

The Foreign Debt and Economic Growth in Sub-Saharan Africa

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Abstract

The growing levels of external debt in developing countries are increasingly a worldwide problem, particularly in Sub-Saharan African countries, where the expanding portfolio of foreign debts, debt servicing rates, and debt overhang cause alarm and global concern. The likelihood of relatively good outcomes of the interaction between external debt and economic growth is based on the government's attempts to maintain a sustainable debt-to-GDP ratio, a low budget deficit, and that the external debt is utilized primarily for capital investments. Under other conditions, the government would confront a circumstance in which accumulated foreign debt levels stifle economic progress, particularly when debt levels rise over time and are poorly managed. In this context, this study aims to examine the association between foreign debt and economic growth in Sub Sahara African countries during the period from 1980 to 2019. The study employed the Dynamic Panel Threshold Regression analysis to investigate the differential impact of foreign debt on economic growth below and above a threshold. The empirical results highlight the existence of a nonlinear relationship between foreign debt on economic growth above the debt threshold during the examined period. Empirical evidence suggests significant policy prescriptions; Sub Sahara African governments should use solid methods of generating domestic income to supplement outside sources of funding, such as the inclusion of domestic informal businesses on a shared cutting-edge platform to ensure successful domestic revenue collection.

1 Introduction

Developing countries need to invest to achieve a certain rate of development. However, these countries are faced with the problem of insufficient capital accumulation due to the lack of domestic savings. For this reason, the solution to increasing investments for many developing countries is external borrowing. Foreign borrowing is an important source of income that not only developing countries but also developed countries apply. Increasing external debt stock and thus increasing external debt payments in developing countries is a serious problem. The sustainability of external debts and policies to reduce debts are also important in terms of ensuring macroeconomic stability. Sustainability of external borrowing is possible by increasing government revenues to meet the future debt service with the resources obtained from borrowing (Fosu, 1999). If the borrowed debts are not used effectively and efficiently, there is a case of paying the debt with the increasing debt stock. External debts, which reach high levels with principal and interest, affect the economies of the countries negatively and even result in a debt crisis.

External debt has been an essential source of funding for most emerging nations, primarily as a backup to domestic revenue streams for growth. Because these nations have low amounts of domestic savings, lending has become necessary (Ogunmuyiwa, 2010). Debt, it is said, is an appealing alternative for funding infrastructure development projects when tax revenues are low, and the government is unwilling to jeopardize economic stability by issuing additional money. When foreign debt is used appropriately, it increases production and revenue, which helps to balance the incurred debt, and leads to a positive total impact on the recipient economy. Foreign debt, on the other hand, may stifle economic development if funds are not directed into sustainable development projects. Overcrowding, debt overhang, and financial difficulties, among other things, may harm economic development (Rockerbie, 1994).

The growing levels of external debt in developing countries are increasingly a worldwide problem, particularly in Sub-Saharan African countries, where the expanding portfolio of foreign debts, debt servicing rates, and debt overhang cause alarm and global concern. As a result of a drop in oil prices, and a change in the currency rate, it has been claimed that a country's rising debt levels created hurdles to its economic growth and progress (Carmody et al., 2021). The likelihood of relatively good outcomes of the interaction between external debt and economic growth is based on the government's attempts to maintain a sustainable debt-to-GDP ratio, a low budget deficit, and that the external debt is utilized primarily for capital investments. Under other conditions, the government would confront a circumstance in which accumulated foreign debt levels stifle economic progress, particularly when debt levels rise over time and are poorly managed.

2 Empirical Literature Review

External debts create an encouraging effect on the economy in the first stage, as they provide foreign resource inflows to the country, but in the period of interest payments, debt levels harm the economy as there will be a resource out transmission. Governments resort to taxes and borrowing as a source of financing for public spending. Nevertheless, only taxes, production, and borrowing methods are used as a source of funding for countries that do

not have production capabilities. In solving the financial difficulties experienced in developing countries, more borrowing resources are preferred instead of increasing tax rates (Senadza et al, 2018). In addition, the public sector in these countries is different from that of developed countries. The prospect of a positive association between external debt and economic growth is based on the government's attempts to maintain a low debt-to-GDP ratio, a low budget deficit, and that debt be utilized primarily for capital investments. Contrarily, the government would confront a scenario in which external debt hinders economic development, particularly when debt accumulates over time and is unwell managed.

Javed and Sahinoz (2005), Reinhart and Rogoff, (2011), Mohamed (2018), and Shkolnyk and Koilo (2018) have researched the impact of increased foreign debt on economic development. They revealed the various impact of external debt on economic growth. Some scholars found that when funds are correctly allocated to productive areas of the economy, external debt has a beneficial influence on economic growth. Additional studies, nevertheless, have found that when funds are incompetently distributed, foreign debt has a detrimental impact on economic development. As a result, there is no agreement on the impact of rising foreign debt on economic growth. Utilizing the OLS estimation models, Lucy et al. (2016) inspected the association between external debt and the output growth for Ghana from 1990 to 2015. The variables employed in the study are external debt by evaluating three related models at the domestic and external levels, as well as Ghana's overall economic development. The empirical evidence indicates a negative association between external debt and Gross national income. They urged that government debt borrowing could be avoided while growing the revenue base through tax restructuring initiatives be promoted.

Igberi et al. (2016) attempt to explore the influence of increased public debt on unemployment in Nigeria. The study has employed the Wald test statistical process and the ARDL technique. The estimation showed a long-run steady equilibrium link between unemployment and public debt. Based on the empirical evidence, there is a positive significant association between public debt and unemployment, as well as an adverse association between income growth and unemployment. Moreover, the study determined that increased government debt has had no substantial impact on the Nigerian economy since it has not decreased unemployment. Mohammed et al. (2015) employed a variety of advanced econometric approaches to evaluate the influence of external debt on national production in 48 African countries from 1995 to 2012. The findings supported the debt Laffer Curve hypothesis by demonstrating a statistically significant relationship between public debt and national production in eight economies among the 48 countries that have been examined. The study also looked at if there is an association between public debt and Gross National Product (GNP), and the results display an adverse relationship between the two variables.

Jernej et al. (2014) highlighted an existence of a direct impact of high debt on economic development in European Union (EU) nations recently participating in the worldwide debt crisis. The investigation relied on a data collection comprising 25 distinct EU economies. The figures utilized in the study were gathered from old and new member states from 1980 to 2010 and 1995 to 2010, respectively. The findings reveal that debt had a moderate impact on economic growth in European Union (EU) countries during the examined periods. Utilizing the vector autoregressive (VAR) method, Safdari and Mehrizi (2011) observed the effect of foreign debt on economic growth in Iran during 1974-2007. The results showed that external debt and imports harm economic growth. In addition, private and public investments positively affect economic growth. On the other hand, public investments affect private sector investments positively, while imports and foreign debts affect private sector investments negatively. The empirical evidence showed that foreign debt harms economic development and has an encouraging impact on private sector projects. They explain that the optimum use of debt does not depend on the absorptive capacity of the country because extra resources can enter channels of speculation. In other words, they say that an increase in loans will harm economic growth as investments are more successful and additional resources may enter the speculation channels.

Kamac (2016) examined the effects of external debt on economic growth and inflation by making panel cointegration and panel causality analysis. Considering 6 Central Asian Republics and Turkey between 1995 and 2014, he determined a unidirectional causality running from foreign borrowing to growth. No causality was found between external borrowing and inflation. Employing data from 93 developing countries in Latin America, Sub-Saharan Africa, and the Middle East, Pattillo et al. (2002) inspected the association between external debt and economic growth between 1969 and 1998. Using OLS, Fixed Effect, and System GMM methods, they found that doubling the debt ratio in a country with an average debt ratio reduces per capita growth by 0.5-1%, and an optimal debt level has a positive effect on growth. In the study, it has been revealed that foreign debt exceeding the appropriate level reduces economic growth by reducing efficiency rather than the volume of investment.

3 Data and Empirical Results

Annual data from 40 Sub-Saharan African countries were utilized in this study to analyze the impact of foreign debt on economic development from 1993 to 2017. The World Bank database was used to gather all of the data. To reflect economic growth, GDP per capita was utilized as the dependent variable. Indicators such as education,

health, and life expectancy are commonly utilized as human capital indicators in the literature; consequently, school enrolment is employed as a human capital indicator in this investigation. The foreign debt indicator was represented by the ratio of external debt to GDP. Table 1. represents the statistical summary of the variables.

Variables	Mean	Overall Std.Dev	Between Std.Dev	Within Std.Dev
GDP per capita growth	1.37	5.065	1.55	4.829
Capital formation	1.121	1.691	1.057	1.681
Fiscal Balance	2.5	0.987	0.69	0.713
Labor	3.042	2.944	1.876	1.262
Population growth	2.168	1.274	1.986	1.059
Export growth	-2.25	4.558	1.858	4.171
Openness	2.755	1.532	0.376	3.251
Total trade to GDP	5.479	3.049	2.804	1.481
Debt to GNI	1.882	3.68	2.476	2.727
Debt service to GNI	1.402	4.58	2.696	3.727

Table 1. Statistics Summary *Source: World Bank database*

While performing the stationarity analysis of the series, they are subjected to two different tests. Before using the first and second-generation panel unit root tests, cross-section dependency testing should be done. Since panel unit root tests will be selected based on the outcomes of the cross-sectional dependency test. Cross-section dependence assumes that shocks occurring in any of the cross-section units will be reflected in other units. In this case, the second-generation unit root test will be applied. Otherwise, the first-generation panel unit root test should be applied. The CD (Cross-section Dependence) test will be used by Pesaran (2004) for the cross-section dependency test.

Variables	Test statistic	P-value
Pesaran's CD test	31,368	0,000
The average absolute value of the off-diagonal elements	0.442	

Table 2. Cross Section Dependency Test Results

According to the results summarized in Table 2. the null hypothesis was rejected, and it can be said that there is a cross-sectional dependence in all series. If there is a cross-section dependency between the series, second-generation panel unit root tests will be applied. In this study, the CADF (Cross-Sectionally Augmented Dickey-Fuller) and Cross-sectional Im, Pesaran, and Shin (CIPS) test proposed by Pesaran (2007), one of the second-generation panel unit root tests have been employed. According to the panel unit root test results in table 3., the 0 H hypothesis is rejected at 1% in all series, and it is proved that the series is stationary at the First difference.

Variable	CADF	CIPS
GDP per capita growth	-9,522(0,000)***	-6,212(0,000)***
Capital formation	-4,553(0,000)***	-7,432(0,000)***
Fiscal Balance	-4,383(0,000)***	-7,431(0,000)***
Labor	-2,721(0,001)***	-5,684(0,000)***
Population growth	-3,414(0,000)***	-5,495(0,000)***
Export growth	-4,689(0,000)***	-5,654(0,000)***
Openness	-2,934(0,001)***	-7,342(0,000)***
Total trade to GDP	-2,853(0,001)***	-6,285(0,000)***
Debt to GNI	-4,645(0,000)***	-5,883(0,000)***
Debt service to GNI	-3,891(0,000)***	-6,179(0,000)***

Note: The lag length was selected automatically according to the Schwarz Information Criteria. The values in parentheses represent the probability value. ***, ** and * indicate 1%, 5% and 10% significance levels, respectively.

Table 3. Panel Unit Root Test Results

In this study, the Panel threshold analysis has been applied to determine the association between external debt and economic growth for 40 Sub-Saharan African countries was estimated using the least-squares method. First of all, the test results for the single-threshold model for External debt are shown in Table 4.

Threshold Value (γ_1)	F Statistics	P-Value	Critical Values		
			%10	%5	%1
1,5468	8,75	0,000	3,426	4,175	5,981

Note: 300 bootstrap replications were used in the model.

Table 4. Results for Single Threshold Effect

The P-value of the estimated threshold parameter in Table 4. is (0.000) and the F statistic is greater than all three critical values. This result shows that the H_0 hypothesis is rejected at 1%, so there is no linear relationship between external debt and economic growth, and there is a threshold effect. In the next step, the multiple threshold value model was tested to determine more threshold values for the debt to GNI variable. Three different threshold value parameters are estimated in the model as γ_1 , γ_2 , and γ_3 , respectively, and the F statistics, probability, and critical values of these parameters are shown in Table 5.

Threshold Value	F Statistics	P-Value	Critical Values			
			%5	%5	%5	
(γ_1)	1,5468	8,75	0,000	3,426	4,175	5,981
(γ_2)	7,6319	11,26	0,543	18,683	21,889	26,432
(γ_3)	8,7451	6,68	0,428	12,352	14,774	40,502

Note: 300 bootstrap replications were used in the model.

Table 5. Results of Multiple Threshold Effects

The F statistic of the first threshold parameter is greater than the critical values of 1%, 5%, and 10%. Also, the p-probability value is 0.000. The F statistics of the second and third threshold parameters are less than all three critical values, and the probability values are 0,543 and 0,428, respectively. These results show that the γ_2 and γ_3 threshold parameters are not significant in the model according to the F statistics and probability values, therefore there is only one threshold effect in the model. Accordingly, the estimations of the single threshold level in Table 5. indicate that a regime change occurs after external debt exceeds a certain level.

The LR statistic as a function of the external debt threshold is used to determine confidence intervals in estimating the threshold. In Figure 1., the dashed horizontal line shows the critical value (7.45) at the 95% confidence level. The 95% confidence interval values in the model are [1.5875, 1.9588]. The least-squares minimum threshold estimate of the LR (γ) function is 1,5468. This point indicates the existence of two regimes characterized by a threshold value (Hansen, 2000). Thus, figure 3.1 provides important evidence supporting a single threshold in the relationship between external debt and economic growth.

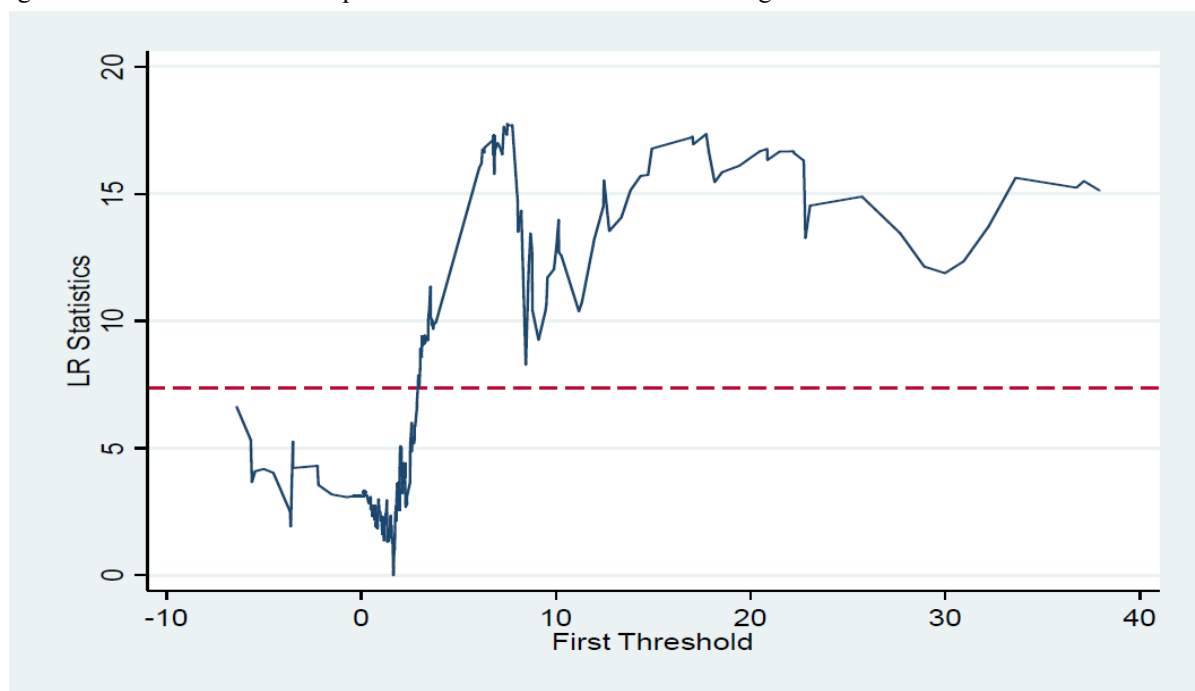


Figure 1. Confidence Intervals in the Single Threshold Model

Panel threshold regression estimates of the relationship between external debt and economic growth are shown in Table 6. the table shows the effects of external debt on economic growth based on a single threshold value. β_1 and β_2 are coefficients that show the regime-dependent effect of external debt on economic growth. The statistics of the regime coefficients show that there is no linear relationship between external debt and economic growth. β_1 coefficient is negative and statistically significant at 1%, and β_2 is positive and statistically significant at 5%. According to these findings, a debt to GNI ratio ($\text{Debt} \leq 1,5468$) below the threshold value will increase economic growth. A debt to GNI ratio ($\text{Debt} > 1,5468$) above the threshold has a positive (0.022) effect on economic growth.

Threshold Estimation	
Threshold Parameter (γ_1)	1,5468** (0.010)
95% Confidence Interval	1.5875, 1.9588
External Debt Regime Coefficients	
β_1	-0.142** (0.012)
β_2	0.022* (0.053)
Control Variables	
Lagged GDP growth rate per capita	0,819*** (0,000)
Capital formation	0,031** (0,044)
Ln(Fiscal Balance)	-0,004 (0,556)
Ln(Labor)	0,287* (0,061)
Population growth	-0,218** (0,051)
Export growth	0,632*** (0,004)
Openness	0,011* (0,052)
Total trade to GDP	0,729*** (0,005)
Debt service to GNI	-0,156** (0,051)
Regression Model	
$Y_{it} = 1,563\tau + 0,819Y_{i,t-1} * - 0.142 EXD_{it1} (EXD_{it} > 1,5468) + 0.022 EXD_{it2} (EXD_{it} \leq 1,5468) + 0,031CP_{it} - 0,004 FB_{it} + 0,287 Labor_{it} - 0,218 POP_{it} + 0,632 EXP_{it} + 0,011 OPEN_{it} + 0,729 TOT_{it} - 0,156 DS_{it}$	

Note: τ : Constant, *: Indicates the initial value of GDP growth rate per capita. Values in parentheses are P-values. ***, **, * expressions indicate 1%, 5% and 10% significance levels, respectively.

Table 6. External Debt Threshold and Economic Growth Model Estimation Results

4 Conclusion and Policy implication

In the model, the effects of the selected variables, which are frequently used in the empirical growth literature, on economic growth are also examined. The results obtained from the variables used are statistically significant and show parallelism with many studies in the literature. The results of the study show that the theoretical estimates of the positive effect of external debt on growth largely depend on the capacity of the economy to employ debt funds into productive investments and are important in terms of determining the optimal debt scale that will positively affect economic growth. Therefore, Sub Sahara African governments should ensure economic and political stability, establish legal security, and remove bureaucratic obstacles to ensure that the fund of debt has been utilized in-country development projects. In addition, policymakers in these countries should aim to improve conditions for economic growth such as technological development, trade openness, tax incentives, human capital base, financial market regulations, and physical infrastructure quality. Because improving investment conditions not only attracts foreign companies but also helps to maximize the benefits of foreign debts.

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