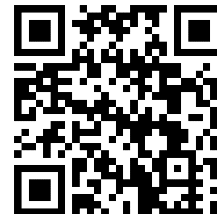# External Debt and Economic Growth Nexus in Sub-Saharan Africa: the Role of Institutional Quality

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ABSTRACT: Sub-Saharan African (SSA) countries have recently embarked on an economic growth trajectory which is characterized by ambitious national development aspirations. The ability of the SSA economies to generate sufficient domestic revenues to spur their desired economic growth is limited resulting into fiscal deficits. External Debt has provided alternatives to the fiscal deficits prevalent in SSA economies. Dividends from external debt investments have been unevenly witnessed among the SSA countries. Regions with better institutional quality continue to reap considerable dividends from external debt investments while SSA economies continue to accumulate external debt with sluggish economic performance. This study made use of the Generalized Method of Moments (GMM) to examine the role played by institutional quality on the nexus between external debt and economic growth on a panel of 28 SSA countries over the period 2005 - 2021. Empirical results indicate that institutional quality influences a positive and significant relation between external debt and economic growth. Policy makers in SSA countries should therefore strive to improve on institutional quality in regard to external debt management in order to reap more economic benefits from external debt.

KEYWORDS: Sub-Saharan Africa; Economic growth; External debt; Institutional Quality

1. Introduction

Public Debt is a necessary component in the development process of most countries-both developed and developing. National development aspirations of different countries require large financial investments to realize the short, medium, and long-term national development objectives. Unfortunately, most Sub-Saharan Africa (SSA) countries' potential to generate the needed domestic revenue to drive the national growth and development agenda remains inadequate. SSA's average Tax to Gross Domestic Product (GDP) ratio remains at a dismal (15 percent) below that of the Organization for Economic Cooperation and Development (OECD) countries' average at 24 percent and other emerging and developing countries (Coulibaly & Gandhi, 2018).

Debt burdens in SSA countries were projected to rise by 10 to 15 percentage points in the short to medium term by the African Development Bank (2021). SSA economies' external debt has gradually witnessed an increasing trend from USD 492 Billion in 2016 to USD 702 Billion in 2020 translating into a 42.7 percentage increment in the external debt stock. Figure 1 shows SSA economies' total external debt and annual GDP growth trends for the period 2016 – 2020 from the World Bank International Debt Statistics 2022.

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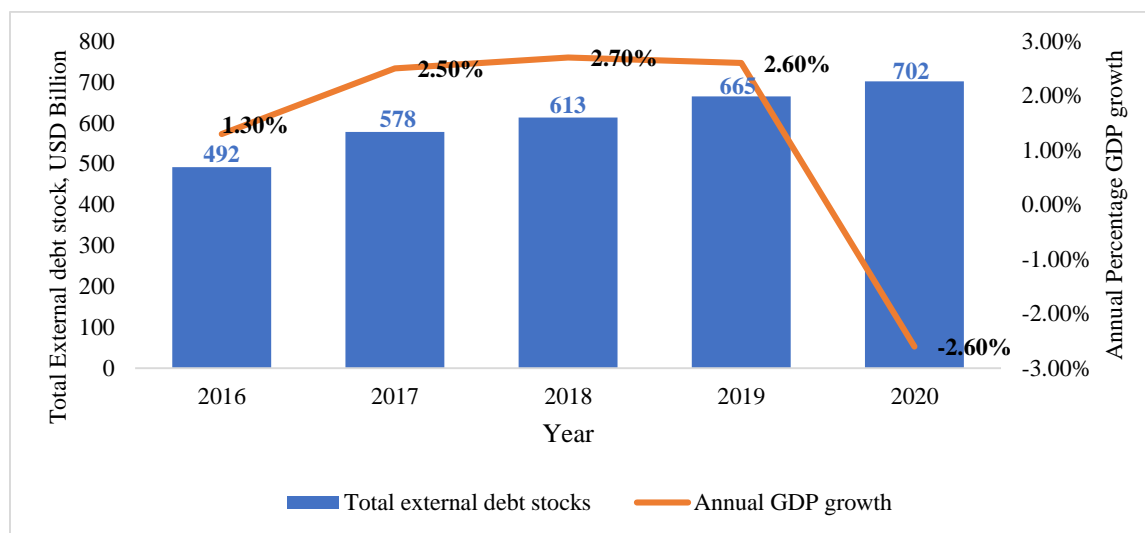

Figure 1: SSA Economies' Total External debt and GDP growth trends (2016-2020)
Source: World Bank

Debt induced growth and development is unevenly distributed across SSA on account of variations in the institutional quality across the SSA economies. This has subsequently affected the quantity and quality of service delivery as the increasing debt stock exerts pressure on the dismal domestic revenue in form of debt service. Debt servicing equally affects the pace of economic growth as nations realize less than their respective projected growth trajectories. It is worth noting that at the time of contraction, debt is an injection into the economy as it covers for the fiscal deficit caused by insufficient domestic revenues. However, at the time of debt service, debt becomes a leakage out of an economy as debt service in form of debt repayment (both principal and interest) and commitment fees for some developing nations drain financial resources out of an economy.

Institutional quality is central to ensuring that public debt dividends are reaped in form of sustainable economic growth and development from all the debt financed investments of the debt recipient nations. Adherence to a nation's Public Finance Management (PFM) laws, regulations and policies is central to fostering value from debt induced investments as unnecessary leakages are limited.

This study intends to model the role of institutional quality on External Debt and Economic Growth nexus for 28 SSA countries[1] for the period 2000-2021.

2. LITERATURE REVIEW

The public debt-economic growth nexus remains inconclusive given the polarized views among the different schools of thought in regards to the public debt and economic growth relationship. Scholars, researchers and public policy makers find themselves on divergent paths when making critical economic policies on matters relating to the debt-economic growth question.

2.1 Theoretical Literature review

According to the Keynesians, public debt provides the needed financial resources to finance the fiscal deficit and subsequently enhance government spending. Increased government financing either through tax revenue or loans is deemed to have a positive impact on the economy (Zahariev, 2021). In the same way, Zahariev (2021) further notes that in times of unemployment, government has the task to borrow money and spend in the economy. Butkus and Seputiene (2018) contend that higher debt levels are a result of expansionary fiscal policy and stimulates GDP growth majorly through the expenditure multiplier. In the contemporary world, fiscal expansion is needed to kick-start economic growth and boost productivity (Emmott, 2016).

According to the conventional view, government debt stimulates aggregate demand and economic growth in the short run while crowding out effects reduce economic activity in the long run (Elmendorf & Mankiw, 1998). Relatedly, in reference to Elmendorf and Mankiw's (1999) back-of-the-envelope calculations and Panizza and Presbitero (2013) increasing public debt by 100 percent of GDP reduces annual GDP growth by almost 20 basis points in the first 20 years. Dedak & Dombi, 2018 under the Blanchard Model also confirm that public debt is observed to crowd-out physical capital and thus reducing long-run output

Aybarç (2019) recognizes public borrowing as an indispensable source of financing though it results in the debt-interest cycle, poverty and crises. Financing budget deficits through public debt crowds out private investments as Government borrowing raises

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[1] See Appendix 1 for the 28 SSA countries used in the study.

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interest rates which has a reducing effect on private investment thus limiting capital availability in the entire economy for productive operations and subsequent reduction in future economic growth.

2.2 The Empirics

The impact of public debt on economic growth remains a contentious debate among scholars, researchers and policy makers due to the mixed findings from different studies and schools of thought in regard to the debt-economic growth question. Much as numerous studies have been conducted on the relationship between external debt and economic growth, few studies have paid attention to the role of institutional quality on the external debt-economic interplay. The few studies are however divergent on the role of institutional quality on the external debt and economic growth relationship. This study therefore contributes to the literature by interrogating the modifying role of institutional quality on external debt and economic growth relationship in Sub Saharan Africa.

2.1.1 Public Debt and Economic Growth

Babu et al. (2014) employed a panel fixed effects model in studying the effect of public debt on economic growth in East Africa and found a negative significant impact of debt on per capita GDP. Calderón and Fuentes (2013) analyzed a large panel data of countries for 1970–2010 and established a negative and robust effect of public debt on growth. Using the Autoregressive Regressive Distributed Lag (ARDL) Model, Haffner et al. (2017) show that domestic debt exerts a negative impact on economic growth both in the short and long runs in Sierra Leone. Mhlaba, N., & Phiri, A. (2019) found a negative long-run debt – growth relationship in South Africa. Senadza, et al. (2017) employed the Generalized Method of Moments (GMM) technique in analyzing annual panel data for 39 Sub-Saharan African (SSA) countries and found that external debt negatively affects economic growth in SSA.

Convergently, Amakom Uzochukwu, S. (2003) noted that growth and debt variables contributed to poverty in Nigeria over the period 1970–2002 as high amounts of revenue are spent on debt servicing. In the long term high and rising public debt suppresses economic growth (Chudik et al., 2018). In Uganda, Ssempala et al., (2020) found a negative relationship between economic growth and public debt.

On the contrary, Moki (2012) found that public debt has a positive impact on economic growth in SSA. Relatedly, Mhlaba, N., & Phiri, A. (2019) provide evidence of a positive short-run relationship between public debt and economic growth in South Africa. Schclarek, (2004) found a limited relationship between public debt and economic growth. According to Ahmed, (2017), indebtedness can promote economic growth. Convergently, public debt was found to have a positive impact on economic growth in the Euro area (Spilioti & Vamvoukas, 2015). In Srilanka, Thilanka and Ranjith (2018) employed the Vector Error Correction Model (VECM) and found that public debt crowds in private investments and subsequently boost GDP.

Ibrahim & Khan (2019).employed the ARDL approach and Narayan's (2005) bounds test in which they found domestic debt to have positive effect on the total aggregate government revenue and economic growth in Nigeria for the period 1981 to 2013. Relatedly, Sheikh, Faridi and Tariq (2010) found that Pakistan's domestic debt positively affected the country's economic growth between 1972 and 2009 after employing the Ordinary Least Squares (OLS) method. External Debt's role in overcoming the fiscal deficit and the subsequent translation into a positive impact on investment and economic growth was established by Sasaki, K. (2009).

Findings by Mensah et al. (2018), in the context of 36 Sub-Saharan African countries, indicate that there is existing evidence to support the impact of external debt on growth through countries' institutional quality, but only up to a point. In other words, when a country is on the wrong side of the debt Laffer curve, external debt and institutional quality becomes irrelevant. However, the study does not suggest the cut-off of debt on the debt Laffer curve.

2.2.2. Public Debt, Economic Growth and Institutional Quality

Institutional quality has been documented as an integral ingredient to the economic growth and development of nations. Given its multifaceted nature, institutional quality can be linked to the performance of various socioeconomic and service delivery indicators in a country. It should be noted that the institutional quality differentials across different countries contributes to the economic growth and development divide witnessed in the different countries. Whereas most studies are cognizant of the important role of public debt in the economic development process, literature on the catalytic role of institutional quality on the public debt – economic growth nexus is scanty. This current study explores the catalytic role played by institutional quality in the debt-economic growth dynamics in SSA countries.

Mensah et al., (2018) found institutional quality to have robust effects on the external debt–growth relationship after using the IV System GMM to investigate the impact of institutional quality on external debt-growth relationship in 36 SSA countries over the period 1996–2013. The debt growth relationship varies across different levels of indebtedness across countries. A study by Cordella et al., (2010) on a sample of 79 developing countries established that nations with poor policies and institutional quality required a low debt to GDP ratio to realize a debt overhang as compared to their counterparts with stronger institutions. A related

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study on the impact of corruption on public debt in 29 SSA countries found that corruption had a positive effect on public debt. Using a panel data of 29 SSA countries spanning the period 2000 – 2015, Henri (2018) employed the system GMM estimator and their results confirmed a positive relationship between corruption and public debt in SSA countries.

Le et al., (2015) employed the dynamic GMM model to a panel data set of 26 economies in studying financial determinants in Asia and Pacific region and concluded that better governance and institutional fosters financial development in developing economies. In the West African Economic and Monetary Union Countries (WAEMU), Croi and Diaw (2020) employed a combination of models including: the Hansen Model (1999); models of Brambor et al., (2006); and Esarey and Sumner (2018) model in studying the role of institutional quality on the relationship between public debt and economic growth and found that public debt has a positive and significant impact on economic growth when institutional quality is taken into consideration.

In Convergence with prior studies, Jamel and Malèk (2015) employed the efficient system-GMM estimators in studying Public debt, institutional quality and economic growth in Middle East and North African (MENA) countries and found that public debt stimulates economic conditions in countries with sound macroeconomic policies and stable institutions. Countries with lower levels of corruption were associated with effective utilization of their respective public debt. In Malaysia, Daud and Podivinsky (2014) found contingent effects of institutional quality on the relationship between public debt and economic growth. Kim et al., (2017) found a positive relationship between public debt and economic growth in countries characterized by low levels of corruption.

Relatedly, Malindini (2021) employed the fixed effects GMM in studying institutional quality and economic performance in the Southern African Development Community (SADC) region. The results showed a negative and significant relationship between governance and GDP growth among SADC countries. Megersa and Cassimon (2014) investigated the link between public debt, economic growth and public sector management in developing countries. Using linear baseline regressions, Megersa and Cassimon (2014) found that public debt had a negative effect on economic growth in countries with "weak" public sector management while a positive relationship was established between public debt and economic growth in countries with "strong" public sector management. Employing the threshold model, Pascale and Scrocco (2022) note that a high level of institutional quality moderated the negative impact of public debt on economic performance in the European Union area over the period 1996-2019.

On the contrary, Nguyen (2022) found noted that government debt crowds out private investment in advanced economies when institutional quality is taken into consideration. Private investment plays an integral role in the economic growth and development processes of both developing and advanced economies. This therefore implies that the crowding out of private investment subsequently dampens a nation's economic growth and development aspirations.

3. METHODOLOGY

This paper follows the standard growth literature to investigate the role of institutional quality on External Debt and Economic Growth in SSA economies over the period 2005 – 2021. Economic Growth measured by the considered 28 SSA countries' GDP is the dependent variable with various independent variables namely: External Debt (ED), Foreign Direct Investment (FDI), Inflation (INF), and Institutional Quality (IQ). The variable definitions and respective sources are explained forth;

Gross Domestic Product (GDP): Leamer (2009) defines GDP as the market value of goods and services produced within a selected geographic area (usually a country) in a selected interval of time (often a year). Annual GDP percentage growth rate aggregates of GDP at market prices are based on constant 2010 U.S. dollars. GDP data is to be sourced from the World Bank's World Development Indicators (WDIs).

External Debt (ED): Total external debt is debt owed to nonresidents repayable in currency, goods, or services. External Debt is measured as a percentage of the Gross National Income (GNI). External Debt data is obtained from the World Bank's WDIs.

Foreign Direct Investment (FDI). The study looks at the net FDI as a percentage of GDP defined by the World Bank as net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. Foreign Direct Investment is sourced from the World Bank's WDIs.

Inflation (INF): Inflation is a sustained or continuous rise in the general price level or, alternatively, a sustained or continuous fall in the value of money (Labonte, 2011). The study adopts the World Bank's measure of inflation in which Inflation is measured by the annual growth rate of the GDP implicit deflator. Data on inflation is sourced from the World Bank's WDIs.

Institutional Quality (IQ): According to Levchenko (2004), institutional quality means the quality of contract enforcement, property rights, shareholder protection and other related aspects.

The institutional quality indicator is measured using the World Bank's Country Policy and Institutional Assessment (CPIA) which assesses the quality of a country's current policy and institutional framework. Specifically, this study makes use of the CPIA on

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debt policy rating which is rated on a scale of 1 – 6. A 1 rating implies a very weak performance while a 6 rating implies a very strong performance.

The study used data from World Development Indicators (WDI) and World Governance Indicators (WGI), both provided by the World Bank.

4. MODEL SPECIFICATION

The relationship between economic growth and the predictor variables is expressed in equation 1.

$$GDP = f(ED, FDI, INF, IQ)\text{……………………………………………………} (1)$$

Following the standard growth regression model by Siddique et al., (2016), the External debt-economic growth nexus is modelled as in equation 2,

$$GDP_{it} = \beta_0 + \beta_1 ED_{it} + \beta_2 FDI_{it} + + \beta_3 INF_{it} + + \beta_4 IQ_{it} + \varepsilon_{it}\text{………………………………………………………………………} (2)$$

Expectations; $\beta_2, \beta_4 > 0 \quad \beta_1, \beta_3, < 0$

Where i and t represent the number of countries and time periods respectively, i = 28 SSA countries while t = 2000 – 2021 and ε is the error term. The remaining variable terms remain as defined prior. ED and INF are expected to have a negative impact on GDP. On the other hand, FDI and IQ are expected to have a positive relationship with GDP. With the exception of IQ, all variables were transformed into natural logarithms.

$$LGDP_{it} = \beta_0 + \beta_1 LED_{it} + \beta_2 LFDI_{it} + \beta_3 LINF_{it} + \beta_4 IQ_{it} + \varepsilon_{it}\text{……………………………} (3)$$

To capture the role of institutional quality in affecting the External Debt – Economic Growth relationship, an interactive term was introduced by multiplying LED and IQ in equation 4.

$$LGDP_{it} = \beta_0 + \beta_1 LED_{it} + \beta_2 LFDI_{it} + \beta_3 LINF_{it} + \beta_4 IQ_{it} + \beta_5 LED * IQ_{it} + \varepsilon_{it}\text{…………………………………………………………………}$$
$$\text{……………………} (4)$$

Expectation; $\beta_5 > 0$

The interactive term (LED * IQ) are expected to have a positive relationship with LGDP. LGDP is the natural logarithm of GDP, LED is the natural logarithm of ED, and LFDI is the natural logarithm of FDI, while LINF is the natural logarithm of INF.

5. ESTIMATION MODEL

The study employs the dynamic panel Generalized Method of Moments (GMM) model proposed by Arellano and Bond (1991) to study the indirect and direct impact of institutional quality on the external debt-economic growth relationship. The GMM has numerous advantages over other techniques like the panel Autoregressive Distributed Lag (ARDL) model. The ARDL would be appropriate if the panel had a large T (number years of study, 22 years) and a smaller N (number of countries under study, 46 countries). Since the current study panel consists of a larger N (number of countries under study) than T (number of years understudy), this study chose the GMM as the appropriate estimation technique.

Furthermore, the GMM model was deemed appropriate for this study given its ability to address simultaneity of bias and country specific effects (Arellano & Bond, 1991). The GMM also has advantages over other models like the pooled Ordinary Least Squares (OLS), Fixed Effects (FE) Model, and the Random Effects (RE) model because of; the GMM controls for endogeneity and measurement errors; GMM handles both observed and unobserved characteristic factors which impact public debt levels; GMM has stable and unbiased estimated coefficients.

6. RESULTS

6.1 Summary statistics

The summary of the descriptive statistics used in the study are presented in Table 1.

Table 1: Descriptive Statistics

	GDP	ED	FDI	INF	IQ
Mean	4.43	46.18	3.99	7.93	3.39
Median	4.71	31.62	2.49	5.14	3.50
Maximum	18.33	429.74	39.81	382.82	4.50
Minimum	-36.39	4.95	-18.92	-8.975	1.00
Std. Dev.	4.04	48.52	5.93	19.92	0.76
Skewness	-2.73	4.59	2.90	14.94	-0.56
Kurtosis	26.89	30.33	15.58	270.47	2.65

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Jarque-Bera	11,917.78	16,491.64	3,809.39	1,436,537.	27.28
Probability	0.00	0.00	0.00	0.00	0.00
Sum	2,107.72	21,980.93	1,899.149	3,776.534	1,616.00
Sum Sq. Dev.	7,762.44	1,118,285	16,712.32	188461.2	271.25
Observations	476	476	476	476	476

Source: Author computations

From the descriptive statistics in Table 1, it is observed that GDP annual growth ranged between -36.39 percent and 18.33 percent. External Debt had mean of 46.18, while Foreign Direct Investment, Inflation, and Institutional Quality had mean of 3.98, 7.93, and 3.39 respectively. With the Jarque-Bera (JB) test P.Values less than zero (0.0) for all the variables assign that the variables are not normally distributed.

6.2 Pairwise correlation

It is necessary to test for multi-collinearity among independent variables of the study as Linearity between two descriptive variables increases their correlation coefficient which in turn increases the estimator variance. Furthermore, as estimator variance increases, coefficients would be meaningless, (Sori, 2012). See Table 2 for pairwiase correlation results.

Table 2: Correlation Matrix

	GDP	ED	FDI	INF	IQ
GDP	1.00				
ED	-0.13	1.00			
FDI	0.11	0.44	1.00		
INF	-0.11	0.02	-0.02	1.00	
IQ	0.24	-0.28	0.001	-0.077	1.00

Source: Author computations

From Table 2, the variables are not highly correlated as all the values are less than 0.8 – threshold for determining collinearity among the variables.

6.3 Unit root test

Before estimating the model, the paper first subjects the variables to unit-root test to determine the stationarity of the variables. The results of the unit root test are presented in Table 3 below.

Table 3: Unit root test results at levels and first difference

Variable	Levels		First Difference	
	Statistic	p-value	Statistic	P-Value
LGDP	-0.81835	0.2066	-8.46800	0.0000
LED	1.76072	0.9609	-6.82918	0.0000
LFDI	-2.28121	0.0113	-7.32147	0.0000
LINF	-4.34070	0.0000	-11.1448	0.0000
IQ	-0.79803	0.2124	-6.63654	0.0000

Source: Author computations

Only LINF and LFDI were stationary both at levels and first difference. All other variables namely LGDP, LED and IO were only stationary at first difference as seen in Table 3.

6.4 Estimation results

Following the unit root test, the paper employed the GMM to estimate the relationship between external debt and economic growth in Sub-Saharan Africa with a focus on the role of Institutional Quality using equations (3) and (4).

Results from the GMM estimation of equations (3) and (4) are presented in Table 4 and Table 5 respectively. These results show how the independent variables (LED –External Debt; LFDI – Foreign Direct Investment; LINF – Inflation; & IQ – Institutional Quality) affect the dependent variable (LGDP – Economic Growth). Table 4 shows the direct impact of external debt and institutional

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quality while Table 5 extends to show the indirect role played by institutional quality in affecting the nexus between external debt and economic growth.

Table 4: Empirical results (before interacting institutional quality with external debt)

Variable (Dep. Variable LGDP)	Coefficient	Std. Error	t-Statistic	Prob.
LED	-0.014842	0.038905	-0.381485	0.7031
LFDI	0.090825	0.028103	3.231791	0.0013
LINF	0.003175	0.032980	0.096274	0.9234
IQ	0.420057	0.042743	9.827411	0.0000

Source: Authors' computations

From Table 4, a negative relationship is observed between External Debt and Economic Growth. A 1% percent increase in External Debt is associated with 1 percent decline in SSA countries' Gross Domestic Product (GDP) at 1% level of significance. This finding is in agreement with Senadza, et al. (2017) who concluded that external debt negatively affects economic growth in SSA. On the other hand, results in Table 4 show a positive relationship between Foreign Direct Investment and Economic Growth. A 1% increase in foreign direct investment is associated with a 9% increase in SSA countries' GDP. Relatedly, a positive relationship exists between institutional quality and economic growth as a 1% improvement in institutional quality is observed to lead to a 42% increase in economic growth.

To capture the modifying role played by institutional quality on the relationship between External Debt and Economic Growth, Equation 4 was estimated and results summarized in Table 5.

Table 5: Empirical results (after interacting institutional quality with external debt)

Variable (Dep. Variable LGDP)	Coefficient	Std. Error	t-Statistic	Prob.
LED	-0.259918	0.159615	-1.628411	0.1043
LFDI	0.101161	0.027846	3.632825	0.0003
LINF	0.022646	0.031856	0.710888	0.4776
IQ	-0.050270	0.180902	-0.277884	0.7813
LED_IQ	0.994095	0.477383	2.082386	0.0380

Source: Authors' computations

Results in Table 5 indicate that the interacted term between Institutional Quality and External Debt (LED_IQ) is positively and signficantly related with Economic Growth (LGDP). This finding concurs with Croi and Diaw (2020); Jamel and Malèk (2015); Daud and Podivinsky (2014); and Kim et al., (2017) who found that institutional quality brings about a positive relationship between debt and economic growth in their respective studies. In convergence with results in Table 4, Foreign Direct Investment results continue to show a positive and significant relationship with economic growth as indicated in Table 5.

7 CONCLUSIONS AND RECOMMENDATIONS

This study investigated the impact of external debt on economic growth, by underscoring the role of institutional quality in 28 SSA countries over a period of 17 years (2005 – 2021). Control variables used in the study included; Foreign Direct Investment, Inflation, and the direct impact of SSA institutional quality on economic growth. The study captured institutional quality using the World Bank's Country Policy and Institutional Assessment (CPIA) on debt policy rating which is rated on a scale of 1 – 6. A 1 rating implies a very weak performance while a 6 rating implies a very strong performance.

Results confirm that institutional quality plays a pivotal role in fostering a positive relationship between external debt and economic growth in SSA. This therefore confirms that institutional quality is critical in ensuring that external debt dividends are realized in SSA and also cushioning the SSA economies from the negative impacts of external debt.

Policy makers in SSA countries should therefore strive to improve on institutional quality in regard to external debt management. This should be done at all value chains right form contraction of the external debt, receipt of the external debt, and utilization of the same. This will likely play a key role in fostering proper collection and utilization of external debt and subsequently put SSA economies on a desired trajectory of reaping long-term economic benefits from external debt.

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From the study, other variables like Foreign Direct Investment and Inflation were found to be key determinants of economic growth in SSA. Foreign Direct Investment was found to have a positive and significant relationship with economic growth. This therefore requires SSA policy makers to design policies that enable a conducive environment needed to attract Foreign Direct Investors to SSA economies. These could include but not limited to: fighting corruption, good fiscal and monetary policies, reducing poverty among the populace to boost their purchasing power, and training abundant and competent labor force.

On the other hand, inflation was found to have a negative relationship with economic growth. SSA policy makers should take all the necessary measures required to keep inflation at moderate levels for instance at their set desirable targets.

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APPENDICES

Appendix 1: List of SSA countries studied

1. Benin
2. Burkina Faso
3. Burundi
4. Cabo Verde
5. Cameroon
6. Central African Republic
7. Chad
8. Congo, Rep.
9. Cote d'Ivoire
10. Ethiopia

11. Ghana
12. Guinea
13. Guinea-Bissau
14. Kenya
15. Lesotho
16. Madagascar
17. Malawi
18. Mali
19. Mauritania
20. Mozambique
21. Nigeria
22. Niger
23. Rwanda
24. Senegal
25. Sudan
26. Tanzania
27. Togo
28. Zambia