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## The Impact of External Debt on Economic Growth in Sub-Saharan Africa

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### Abstract

*In theory the underlying logic entails that, a country should borrow as long as the capital thus acquired produces a rate of return that is higher than the cost of the foreign borrowing. In that event, the economy of the borrowing country will result in increased capacity coupled with expanding output via the aid of foreign savings. With countries in Sub-Saharan Africa adopting an economic development strategy that significantly relies on external financing, the study sets out with the aim to uncover the existent relationship between external debt burden and economic growth for the period 1990 to 2016 in 38 selected Sub-Saharan countries. To do this, panel data econometric techniques of Generalized Method of Moments was employed to evaluate the relationship. The results from the generalized method of moment indicated that, economies of Sub-Saharan Africa are negatively affected by external debt. Also, external debt was found to be more deleterious to middle income economies compared to their counterparts low income economies.*

### Key words

External debt, economic growth, generalized method of moment, Sub-Saharan Africa, foreign savings

**JEL Codes:** F34, F35, H63, H68

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## 1. Introduction

During the 1980s, a revitalized debt strategy encompassing concerted lending, debt reduction, and all-inclusive macro-economy adjusted supported by the arrangement with the International Monetary Fund and World Bank helped alleviate the debt situations of most middle-income Economies. Access to international capital markets was restored for many of these countries, and the international banking and financial systems avoided encountering severe disruption or disorders. Even though there has been in existence much debt rescheduling-restructuring agreement, the situation of debt difficulties in many heavily indebted low-income countries remains a menace. The rising arrears of debt reserving are considered as one of the critical indicators of the indebtedness difficulty facing the region. In spite of positive net inflows in the region and revolving relief schemes for the past six years, the area was capable of servicing only a third of its obligation. It is worth noting that, the accelerated growth momentum of the debt stock in the region is mainly dominated by the accrual of arrears hence the essence of the problem of debt overhang.

Consequences of the debt overhang problem in the region's future are indeed very grave, and more so for HIPC's in the area. Expenditure-crowding-out effect of servicing the rapidly growing stock of debt has empirically been shown in the context of cross-country growth regression. When a country debt-service proportion increase, the resources available for investment to augment growth decreases as the funds are used in repaying loan settlements. Since economic Growth cannot be restored countries solvency problem continues to deepen in a vicious circle. Rising levels of debt repayment amount coupled with stagnant export are considered a key reason behind debt defaulting in many countries. The stagnant export worsens the situation since this to a great extent reduces the import foreign earnings which are primarily needed for production and more so investment. As a result, the outward resource transfer is affected when servicing requirement is met in the context of rapidly depreciating local currencies.

Emerging economies are for a long time linked with poor tax collection structure and economic policies. Therefore, these economies are a subject of limited tax collection thus insufficient funds for investment in national projects. The role of government is to make sure the country has macroeconomic stability, although the collected funds are not enough government cannot print money to fund developments as this will endanger the economy with high degrees of inflation. The arrival of the bond market has been of great importance to economies of Sub-Saharan Africa, as currently many countries' in the region can access fund. Although in Africa for decades local currency bond have been issued, numerous investors have seen them as low-quality bond and thus alleged little interest to the worldwide investor. Many countries from Africa are currently looking for funds in the bond market to top up their budgets. The reason for taking bonds can be associated solely with funds needed for large-scale funding investments for economic stimulus. Of late, many countries in the region have decided to go to China and international bond markets besides going to international institutions. A good example is, in February 2014, Cote D'Ivoire issued USD 1 billion Eurobond while at 2012, Zambia's bond inflows stood at 3.75 percent of

GNI in signifying 0.375 % of GNI between periods 2000-2012. The risk that is associated with foreign debt is usually that attached to exchange rate fluctuation. When a country takes a debt and the value of foreign currency has a high volatility, then the debt can be more costly to borrow. Moreover, economies whose currencies are non-tradable in the global financial market often devalue their currencies to solve BOP imbalances. In a free market system, most local currencies frequently suffer currency depreciation which makes external debt expensive. One of the difficulties associated with foreign exchange is hedging against future uncertainties, particularly when a long period of time is to be considered.

## 2. Literature review

Butts (2009) started out that the issue of equity, stability, and smoothing justifies the choice of public debt over taxing and printing of money. They argue that debt allows the more equitable use of investment opportunities with long development periods and taxing the current generation to fund projects that will benefit future generations would be inequitable. Experts suggest that high inflation is as a result of over-reliance on the printing of money. Debt financing also aids in meeting urgent spending needs while regular fluctuations in the tax rate build up economic uncertainty and induce deadweight loss. The policy interactions, shocks/conflict management as well as institutions play a central part in describing debt growth and macroeconomic performance (World Bank and IMF, 2002). The propensity to avoid short-run regulation costs might have prolonged negative concerns for future growth and equity. Thus, when the government, for instance, reneges on the needed immediate reforms, it exacerbates the negative implications of debt accumulation.

AFD (2013) stated that the central principle that guides debt, contractual agreements should hinge primarily on the cost and benefit evaluation of economic activities. It requires that a country borrows from external sources if the rates of returns are more significant than the rate of borrowing. If foreign lending raises the debt service capacity of the borrowing economy more than the addition to the debt burden, then such financing becomes desirable. Strict compliance with this principle will help countries to enlarge production with the aid of external savings. To measure the country's ability to settle the debt repayment premiums, key factors associated with the terms and condition indicated in contractual agreement are usually considered. Greene (1989) outlined criteria necessary while measuring debt sustainability, debt as a percentage of exports and debt GNI. Besides indicating a volatile growth of debt, hikes in these ratios do not measure a nation's proficiency to service its debt. The loss of value of borrowing country's currency increases the ratio of debt to GDP even though debt and GDP in foreign currency of the country remains unchanged. This means that debt sustainability is not fully described by debt to GDP ratio alone. Another measurement of loan sustainability is reserved to debt stock ratio. This criterion is rarely used; it measures the degree to which an economy's reserve can be used to defray its debt. Thus the extent to which a country can rely on its reserves for paying its total debt depends on the size of the reserves.

The choice of the proportion that a country uses is influenced by the resource restraint that country faces. GDP represents general resource constraint while the use of exports specifies foreign exchange restraint; use of revenue signifies government incapability to raise adequate tax revenue to service external debt. Arellano and Bover (1995) states that in monitoring foreign debt sustainability it is wise to consider GDP and export whiles government fiscal revenue and GDP ought to be deliberated in terms of aggregate public debt weight. The High Indebted Poor Countries (HIPC) has established debt sustainability proportions to monitor borrowing countries. Loan from abroad could become a burden on the borrowing nation if it fails to raise sufficient resources to repay it. The difficulty in servicing debt is a reflection of the debt burden and can be quantified regarding current national income that is committed to financing previously contracted loan (Fosu, 1996; Suma, 2007). A situation where the debt service becomes the excessive and significant amount of national revenue is devoted to servicing it implies that debt service burden on such country is enormous. Conversely, external debt becomes less burdensome when debt service commitments absorb a small proportion of the county's income.

In analyzing the capacity to service external debt, the question is what ought to be the optimal level of foreign loan which will induce no future debt service burden? Abbas and Christensen (2007) espoused optimization framework to provide intellectual enlightenment to this question. They argued that optimally, marginal benefit and marginal external borrowing ought to be equal. Direct correlation between savings and rate of economic growth as well as the indirect relationship between capital and growth is explained by Harrod-Domar growth model. The model suggests that economic growth is as a result of capital accumulation in the form of savings. Development economists have used this model to explain financing gap of developing countries. The model expounds that for a set growth objective, the investment to meet this objective can be determined by multiplying the objective by the incremental capital-output ratio.

Dornbusch *et al.* (2003) pointed out that policymakers in analyzing debt overhang in the framework of the debt crisis ascribe it to the problem of solvency or liquidity. Liquidity problem is a short-term problem which arises when a country is not in a position to service its debt, according to indicated terms of the debt in contract. Sachs (1989) and Shabbir (2009) describes solvency as a long run phenomenon, where a country's total debt liability cannot be paid at any period.

Secondly, through human capital development effect, external debt dampens economic growth. Debt servicing reduces government public spending. Additionally, spending on social investments such as education and health which are crucial for economic growth is reduced. It is well established that access to education and quality health delivery systems are necessary for producing quality human resources. Therefore, when a country's government reduces its annual expenditure on health and education, the associated risk of reduced human capital is incurred. This reduces the economy's productivity and after that growth rate. Additionally, increased debt burden suggests that short-term government revenue is used to service the debt, thereby denying public investment into some sectors of the economy. Decreased private investment as a result of reduced public investment can lead to a reduced economic growth as some private investments are complements to public financing. Insufficient infrastructural facilities caused by crowding out effect could lead to decrease in investment productivity.

Liquidity constraint hypothesis or import compression effect is defined as the growth effect of the high debt burden to Balance of Payment BOP. Countries with high debt burden require enough inflow of foreign exchange to service the debt, especially when the nation's currency is not tradable. A condition where a country has low export and capital inflow, and inadequate reserves, debt service becomes problematic hence may resort to devaluation/depreciation or/and import restriction to encourage foreign exchange inflow. Bartels *et al.* (2009) and Schiller (1999) argued that this situation makes imported inputs, expensive and the shortage of capital goods which can lead to low investment.

In spite of several economic reforms pursued over the past decades, most countries in Sub-Saharan Africa have recorded only modest growth with rapid rise in inflation, huge budget deficits, unsustainable balance of payments (BOP) deficits coupled with high levels of debt. The causes of these crises can be attributed to poor domestic policies, deteriorating terms of trade and a high debt burden (Elekdag and Muir, 2014). Aside from putting our blame on 1982 debt crisis as the reason for the increased foreign loan in the region, experts have viewed the debt menace to be as a result of some natural external factors which are economically uncontrollable. High rates of interest rate, continued fall in trade terms, misalignment of exchange rate, export earnings unrestrained fluctuation and loan refinancing and loan premium rescheduling are more overseen as factors contributing to high levels of foreign loans after 1989. One of the problems associated with the foreign loan in the region is loan repayment difficulty by the terms indicated during loan contraction. Onyekwelu *et al.* (2014) claims that 27 out of 44 Sub Saharan African nations had huge payments, arrears henceforth debt financing and rescheduling were embraced to resolve the menace.

### 3. Methodology of research

Dual gap theory is the main rationale behind many countries deciding whether to go for foreign debt besides domestic debt. The proposition behind this theory describes an investment as a function of savings. However, many developing countries are faced with inadequacy levels of savings and investments and as a result; they opt to take external savings as a compliment for domestic savings.

GDP will be used as a proposition to describe the rationale behind foreign borrowing by countries to fund investment. In this case GDP will be assumed to be summation total values of national income (C) paid and services and savings (S).

$$GDP = C + S \quad (1)$$

In a situation where government doesn't have an influence in the economy, we redefine GDP as the sum of total expenditures by economic agents.

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

Where (M) is import and (X) is export.

Therefore, we have:

$$GDP = (X - M) + C + I \quad (2)$$

The total domestic investment is usually the total summation of private sector investment (Ip) and public sector investment (I<sub>g</sub>).

From above the Total domestic investment I is:

$$I = I_p + I_g \quad (3)$$

Solving both equations (1) and (2) yields EQ (3) as follows:

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

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

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

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

$$I = S + (M - X) \tag{4}$$

From EQ iv when the levels of domestic savings is not enough to finance domestic investment, then a country results in external finance due to existence of import balance on the current account - (M-X). From above solution we can conclude that total domestic investment is equivalent to the total sum of domestic savings and total net external loan.

Dynamic panel regression (DPR) will be used to estimate our Econometric model, to contrast the impact of foreign debt to low and middle income the study will use debt-dummy control variable. In this research it would be of great interest for us to find out if the previous years borrowed funds have any impact to current rate of growth; to do this the lagged value of GDP growth rate will be used. Similarly, the previous year rate of GDP will be accessed using its lagged values.

Below is a specification of a modified version of Fosu's augmented production function that will be used in this study:

$$Y_{it} = \beta_0 + \beta_1 Y_{it-1} + \beta_2 Y_{it-2} + \beta_3 \ln l_{it} + \beta_4 k_{it} + \beta_5 X + \beta_6 d_{it} + \beta_7 d_{it-1} + \beta_8 d_{it-2} + \beta_9 d_{it}^2 + \beta_{10} \text{middle} + \beta_{11} d.m + \mu_{it}$$

Where:

t - time, I - Particular Country,  $\beta_0$  - constant,  $\beta$ 's - Regression parameter, Y - Output growth rate,

lnl - Labor Force expressed in Natural log, k - Investment (% GDP), X - Growth Rate of Exports,

d - External Debt (% GDP),  $d^2$  - Squared of External Debt (% GDP),

Middle (dummy = 1 for middle-income, 0 = low-income), d.m - debt\*middle income,  $\mu$  - disturbance term.

To analyze the direct effect of external debt on economic growth Eq. 1 will be used, additionally, the research will use a restricted form of the dynamic model of Eq. 1 to scrutinize the independent effect of external debt on growth.

#### 4. Data analysis

The descriptive statistics of the variables considered in this study are presented in Table i. We observe that external debt recorded an average figure of 69.457 percent the high average figure of foreign debt is a clear indication that many countries depend on debt to fund their activities. For instant Zambia country had \$8.7 billion in external loans at the end of 2017, which was a 26 percent increase from the previous year. Additionally, it is worth to note the high standard deviation value of 52.004; this can be well explained from the debt relief initiatives angle. An estimated \$100 billion loan so far has been relied upon by beneficial countries, including Senegal, Ghana, Sao Tome and Principe, Niger, Malawi, Mozambique, Benin, and Uganda.

Table 1. Descriptive statistics

<i>Variables</i>	<i>Mean</i>	<i>Standard deviation</i>
GDP growth rate	3.816	5.509
Capital as % of GDP	19.215	8.9756
Labour Force(million)	6.418	7.988
Export Growth Rate (%)	8.538	24.5290
External Debt % of GDP	69.457	52.004

In this section the results for complete Generalizes Method of Moments and Restricted Generalized Method of Moment models are presented and analyzed. The discussions will mainly pivot around the outcome of System GMM regression estimates.

Table 2. Results of System GMM Estimation of the Dynamic Model

GDP	Coef.	Std. Err.	z value
Gdp			
L1	0.0883688	0.0331484	2.67
L2	0.0630199	0.0318987	1.98
Capital investment (% GDP)	0.0822722	0.0237505	3.46
Export growth rate	0.0609918	0.0066772	9.13
Ln. Labour force	0.8777889	0.4059378	2.16
Debt as a % of Gdp	-0.0436538	0.0089135	-4.90
L1	0.0408608	0.0169968	2.40
L2	0.0180898	0.0079312	2.28
Debt squared as % Gdp	-0.0074904	0.0051116	-1.47
Debt*Middle	-0.0143256	0.0075617	-1.89
Middle income countries	-0.0610052	0.912797	-0.07
_cons	-12.31149	6.246002	-1.97
Wald chi-squared (prob>chi squared)	0.0000		
Arellano-bond AR(2, prob>2)	0.2853		
Sargan Test (Prob>chi-squared)	0.4135		
Number of observation	.857		

In order to ascertain the independent impact of external debt restricted model will be performed excluded lags of debt (% GDP), debt-dummy interacted explanatory variable and squared of debt (% GDP). Below are the results for system GMM restricted dynamic model.

Table 3. Results of System GMM Estimation on Restricted Dynamic Model

GDP	Coef.	Std. Err.	z value
Gdp			
L1	0.1155709	0.0327124	3.53
L2	0.0669527	0.0325173	2.06
Capital investment (% GDP)	0.0487429	0.0230243	2.12
Export growth rate	0.0688961	0.00656	10.50
Ln. Labour force	0.626842	0.3971289	1.58
Debt as a % of Gdp	-0.0115775	0.0037954	-3.05
Middle income countries	-0.8594586	0.7647832	-1.12
_cons	-6.689402	5.951555	-1.12
Wald chi-squared (prob>chi squared)	0.0000		
Arellano-bond AR(2, prob>2)	0.4123		
Sargan Test (Prob>chi-squared)	0.5176		
Number of Observation	857		

## 5. Results

Despite reduction in the external debt explanatory variable coefficient results of system GMM on the restricted model still have similarity with the results of the complete model.

Direct Effect of Debt Hypothesis (DEDH), advocates that progressive high levels of foreign debt to GDP shrinks the productivity factor of economic growth, and biases the investment mix toward the short term investment thus leading to decline in economic growth level. The coefficient estimated for total external debt (% GDP) was negative and significant at a level of 5 per cent. Result of system GMM estimation revealed that, when the foreign debt level increase by 1 percentage point the GDP growth reduces by 0.0437 per cent.

The negative contemporaneous impact of foreign debt likely suggests a reverse causality link between external debt and the economic growth. The increased debt acquisition in current period is as an outcome of low growth in an economy. The above results were in agreement and consistence with the research such as those of Hausmann and Rodrik (2006) and Savvides (1992). Study of the impact of the previously acquired foreign loan was examined by using the first and the second lag value of debt to GDP ratio in the growth model. The coefficient of the first lag of external debt was positive and significant at 5 percent. From the result we see that a 1 percent point of previous acquired external debt stimulates Economic growth by 0.0409 percent point. We can therefore extrapolate that greater debt acquisition in the previous period makes more resources available for higher growth in the next period. However, it is worth to note that the positive impact of previously acquired debt is lower compared to the negative contemporaneous effect of debt.

The coefficient of a second lag of external debt to GDP growth also stimulates economic by 0.0181 percent point, that is, a 1 percent point of previously acquired debt stimulates economic growth by 0.0181 percent point. From the second lag of debt to GDP growth there is a diminishing effect of economic growth when compared to the first lag of external debt. This can be explained on the basis of time value of money and macro-economic factors such as inflation, price shock in international market and world interest rate. As a debtor country repay the loan in installments based on foreign currency change in monetary policies have a significant effect on amount acquired hence making the economic return of investment insignificant. The dummy variables for middle-income and low-income countries were interacted with external debts to capture the impact of external debt on growth within such country groupings. The coefficient for debt\*middle income indicates that external debt in middle income countries is 0.0143 percent more detrimental to economic growth compared to low-income economies This situation can be explained by the fact that middle income economies resort to more foreign borrowing with an aim of maintaining growth rate, invest in infrastructure projects such as standard gauge railway in Kenya. Also huge borrowing by middle income economies is meant to complement their escalating budget deficit and probably loan refunding. The latter point can be supported by economies such as Kenya, which resulted in acquiring Eurobond in year 2018 to repay the loan premiums of previously maturing loans.

Possibly, this situation can be attributed to the fact that middle-income countries increasingly resort to external borrowing to support their relatively more investment-dominated annual budgets and projects that generate some returns towards defraying the debt in the future. Additionally, it is worth mentioning that low-income countries are usually privileged to access external loans from the international market at a concessional rate. However, these loans are mainly used to complement low national income, besides, middle income countries borrow at a higher rate.

## 6. Conclusions

Given the complexity of region's development challenges, the severity of its capacity and scale of its development finance needs, it is not possible for the domestic resource to cater regions fiscal gap. In addition to fiscal resources and domestic savings, it is optimal, and inevitable, that Sub-Saharan Africa economies leverage for alternative source of finance. Even though most of the world's developing countries have used external indebtedness to finance their development, today, this indebtedness remains the greatest hindrance to the economic growth and development, this scenario is well described when viewed in the case of developing countries which high debt stock remains a menace. The world economy stagnation and international recession have been viewed as a core factors put blame on the region's debt situation. Economic experts argue that, drastic decline in world prices for some agricultural commodities have led to the regions demeaned export revenue receipts. The question of indebtedness is ongoing with various solutions been applied over the years. Although, the debt situation in the region has acquired significant proportion and attention, it is clear that, majority of countries still focuses on foreign financing. Questions have been raised regarding such a strategy, and this leads us to the motivation of the thesis, whether such a strategy is worth relying on.

The study's Empirical findings were consistent with theoretical extrapolations of Direct Effect of Debt Hypothesis (DEDH). Moreover, results indicate that increased external debt stock does not stimulate economic growth instead it worsens the financing gap problem thus low growth. The previous year's debt stock as indicated by first lag and second lag of external debt to GDP ratio indicate a positive significant effect on economic growth. This was extrapolated from the fact that greater debt acquisition in the previous period makes more resources available for higher growth in the next period. However, the positive impact of previously acquired debt had a diminishing effect lower compared to the negative contemporaneous effect of debt. The proposition that a certain level of foreign debt stimulates economic growth was rejected, this can be viewed as a fact that debt contracted demands to be payed, also factors such as changing global interest rate coupled with the volatility of foreign currencies which debt had to be settled of makes the overall return insignificant.

Given the significant role of foreign debt and its impact on the domestic economy, it is important that attention be paid to its management. It is necessary to watch closely the resources of the economy. The reason for the close watch on external

debt can be attributed to two main factors. First, debt management is considered to have a priority claim on the resources of the economy. Second, debt management plays an important role within the overall development strategy of a country, simply because an erratic and uneven debt, demand and repayment might in one way or the other impede long-term development objectives of a country. Economic experts have claimed that, the persistence of the external debt in Sub-Saharan region can be directly attributed to imprudent borrowing policies, utilization of debt return of white elephant projects coupled with unstructured debt management policy. The proper management of foreign indebtedness is imperative for the overall prevention of the probable debt crisis and unmanageable debt situation. Debt management framework involves, among others, an estimate of foreign exchange earnings, source of external finance, project returns on the investment the loan is financed and repayment period.

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