constraint when the foreign exchange gap exceeds the savings gap. As a result, foreign aid must be employed to close the savings gap through capital inflows.

2.3 Model Specification

The Dual Gap hypothesis, which considers the saving-investment gap, is the theoretical underpinning of this study. Hassan, Sule, and Abu (2005), Ajayi and Oke (2013), and Hunt (2014) all conducted research using this concept (2007). The two-fold gap analysis provides a paradigm that growth requires investment and that domestic saving is insufficient to ensure growth (Oloyede, 2002). Many countries use the dual gap hypothesis to decide whether or not to take on international debt in addition to domestic debt. This theory's premise states that savings is a function of investment. Many growing countries, on the other hand, are faced with insufficient investments and savings, and as a result, they choose to supplement domestic savings with external savings. The rationale for governments borrowing money from other countries to fund investment will be referred to as "gross domestic product" (GDP). GDP is utilized in this scenario to signify the total value of national income (C), payments and services, and savings (S).

$$C + S = GDP \dots\dots\dots 6$$

GDP is the total of all economic agents' total expenditures when the government has no control over the economy

- Firms' investment (I)
- Household consumption (C)
- Net export (X-M).

Where (M) is import and (X) is export. Therefore, we have: $GDP = (X - M) + C + I \dots\dots\dots 7$

The term "total domestic investment" refers to the sum of private sector (IP) and public sector (PSI) investment (I_g). Domestic investment in total I is as follows:

$$I = I_p + I_g \dots\dots\dots 8$$

EQ (3) is obtained by solving both equations (1) and (2) as follows:

$$GDP = S + C, GDP = (X - M) + C + I$$

$$S + C = C + I + (X - M)$$

$$S = I + (X - M)$$

$$I = S - (X - M)$$

$$I = S + (M - X) \dots\dots\dots 9$$

Due to the occurrence of an import balance on the current account, a country will require external finance if local savings are insufficient to fund domestic investment - EQ iv (M-X). Total domestic investment = total domestic savings + total net external loan, as we can see from the previous calculation. Our Econometric model will be estimated using panel data to compare the influence of foreign debt on economic growth. The following is a description, this research will make use of a modified version of Fosu's increased production function:

$$Y_{it} = (EXD_{it}, INF_{it}, CS_{it}, INV_{it}) \dots\dots\dots 10$$

The model may be rewritten as follows using the aforementioned equations:

$$GDP_{it} = \beta_0 + \beta_1 EXD_{it} + \beta_2 INF_{it} + \beta_3 CS_{it} + \beta_5 INV_{it} + \epsilon_t \dots\dots\dots 11$$

Where:

GDP= Gross domestic product

β_0 = Constant

t = Time

I = Particular Country

EXD = External debt

INF =Inflation

CS = Capital stock

INV = Investment

ϵ_t = Disturbance term

2.4. Data Type and Sources

This study employ secondary data from the year 200 to the year 2019, and it is panel data. The World Bank's World Development Indicators (WDI) database served as the major source of data for this study. Additionally, the International Monetary Fund (IMF). Economic growth was measured as a percentage change in real gross domestic product on a yearly basis. While inflation was measured as a change in the consumer price index in percentage terms, exchange rate was measured as a percentage change in US dollars for each country, and external debt was measured as the each country's total external debt in US dollars. Gross fixed capital formation is expressed as a percentage of gross domestic product, whereas investment is expressed as a percentage of gross domestic product (in US dollar).

Table 1: Description and measurement of variables

Variables	Descriptions	Variable Measurement	Source of data
GDP	Gross domestic product	Annual percentage change of (GDP)	World development indicator (WDI)
EXD	External debt	Total external debt of each country in US Dollars)	World development indicator (WDI)
INF	Inflation rate	Annual Percentage change in Consumer Price Index (CPI)	International Monetary Fund (IMF)
INV	Investment	Percentage of GDP for each country	International Monetary Fund (IMF)
CPS	Capital stock	Gross fixed capital formation (in US dollar)	International Monetary Fund (IMF)

2.5 Data Analysis

Johansen's (1988) and Johansen and Juselius (1990) co-integration techniques will be utilized to follow up on this study. This technique has been used to determine the long-term association between variables. The first step is to ensure that all of the data is in the same order. This is performed through the use of unit root tests to determine whether or not data sets are stationary. As a result, Augmented Dickey-Fuller (ADF) unit roots are applied to the variables.

2.5.1 Descriptive Analysis

The technique for analyzing the descriptive statistics for the variables included in the study is known as the variable assessment procedure. The descriptive measures the central tendency and spread of the data sets that are presented for the data in the preliminary evaluation of the event and the nature of the inference for the general population in the results obtained from a sample of the organization's data.

2.5.2 The Fixed Effects (FE) and the Random Effects (RE) Regression

According to Halima (2015) Panel data can be analyzed using either fixed effects or random effects

$$GDP_{it} = \alpha_i + \beta_1 X_{it} + u_{it}$$

models. In the proposed study, the FE was utilized to establish a correlation between economic growth and public debt in each country. Because every country has its own macroeconomic situation, including aspects that may or may not have an impact on GDP growth. The use of this model is warranted. The following is a description of the FE model: Where:

$\alpha_i (i = 1 \dots n)$ Is the intercept for each country

GDP_{it} is Gross domestic product $i = country$ and $t = time$

X_{it} is a vector of independent variables (external debt, domestic debt, inflation rate, capital stock, labor force, and exchange rate)

βs are the coefficients of the independent variables

u_{it} is a stochastic error term

Individual impacts that aren't noticed are represented by fixed parameters, according to the model's fundamental premise. Furthermore, the independent variables are unrelated to the idiosyncratic error term. The RE model is based on the premise that differences across entities, in this case, countries, are random and unrelated to the independent variables. Additionally, It is based on the premise that individual entity error terms are unrelated to the independent variables. The RE model is described as follows:

$$GDP_{it} = \alpha_1 + \beta_1 X_{it} + u_{it} + \varepsilon_{it}$$

Where

u_{it} Is the between country error term is the within country error term

ε_{it} The generalized least squares method was used to estimate the RE model.

2.5.3 Stationary Testing

The sequence of integration of variables in a model must be tested. This is accomplished through the usage of the unit root test. The integration sequence must be understood in order to establish the nature of co-integrated and non-stationary variables. In this situation, the augmented Dickey-Fuller test is advantageous. In order to avoid econometric difficulties such as spurious regression and inconsistency, the unit root test is applied. BLUE estimates are model estimates with the same order of integration as the variables. Inconsistent or erroneous regression results from non-BLUE estimations in a model. The null hypothesis is that a unit root exists, whereas the alternative hypothesis is that it does not exist. Before running the OLS regression, non-stationary variables must be differenced to make them stationary.

2.5.3.1 The Augmented Dickey-Fuller Tests

The ADF contrasts the null hypothesis, $H_0: \rho = 0$, that the time series is non-stationary, with the alternative hypothesis, $H_1: \rho < 0$, that the time series is stationary (no unit root). If these tests reject the null hypothesis, the series does not have a unit root. For stationary variables, the regression model establishes the independent and dependent variables, as well as the means to variance errors. Nonstationary analyses demonstrate the effect of High 2 for low Durbin Watson statistics and F statistics in determining economic outcomes (Verbeek, 2000). The purpose of estimation assessments in statistical determinations is to ensure consistency.

3.5.4 Co-integration Test

Granger (1983) demonstrated that for two variables to be called co-integrated, they must have an error correction representation (ECM). In order for two time series variables to be co-integrated, their integration orders must be the same and (d) there must be a stationary linear combination of the two variables ((0)). Cointegration of a linear combination of these variables is possible even if the individual time series are not stationary. Engle-Granger & Johansen's technique was employed in this investigation. The OLS-based autoregressive distributed lag (ARDL) technique for cointegration has gained popularity in recent years, due to the low power and other drawbacks of standard test methods. The primary advantage of ARDL modeling is that it is adaptable to variables with varied integration orders (Pesaran and Shin 1997). Additionally, Using a sufficient number of delays, this method is able to accurately describe the data production process within a general-to-specific modeling framework (Laurenceson and Chai 2003). Additionally, ARDL can be used to generate a dynamic error correction model (ECM) by performing a simple linear transformation

(Banerjee et al. 1993). Additionally, without sacrificing long-term information, the ECM integrates short- and long-run dynamics. Additionally, ARDL approach is asserted to be less problematic when dealing with non-stationary time series data (Ssempala, Ssebulime and Twinoburyo, 2020).

3.5.5 Error Correction Model Specification

Because we are interested in univariate analysis, a correlation between external debt and economic growth shows that the two variables are in a long-run equilibrium relationship, which is supported by empirical evidence of co-integration. Therefore, The Error Correction Model would be computed to analyze the Co-integrated series characteristics in the short run. The use of ECM allows for clearer picture of the short-term interactions between several stationary series. It defines each variable in a system is a function of itself latency as well as the lag of the other variables.

To simulate the short- and long-run effects of unemployment on economic growth Error Correction Models were used. A model is constructed using the Hendry Modeling methodology from a generalized (excessively parameterized) form to a defined (parsimonious) form. It was also embraced because it accounts for the speed with which the body returns to balance following a shock (ECTt-1).

The Error Correction Model (ECM) has the following structure:

$$\Delta Y_t = a_0 + \sum_{i=1}^j \alpha_{1i} \Delta Y_{t-i} + \sum_{i=1}^j \alpha_{2i} \Delta X_{it-i} + \alpha_3 ect_{t-1} + u_t$$

The proportionality between yt and Xt is used to obtain the long run characteristics. The above specification demonstrates the relationship between the short run variation of the dependent variable yt and the variation of the explanatory variables Xt. This phenomenon is referred to as the impact effect (2), but a feed-back method is used to test the change in the long run impact.

3.0 CONCLUSIONS AND POLICY RECOMMENDATIONS

3.1 Conclusion

Budget deficit: A government that has a public debt can get money from the private sector or other sources outside of the country to pay it back. Due to the lack of a strong private sector and a well-established banking system, there isn't a lot of money that can be used at home. Despite this and other problems, many countries in Sub-Saharan Africa still rely on loans from international lenders and other sources of money from outside their countries. This study used empirical analysis to look at the effect of external debt on economic growth in some countries in sub-Saharan Africa and see how it affects them. In this study, a model called a cointegration model was used to look at how the variables in the study were related over time. the study used a cointegration model to see if any of the variables in the model had a long-term relationship with each other. The study also looked at how the short-term relationship between the variables in the study worked with an error correction model (ECM). There is a short-term link between external debt and economic growth in some parts of sub-Saharan Africa where the error correction model was used.

3.2 Policy Recommendations

In light of the results and conclusions in the previous paragraphs, the government and policymakers in SSA countries should think about the following ideas to improve public debt

management. To keep the economy growing at a steady pace, the governments should first figure out and follow an ideal balance between external and domestic debt. Domestic debt didn't have a big impact on GDP growth, but it can't be relied on completely because a big rise in borrowing locally could make private investments less profitable.

Second Sub-Saharan Africa and policymakers must try speedily to enact structural reforms aimed at reforming the public sector and sustainability of the external debt. Since reliance on external resources is both dangerous and unstable, the SSA must mobilize its own resources and adopt policies to reduce its external debt exposure, in order to reduce its undesirable economic effects. In other words, to prevent further debt accumulation, the SSA should expand the economy to generate more income and to increase domestic financing. Finally, careful fiscal management is needed to keep the overall public debt from growing too much. SSA countries will be able to spend more of their tax money on investments instead of paying back loans, which will help their economies grow.

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