



THE IMPACT OF EXTERNAL DEBT ON ECONOMIC GROWTH IN SUB-SAHARA AFRICAN (SSA) COUNTRIES: THE MODERATING ROLE OF INSTITUTIONAL QUALITY

ATO GALA achema¹, SANI, Idris Ahmed², EBEH Joy Elejo³, ADAH, Ngbede John⁴

^{1,2,3 & 4} Department of Economics, Faculty of Social Science Prince Abubakar Audu University,
Anyigba Kogi State, Nigeria. P.M.B.1008, Kogi State.

attahmartins2019@gmail.com

Tel +23481656886963

Department of Economics and Development Studies, Faculty of Social Sciences,
Federal University Dutsin-Ma.

ABSTRACT

External debt remains a severe issue for many Sub-Sahara African (SSA) countries. This study investigates external debt's effect on the economic growth of SSA from 1996 to 2024. Panel data of twenty SSA countries obtained from the World Bank database was analyzed using the panel Autoregressive Distributed Lag (ARDL) model and Westerlund cointegration methods. The Westerlund Cointegration test revealed that external debt negatively and significantly affects economic growth in the long run. It also reveals a significantly negative impact of external debt service payment on economic growth. However, the moderating role of institutional quality is positively significant, with substantial institutional quality mitigating the negative effect of external debt on economic growth. External debt shock's effect in the short run is positive and negative but insignificant in the long run. The study recommends implementing prudent debt management strategies, prioritizing productive investments, diversifying revenue sources and building more vital institutions.

Keywords: External debt, panel Autoregressive Distributed economic growth, institutional quality, Sub-Sahara African.

JEL Classification: E31, I32, H53

1.1 Introduction

External debt's effect on economic growth remains an issue of great concern to developing countries due to inadequate domestic resource mobilization, low savings, low per capita income, large fiscal deficits, growing current account imbalances and high savings-investment gaps in these countries (Tarawalie & Allon 2021). These countries are plagued with budget deficits resulting from decreasing revenues and increasing expenditures (Hameed et al., 2021). Governments can resolve budget deficit problems through tax increases, currency printing and borrowing internally or externally (Benli., 2020). If used productively, external debt will increase investment and accelerate economic growth. According to Chukwujekwu et al., (2018), debtor countries should be able to make prudent financial decisions with the borrowed funds, especially in funding development initiatives such as roads, power plants and other capital projects.

External debt can only be considered productive if the rate of return exceeds the debt servicing cost. External debt will hinder economic growth when used for current consumption rather than capital investment (Odubuasi & Onuora, 2021). There is great concern about whether external debt enhances or prohibits economic growth in Sub-Sahara African (SSA). This concern is because of the high default rate, slow economic growth and high poverty levels linked to large external debt stock in the region (Ndubuisi, 2019).

However, due to recent uncontrolled borrowing, the collapse of local currencies, and the price of commodities, collections of external debts have been rising in most SSA nations (World Bank, 2022). Policymakers, scholars, the general public, and experts have paid close attention to the debt crises and economic slumps in the early 1980s and the 1990s, with high levels of external debt and capital outflows from SSA (Benli, 2020). After the 2008 financial crisis, the rising foreign debt burden driven by hovering product costs, quantitative stretching, and lower interest rates in high-income nations has reignited discussions and worries about the sustainability of external debts. Most of SSA's foreign debt was acquired for political purposes, hiding under development goals. The accumulation of unsustainable levels of debt as a result of the misuse of resources has been a significant barrier to growth in SSA (Musibau et al. 2018).

Previous research has focused on the direct relationship between external debt and economic growth (Ayadi & Ayadi, 2008; Sandow et al. 2004). In some studies, SSA was combined with other regions of the world, therefore failing to present the actual situation of SSA (Senadza et al. 2017).

Many other African studies did not focus on SSA (Nounamo et al.2021; Ehikioya et al. 2020). However, few studies focused on SSA used different approaches and highly disagreed in opinion (Odubuasi & Onuora, 2021; Hassan & Meyer, 2021). Other studies, including Hassan and Meyer (2020) and Asafo (2019), emphasized the non-linear effect of external debt on growth and conducted a threshold analysis. The effect of external debt on economic growth has not been adequately exploited, as very few studies have focused on that (Dey & Tareque, 2019; Manasseh et al. 2022). Additionally, very few studies like that of Odubuasi and Onuora (2021) and Sichula (2012) have considered the role of institutional quality.

However, as far as the interactive impact of external debt and institutional quality on economic progress is concerned, much is yet to be done. Shittu, et al. (2018) interacted with governance, external debt and debt volatility using the dynamic system generalized method of moments. This study addresses this gap by empirically investigating the effect of external debt on the economic growth of SSA countries while emphasizing the impact of institutional quality. By blending the autoregressive distributed lag (ARDL) model and Westerlund cointegration methods, this study comprehensively analyses these critical issues and gives valuable insights to scholars and policymakers.

2.1. Literature Review

The debate on external debt's impact on economic growth remains inconclusive. Various opinions in the context of SSA, African countries and out of Africa are presented below. Ojeka et al. (2023) examined the effects of the ratio of external debt on a country's economic growth in Kuwait from 2014-2021, using annual time series data from World Bank and the central Bank of Kuwait. The study employed ADF unit root test, and the autoregressive distributed lag (ARDL), Their findings showed that as the external debt ratio increases, the public to private capital ratio increases which in turn positively affects the long run economic growth rate. The research couldn't provide any detailed analysis for the short run.

Likewise, Khan (2020) employed ARDL econometric model and to investigate the relationship between foreign debt and economic growth in Pakistan for the study period 1972–2013. Using time series analysis, ADF stationary test and b the error correction model as method of analysis. The study revealed that there is negative influence on economic growth of Pakistan, indicating debt overhang in the country during the sample time. Error correction term shows the existence of stable relationship in the long run.

Similarly, Sandow et al. (2022) employed a two-step system GMM to examine the linkage between external debt and economic growth of 31 SSA countries from the period 2005–2017. Their study was conducted with the main objective of understating whether public sector management can create a difference on the relationship between the two variables in SSA and revealed that public sector management matters. However, its assumptions of perfect competition and constant demand for external funds may not reflect real-world dynamics, affecting its broader applicability and generalization.

In another study, Makun (2021) investigated the relationship between external debt servicing and economic growth in Nigeria from 1985-2020. Using annual time series data from CBN and World Bank, employing the ADF unit root test, Ordinary Least Square (OLS) technique. The study found the existence of a positive impact of external debt on economic growth in Nigeria. The study concluded that external debt led to increase in economic growth in Nigeria if the debt servicing is properly managed, but failed to consider other indices such as literacy rate, mortality rate and gross fixed capital formation.

Furthermore, Badiou et al. (2021) examined the nexus between external debt servicing and economic growth for ECOWAS member states using panel co-integration through Fixed Effect Model (FEM) and Random Effect Model (REM). Utilizing the panel data from 2000 to 2019, their

study revealed that there is nonlinear relationship between external debt of the member states and real GDP of the sample nations. However, it is found that the effect of external debt is below thresholding hold (111%), implying the nonlinear relationship between the variables. However the study assumptions of over transparency and trustworthiness of ECOWAS member which may not be applicable in real world scenarios undermine the credibility of the study.

Also, Orji et al. (2020) estimated the relationship between institutional quality and economic growth in SSA, for the period 1981 to 2017 with the aid of the ARDL estimation technique. The study posited that there is statistically significant negative relationship between the aforementioned variables under investigation and recommended that proactive policy measures be instituted to discourage external borrowing and make the domestic economies more attractive and safer for domestic investment in order to enhance economic growth.

Furthermore, Ogege and Ekpudu (2020) examined the impact of public debt servicing on economic growth in Nigeria also found out a negative relationship between domestic debt and economic growth in short run. In this study, Autoregressive distributed lag (ARDL) model was employed on the time series data set between 1980 and 2018. The study concluded external debt burden led to decline in economic growth in Nigeria. The research failed to explain the long run and short run effect of public debt. Also fragmented verification standards hindered market efficiency, and the regional focus reduced the applicability of findings to other countries.

Likewise, Dawood et al. (2022) studied the relationship between external debt and economic growth in SSA countries from 1990–2017, in the panel sample of 20 SSA countries. From the generalized method of moments estimation technique (GMM) employed in the study, external debt is found to adversely affect economic growth, confirming the debt overhang theory hold in the SSA countries during the periods under investigation. However, the study lacked detailed empirical evaluation, which undermines its credibility.

In another study, Zubair et al. (2022) examine the impact of external debt and economic growth in selected SSA countries. The study employs dynamic system generalized method of moments (GMM) technique with data ranging from 2000 to 2015. The positive effect of external debt on economic growth is limited to a threshold level of 47.6% of GDP, the results reveal that the direct impact of both capital flight and external debt and their combined effect on economic growth is negative and statistically significant. Additionally, marginal effects results show that a low level of capital flight has no visible effect on the negative impact of the external debts on economic growth. A high rate of capital flow in comparison to the negative effect of external debt exacerbates the economic growth.

Also, Epaphra (2021) investigates the relationship between quality institutions, external debt on the economic growth of SSA from 1991 to 2021. Panel data of 20 SSA countries obtained from the World Bank database was analyzed, using the panel Autoregressive Distributed Lag (ARDL) model and the Vector Error Correction (VEC) Impulse Response Function (IRF). The findings revealed that external debt negatively and significantly affects economic growth in the long run. It also reveals a significantly negative impact of external debt service payment

2.2 Theoretical Review

2.2.1 Dual-Gap Theory (1962)

Chenery and Bruno postulated the dual-gap theory in 1962, the theory states that shortage of savings and investment to enhance economic growth results to external borrowing. The theory also stated that the economic growth of SSA countries is determined by investment and the investment is necessitated by saving domestically (Olusegu et al, 2022). The theory also stated that excess import over export results to low savings and low investment. Hence, the gap between import and export leads to external borrowing.

The dual gap theory (DGT) is instrumental in analyzing the relationship between quality institutions, external debt, and economic growth in SSA. This theory posits that a country experiences two critical gaps, the savings gap and the foreign exchange gap. In SSA, inadequate domestic savings often necessitates reliance on external debt to fund crucial investments for economic growth.

Quality Institutions plays a vital role in mediating the effects of external debt on economic growth. Strong quality institutions can enhance the productivity of investments made with borrowed funds by providing a stable environment for economic activities. Conversely, weak institutions may lead to poor management of debt, resulting in inefficient allocation of resources, corruption, and ultimately lower economic growth (Anifowose 2016). Consequently, SSA countries with robust institutional frameworks are typically better positioned to leverage external debt for sustainable development while mitigating the risks associated with high debt levels (Khan, 2022).

Economic growth in SSA is intricately linked to both the institutional framework and the management of external debt, countries that successfully bridge the dual gaps-with sound institutions facilitating effective debt management and investment tend to experience higher economic growth rates. For instance, analyses show that countries with improved governance and transparency are more likely to utilize foreign aid and debt optimally, leading to significant progress in economic growth (world Bank, 2022). Thus, fostering sound institutions and prudent external debt management is critical for SSA nations aiming to achieve sustained economic growth in a globalized economy.

3.1. Data and variables

Secondary data used was obtained from World Development Indicators (WDI) and World Governance Indicators (WGI). Data from 20 selected SSA nations from 1996 to 2024 were collected. The choice of using 1996 as the base year for this study, is due to the availability of institutional quality data, and also the introduction of the external debt management program (EDMP) by the SSA countries union, which was formed in 1994, which is a major program introduced to enhance economic growth and reduce the negative effect of external debt in SSA countries and 2024 is also chosen to capture recent trends in SSA countries. The countries include Mauritius, Sierra Leone, Burundi, Uganda, Mali, Ghana, Togo, Cameroon, Guinea, Kenya, Mozambique, Niger, Benin, Nigeria, Rwanda, Senegal, Botswana, Sudan, Tanzania, and Madagascar. The variables of interest are Economic growth, external debt stock, debt service payment, capital, employed labour force, government expenditure, inflation and institutional quality.

3.2 Model Specification

To estimate the long-run and short-run effects of external debt stock on economic growth and the moderating role of institutional quality, the empirical model developed for this study based on the Neo-classical growth model as the theoretical frame work for the study.

This model proposed by Solow (1956) and Swan (1956) suggests that an economy's output (Y) is determined by technology (A), physical capital (K), and labour (L), represented by the production function as follows: equation 1

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

This model makes three significant predictions. First, increasing capital to labour leads to economic growth because more capital makes people more productive. Secondly, in economically disadvantaged countries with limited capital per capita, each capital investment generates a higher return than wealthier nations. This dynamic accelerates economic growth in less affluent nations. Third, economies eventually reach a "steady state" point where adding more capital will not generate economic growth anymore due to diminishing returns on investment. Given that external debt is borrowed to pay for expenditures in health, education, and development, it is seen as constructive and is anticipated to help drive economic growth through better access to capital, labour, and technology. This study is, therefore, anchored on this theory proposed by Solow (1956) and Swan (1956) is stated in equation 2.

$$GDP_{it} = \beta_0 + \beta_1 EDS_{it} + \beta_2 DSP_{it} + \beta_3 GFC_{it} + \beta_4 ELF_{it} + \beta_5 GEX_{it} + \beta_6 INF_{it} + \beta_7 IQ_{it} + \beta_8 (EDS \times IQ)_{it} + \mu_{it} \quad (2)$$

In this model, the interaction variable (INTERACT) computed as a product of EDS and IQ (EDS*IQ) has been included to capture the interactive outcome of EDS and IQ on economic growth.

Estimation techniques

This study employs both the Auto Regressive Distributed Lag (ARDL) model and Westerlund Co-integration Test.

Auto Regressive Distributed Lag (ARDL) model

According to Pesaran et al. (2001), Panel ARDL is a robust and versatile technique to estimate short run and long-run relationships in panel data, making it a good choice for a wide range of research questions. Therefore, in this study, the panel ARDL model projected by Pesaran, Shin, and Smith (1999) is estimated to determine external debt's long-run and short-run effects on economic growth and the interactive impact of external debt and institutional quality on economic growth. The ARDL model accommodates variables that are not stationary as it handles both I(0) and I(1) variables. Succeeding Pesaran et al. (2001), the ARDL model for this study is adopted from Shahid et al. (2022) and stated as follows:

$$\begin{aligned}
 \Delta GDP_{it} = & \beta_0 + \sum_{j=1}^m \beta_{1i,j} \Delta GDP_{i,t-j} + \sum_{j=1}^n \beta_{2i,j} \Delta EDS_{i,t-j} + \sum_{j=1}^n \beta_{3i,j} \Delta DSP_{i,t-j} \\
 & + \sum_{j=1}^n \beta_{4i,j} \Delta GFC_{i,t-j} + \sum_{j=1}^n \beta_{5i,j} \Delta ELF_{i,t-j} + \sum_{j=1}^n \beta_{6i,j} \Delta GEX_{i,t-j} \\
 & + \sum_{j=1}^n \beta_{7i,j} \Delta INF_{i,t-j} + \sum_{j=1}^n \beta_{8i,j} \Delta IQ_{i,t-j} + \sum_{j=1}^n \beta_{9i,j} \Delta (EDS \times IQ)_{i,t-j} \\
 & + \alpha_{1,i} GDP_{i,t-1} + \alpha_{2,i} EDS_{i,t-1} + \alpha_{3,i} DSP_{i,t-1} + \alpha_{4,i} GFC_{i,t-1} + \alpha_{5,i} ELF_{i,t-1} \\
 & + \alpha_{6,i} GEX_{i,t-1} + \alpha_{7,i} INF_{i,t-1} + \alpha_{8,i} IQ_{i,t-1} + \alpha_{9,i} (EDS \times IQ)_{i,t-1} + \varepsilon_{it} \quad (3)
 \end{aligned}$$

Where β_0 is the constant, α_1 to α_9 are the long-run coefficients, β_1 to β_9 are the short-run coefficients, Δ is the difference operator, and m and n represent the optimal lags of the dependent and independent variables, respectively. The long-run parameters in Equation 3 above confirm that the variables are cointegrated; therefore, an error correction model is necessary. The cointegration test is based on the null hypothesis that there is no cointegration, meaning $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = \alpha_8 = \alpha_9 = 0$.

Estimating the error correction equation provides insights into cointegration and the speed of alteration of short-run disequilibrium into equilibrium in the long run. The error correction model, as proposed by Pesaran et al. (2001), has been adopted in this study from Makun (2021) and stated in equation 4 as follows:

$$\begin{aligned}
 \Delta GDP_{it} = & \delta E_{i,t-1} + \sum_{j=1}^m \beta_{1i,j} \Delta GDP_{i,t-j} + \sum_{j=1}^n \beta_{2i,j} \Delta EDS_{i,t-j} + \sum_{j=1}^n \beta_{3i,j} \Delta DSP_{i,t-j} \\
 & + \sum_{j=1}^n \beta_{4i,j} \Delta GFC_{i,t-j} + \sum_{j=1}^n \beta_{5i,j} \Delta ELF_{i,t-j} + \sum_{j=1}^n \beta_{6i,j} \Delta GEX_{i,t-j} \\
 & + \sum_{j=1}^n \beta_{7i,j} \Delta INF_{i,t-j} + \sum_{j=1}^n \beta_{8i,j} \Delta IQ_{i,t-j} + \sum_{j=1}^n \beta_{9i,j} \Delta (EDS \times IQ)_{i,t-j} + \varepsilon_{it} \quad (4)
 \end{aligned}$$

Where δ is the coefficient of the cointegration term, $E_{i,t-1}$ is the cointegration term, and ε_{it} is the error correction term.

4.1 Descriptive Statistics and Correlation analysis

Table 1. Descriptive statistics

	GDP	EDS	DSP	GFC	ELF	GEX	INF	IQ
Mean	1.441	63.102	12.927	20.266	2.564	13.839	11.108	32.583

Median	1.762	48.872	8.869	19.190	2.684	13.388	6.787	29.237
Maximum	60.091	429.738	134.803	52.418	16.626	36.217	150.323	77.961
Minimum	-41.587	3.895	0.494	-2.424	-16.881	0.911	-7.797	4.247
Std. Dev.	5.036	54.324	13.469	7.448	1.564	5.580	16.689	18.447
Skewness	1.129	2.382	3.436	0.650	-4.489	0.905	4.199	0.775
Kurtosis	43.290	12.161	22.630	4.213	88.886	4.752	26.625	2.947
J-B	40710.280	2665.181	10813.730	79.081	186426.500	158.625	15716.400	44.054
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Author's Computation (2025)

We observe that the mean GDP in SSA is 1.44%, which is relatively low. Both the minimum and maximum figures of -41.58% and 60.09% for GDP were recorded by Rwanda in 1998 and 1999, respectively. The standard deviation of 5.03% confirms that the region's GDP growth rate is low. Contrarily, EDS has a very high standard deviation of 54.32% and a maximum of 427.73%, confirmed with a very high mean value of 63.10%. Regarding percentile rank, IQ has a mean figure of 32.58%, a maximum of 77.96% and a standard deviation of 18.44 %. These values are pretty low, showing the low quality of institutions in SSA. The 77.96% maximum value for institutional quality was attributed to Mauritius in 2015. The probability value of Jarque-Bera, which is all less than 5%, reveals that the variables are not normally distributed.

4.2 Pre-Estimation Tests

To guard against obtaining spurious results, it is essential to examine the econometric properties of the variables in the model. The cross-section dependence test was conducted to show if there is significant cross-sectional dependence among the variables of interest.

Table 2: Cross-Section Dependence Test

Variables	Level CD-test	Corr.	Abs (Corr.)	Variables	First Diff. CD-test	Corr.	Abs (Corr.)
GDP	44.15***	0.963	0.963	Δ GDP	11.27***	0.252	0.276
EDS	4.14***	0.09	0.345	Δ EDS	1.87*	0.049	0.209
DSP	2.27**	0.052	0.359	Δ DSP	3.61***	0.081	0.181
GFC	1.89*	0.043	0.256	Δ GFC	2.88***	0.065	0.19
ELF	-0.15	-0.003	0.406	Δ ELF	1.84*	0.047	0.231
GEX	2.44**	0.058	0.387	Δ GEX	1.73*	0.04	0.221
INF	1.93*	0.045	0.385	Δ INF	2.40**	0.054	0.242
IQ	3.50*	0.045	0.300	Δ IQ	2.10**	0.030	0.150

***, **, * denote statistical significance at 1%, 5%, and 10% levels

Source: Author's Computation (2024)

The cross-section dependence test shows that all variables except ELF exhibit significant cross-sectional dependence at level, indicating that shocks or common influences are shared across units. The high CD-test value for GDP indicates particularly strong dependence. After first differencing, most variables still show significant dependence, though with generally weaker correlation magnitudes compared to their levels. ELF is the only variable without dependence at level but becomes weakly dependent after differencing. Overall, the results confirm pervasive cross-section interaction effects across the dataset, meaning the series are not independent across units. Consequently, second-generation panel unit-root and Westerlund cointegration methods are required for reliable estimation.

Table 3: Westerlund Co-integration Test

Statistics	Value	z-value	p-value	P-value (robust)
Gt	-20.32	-4.029	0.000	0.000
Ga	-29.214	-3.022	0.000	0.000
Pt	-6.013	-1.227	0.144	0.022
Pa	-14.834	-1.443	0.098	0.014

Source: Author's Computation, 2024

The Westerlund (2007) cointegration test was used to examine whether a long-run relationship exists between governance and economic development in the selected SSA countries. The Gt and Ga statistics indicate the presence of cointegration at the individual-country level, as their p-values are statistically significant. However, the Pt and Pa statistics suggest no panel-level cointegration since their conventional p-values exceed the 5% threshold. Given the existence of cross-sectional dependence among the countries, these results may be biased. Therefore, the robust p-values are more reliable, and they show that cointegration exists for both the individual countries and the panel as a whole, with all robust p-values falling below 5%.

4.3 ARDL model Estimation Results

The ARDL model was used to establish the effect of External Debt on Economic growth and investigate the moderating role of Institutional quality in SSA from 1996 to 2024. The results in

Table 4. estimate the relationship between the dependent and independent variables in both the long and short run. It also estimates the cointegrating equation, which shows the speed of alteration of short-run disequilibrium to equilibrium in the long run.

Table 4. ARDL Estimation Results

Dependent Variable: RGDPGR		
Variables	Coefficient	Std. Error

Long Run Equation

EDS	-0.015681***	0.00332
DSP	-0.017953**	0.00862
ELF	0.389879*	0.20601
GFC	0.146993***	0.0211
IQ	0.171801***	0.03602
EDS*IQ	1.940888***	0.67266
INF	0.130619***	0.02473
GEX	-0.025565*	0.03838

Short Run Equation

COINTEQ01	-0.900130***	0.08532
D(EDS)	-0.0186	0.09889
D(DSP)	-0.1971	0.14909
D(ELF)	-0.4011	4.29226
D(GFC)	0.08807	0.11574
D(IQ)	0.06724	0.22513
D(EDS*IQ)	-1.9436	8.21869
D(INF)	-0.165422**	0.07581
D(GEX)	-0.789026***	0.26991
C	-11.87913***	1.2614

Source: Authors (2025)

Note: ***, ** and * refers to significance at 1%, 5% and 10% respectively

4.4 Results and Discussion.

In the long run, EDS and DSP negatively and significantly affect GDP. Based on the findings, a unit increase in EDS will lead to a fall in GDP by 1.5%. Similarly, GDP will reduce by 1.8% if DSP increases by one unit. Meanwhile, GFC, IQ, and INF positively and significantly affect GDP. These findings aligned with studies such as Badioo et al. (2021), Hassan and Meyer (2021), Benli (2020), Ekperiware and Oladeji, (2012) and Makun (2021), Which found that increase in external debt, debt serves payment without proper institutional arrangements, tends to hinder economic growth in SSA.

However, the results differ from Zhang, Dawood and Asfour, (2020), Musibau et al. (2018), Gachunga and Kuso (2018), Sandow et al. (2022) and Manasseh et al. (2022) have considered the role of institutional quality. This finding indicates that institutional quality positively moderates the relationship between external debt and economic growth, meaning that as institutional quality improves, the negative effect of external debt on growth becomes increasingly attenuated in SSA. A 1 percent improvement in institutional quality yields a simulated RGDP growth rate of 4.71 percent, while a 5 percent improvement yields 5.32 percent, and a 10 percent improvement yields 6.95 percent, compared to the historical baseline of 3.18 percent. This finding suggests that the growth benefits of institutional enhancement become more pronounced once governance effectiveness surpasses certain levels, with the marginal returns accelerating at higher levels of improvement

Myers (1977) first introduced the debt overhang theory, and it was made famous by the studies of Krugman (1988) and Sachs (1989). According to these scholars, high debt levels lead to a high future tax burden for the private sector of these SSA since governments finance their debt by taxing businesses and households. Debt overhang refers to a high external debt burden that hinders a country's economic growth (Krugman, 1988). Matandare and Tito (2018) asserted that the debt burden has a detrimental effect on capital formation, consumption, and liquidity which in the long run hinder economic growth in SSA. As an enormous segment of revenues is used to upset existing debt, which increases the debt burden, debt overhang can trap SSA countries in a vicious downward spiral.

The table shows that a unit increase in GFC, IQ, and INF will result in a 14.7%, 17.2%, and 13.1% increase in GDP, respectively. EDS and IQ's joint effect (INTERACT) leads to a higher (194.1%) positive and significant effect on GDP.

In the short run, EDS and DSP negatively affect GDP but are insignificant. IQ and INTERACT do not significantly affect GDP in the short run. INFL and GEX significantly and negatively affect GDP in the short run. The cointegrating equation (COINTEQ01) is significant, with a coefficient of - 0.900130. Therefore, the speed of alteration of any short-run disequilibrium to equilibrium in the long run is 90%.

5. Summary and Conclusion

Since the debt crisis of the early 1980s, the impact of external debt on economic growth has been extensively debated. This study employs the Panel Autoregressive Distributed Lag (Panel ARDL) model to examine the effect of external debt on economic growth in SSA, while assessing the moderating role of institutional quality. Given the presence of cross-sectional dependence, Second-generation panel unit root tests were conducted to determine the stationarity properties of the variables. Westerlund's cointegration test was applied to confirm the existence of a long-run relationship among the variables.

The estimation results indicate that external debt stock (EDS) and debt service payment (DSP) negatively influence economic growth (GDP) in Sub-Sahara African (SSA) countries, whereas institutional quality (IQ) positively affects growth. Capital formation (GFCF) also shows a significant positive effect on economic growth. Notably, the interactive effect of external debt

stock and institutional quality (EDS*IQ) has a positive and significant impact on growth, emphasizing the importance of strong institutions in leveraging external debt for economic development.

In conclusion, we recommend that SSA countries adopt prudent debt management policies to mitigate the adverse long-term consequences of external debt. Short-term measures should focus on managing debt shocks, while long-term strategies must prioritize productive investment and revenue diversification. Strengthening institutional quality remains crucial to maximize the benefits of external borrowing.

Furthermore, international cooperation and debt relief efforts are vital to easing the debt burdens of heavily indebted countries in the region. Ultimately, SSA countries should diversify their economy to other sectors such as agriculture, mining, tourism etc. so as to have multiple sources of revenue to avoid over dependence on external borrowing and a combination of sound domestic policies and global partnerships is essential for SSA nations to overcome external debt challenges and achieve sustainable economic growth.

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