External Debt Accumulation in Selected ECOWAS and SADC Countries: Implications for Economic Growth

By

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Abstract

The study examined the implication of external debt accumulation on economic growth in selected ECOWAS and SADC countries. Annual data on gross domestic product growth rate, capital, labour, external debt, exchange rates, inflation rates, and trade openness were sourced from the World Development Indicators (WDI)and country-specific data custodians agencies from 1990 to 2023. The study employed the fixed effect model, random effect model and fully modified ordinary least squares (FMOLS) in model estimation. The Hausman test, tested the fixed effect model more appropriate than the random effect model.. The study found that external debt accumulation had a negative and significant implication on economic growth in the selected ECOWAS and SADC countries during the study period. The finding implies that external debt accumulation hinders growth in ECOWAS and SADC countries. Based on the findings, the study recommended that the governments at all levels in ECOWAS and SADC countries should reduce external debt accumulation, and effectively use external debt to enhance economic growth.

Keywords: *External Debt, Economic Growth, ECOWAS, SADC, Fixed Effect Model. FMOLS Gel Classification: E2, E3, G4, H2*

1. Introduction

Conceptually, External debt is a portion of a country's debt that is borrowed from foreign lenders, including commercial banks, governments, or international financial institutions, which is repayable in currency, goods, or services. It is the sum of public and private non-guaranteed long-term and short-term debt (Mohammed, Kassem & Ali, 2024; Ashakah, et. al. 2025). External debt is a basic component for capital formation in the Solow growth model, which indicates why most developing countries borrow from abroad (Martins and Villanueva, 2003; Ekpe & Ogbuabor, 2023; Edo and Ashakah, 2022). The attainment of growth and development of every economy cannot be understood without a contribution of capital formation, and debt or borrowing to argument domestic saving (Naeem et al., 2016).

At the global level, the level of debt accumulation continued to rise even after the debt cancellation under the heavily indebted Poor Countries (HIPC) initiative and the multilateral debt relief (MDR) initiative of 1996. Currently, the International Monetary Fund (IMF) and World Bank stated that half of the low-income countries were highly indebted even though large debt relief was granted to poor countries and the multilateral debt relief initiative between 2000 and 2012 (Berensmann, 2019). According to the World Bank

(2020), the global debt stock at the end of 2018 was $188 trillion. This increase in global debt came from a higher public debt in emerging economies and advanced economies. Furthermore, the long-lasting internal and external problems of developing countries were the most significant causes of debt accumulation. This situation is common in low-income countries in Africa and this current condition is from previous debt crises (Berensmann, 2019).

Currently, Africa has the largest share of global debt due to government spending (International Institutes of Finance, 2024). In African countries, the accumulation of external debt has been driven by several factors. Obvious among these factors are the desirability of additional resources to bridge the resource gap required for development, resources needed to combat insecurity, financing of balance of payments deficits, as well as corruption (Iyoha, 1999). Like most developing countries, ECOWAS and SADC countries are characterized by inadequate internally generated funds. As a result, they resort to external borrowing to meet government expenditures (Ashakah, et al. 2025).

The review of the existing literature revealed that some empirical studies (Ashakah, et al. 2025; Osevwe-Okoroyibo el al. 2024; Mugobera & Mahebe, 2024; Osobase et al. 2023;

Omesi et al. 2023) have investigated the impact of external debt on economic growth. The results of the empirical studies are mixed, and this warrants further studies on the impact of external debt on economic growth. Theoretically, external debt is deemed to boost economic growth when the externally sourced loans are effectively utilized (Osobase et al. 2023). The question of great importance not only from the academia but also from the governmental and industrial settings relates to the impact of external debt on economic growth in the selected ECOWAS and SADC countries.

The purpose of this study is to provide further evidence for policy formulation and implementation capable of promoting economic growth focusing in the selected ECOWAS and SADC countries. The current study employed the Fully Modified Ordinary Least Square (FMOLS) and Fixed effect model. The results obtained from the FMOLS validated the results obtained from the fixed effect model. To the best of my knowledge, this study is the one of the few to employ the fixed effect model and the FMOLS in data analysis for robustness and comparison of results.

The study is organized as follows: the first section provides the background to the study, the second section presents some stylized facts of external debt and economic growth in the selected ECOWAS and SADC countries. Section three summarizes the related literature, the fourth section introduces the data and methodology, the fifth section presents and explains the empirical results of data analysis, and the last section, provides the summary, conclusion and policy recommendations.

2. Some Stylized facts

The study carefully presents, examines and analyses the trend of economic growth and external debt accumulation in the individual selected ECOWAS and SADC countries. These examinations were aimed at understanding the level of external debt accumulation in the selected ECOWAS and SADC countries.

2.1. Stylized Facts of Economic Growth

This subsection presents and analyses some stylized facts of economic growth at the individual selected ECOWAS and SADC countries as well as from the regional and global perspectives.
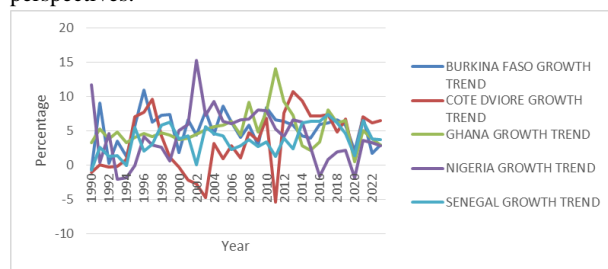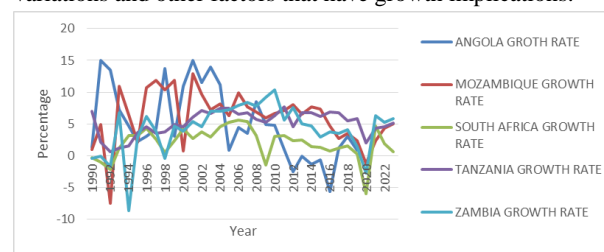

Source: Author's Computation, 2024

Figure 2 .1: Growth Trend of Selected ECOWAS Countries

Economic growth rates in the individual selected ECOWAS

and SADC countries have been unstable over the years. Figure2.1. Shows the trends of economic growth rates of the selected ECOWAS countries for the study. The figures shows that Nigeria had the highest positive growth rate of about 15% in 2002. This followed by about a 14% highest positive growth rate of Ghana's economy in 2011 within the period of the study. Burkina Faso had the highest positive growth rate of about 11% in 1996 and followed by a positive growth rate of about 10% by Cote d'viore's economy. Senegal had its highest positive growth rate of about 7% in 2017 during the period of the study. On the contrary, Cote d'viore had the highest negative growth rate of about 5% in 2011. Nigeria had a negative growth rate of about 1.7 % in 2020. This negative growth rate could be attributed to the effect of Covid 19 epidemic. Senegal had a negative growth rate of about 0.7% in 1990. The other two selected ECOWAS countries (Burkina Faso and Ghana) did not record negative growth rates during the period of the study.

Obviously, the selected ECOWAS countries posted different average growth rates during the period of the study. Burkina Faso posted the highest average growth of 5.24%, Ghana had an average positive growth rate of 5.19%, Nigeria, with the largest economy in ECOWAS, posted a positive growth rate of 4.25%, Senegal posted a positive growth rate of 3. 69% and Cote d'viore had an average positive growth rate of 3.49% during the period of the study, from 1990 to 2023. The selected ECOWAS countries demonstrated growth on the average, but they were all overwhelmed with growth fluctuations. The fluctuations observed among the selected ECOWAS countries could be attributed to economic policies variations and other factors that have growth implications.

Source: Author's Computation, 2024

Figure 2.2: Growth Trend of Selected SADC Countries
Figure 2.2 shows the trends of economic growth rates of the selected SADC countries for the study. The figures shows that Angola had the highest positive growth rate of about 15% in 1991 and 2001. This followed by about a 13% highest positive growth rate of Mozambique's economy in 2001 within the period of the study. Zambia had its highest positive growth rate of about 10% in 2010 and followed by a positive growth rate of about 7% by Tanzania's economy in 1990. South Africa had its highest positive growth rate of about 7% in 2006 during the period of the study.

On the other hand, all the selected SADC countries for the study, except Tanzania had negative growth rates during the period of the study, especially in 2020 due to the effect of the Covid 19 pandemic. The economy of Zambia had a negative growth rate of 8.6% in 1994, Mozambique had a negative growth rate of 7.5% in 1992, South Africa had a negative

growth rate of about 6%, and Angola had a negative growth rate of about 5.6% in 2016.

The selected SADC countries posted different average growth rates during the period of the study. Mozambique posted the highest average growth of 6%, Tanzania had an average positive growth rate of 5.2%, Zambia posted a positive growth rate of 4.3%, Angola posted a positive growth rate of 3. 56% and South Africa had an average positive growth rate of 2% during the period of the study, from 1990 to 2023. Likewise, the selected SADC countries demonstrated growth on average, but they were all overwhelmed with growth fluctuations. The fluctuations observed among the selected ECOWAS countries could be attributed to economic policy variations and other factors that have growth implications for the individual countries.

2.2. Stylized Facts of External Debts

This subsection presents and analyses some stylized facts of external debt at the individual selected ECOWAS and SADC countries.

Figure 2.3 shows the trends of external debt stocks of each of the selected ECOWAS countries for the study. Nigeria had external debt stock of about 1.2 trillion USD (1,369, 303,379,701.00 USD), Ghana had external debt stock of about 556 million USD (555,884,785,044.30 USD), Cote d'Ivoire had a total debt stock of about 514 million USD (513,816,793,353.00 USD), Senegal had a total external debt stock of about 268 million USD (267,784,536,741.00 USD) and Burkina Faso had a total external debt stock of about 155 million USD (155,064,105,807.70).
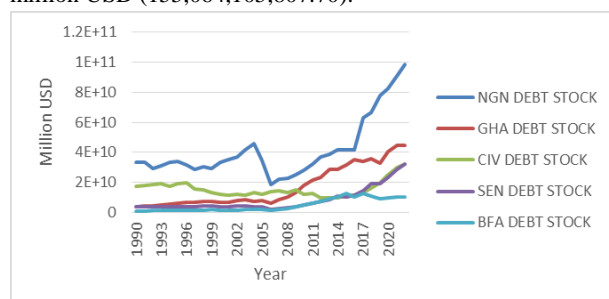
Source: Author's Computation, 2024

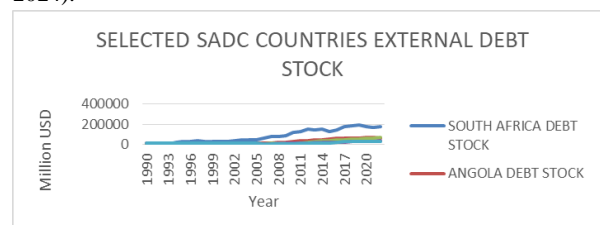**Figure 2. 3: Trends of Selected ECOWAS Countries External Debts Stock**

Figure 2.3 shows that Nigeria had the highest external debt stock among the selected ECOWAS countries with a total external debt stock of about 1.2 trillion USD. Ghana followed with a total external debt stock of about 556 million USD. Cote d'Ivoire follow next with a total debt stock of about 514 million USD. Followed Cote d'Ivoire is Senegal with a total external debt stock of about 268 million USD. The least most indebted among the five selected countries in the ECOWAS sub-region was Burkina Faso with a total external debt stock of about 155 million USD. The analysis showed that Nigeria's total external debt stock was about twice the total of other four selected ECOWAS countries.

It is clear from figure 2.3 that the trends of external debt stock of all the selected ECOWAS countries started rising in 2006.

The rise in the ECOWAS countries' external debt stock can be attributed to the financing of developmental projects toward high economic growth rate. The rise of the ECOWAS countries total external debt stock were higher in 2020 to 2022; this could be attributed to the request for external debts to combat covid19 and treat affected citizens.

Figure 2.4 shows the trends of total external debt stock of selected SADC (Southern African Development Community) countries. South Africa had the highest external debt stock among the selected SADC countries with a total external debt stock of about 2.7 trillion USD (2,674,601,394,393.70 USD). Angola followed with a total external debt stock of about 887 million USD (887, 033, 580, 274. 70). Mozambique followed next with a total debt stock of about 648 million USD (647, 636, 244, 883. 10). Followed Mozambique is Tanzania with a total external debt stock of about 390 million USD (390,413,878,86.90) The least most indebted among the five selected countries in the SADC sub-region was Zambia with a total external debt stock of about 344 million USD (343, 998, 811, 449.90). The analysis showed that South Africa's total external debt stock was about twice the total of other four selected ECOWAS countries.

It is from figure 2.4 that the trends of external debt stock of all the selected SADC countries started rising more and continuously from 2010. The rise in the SADC countries' external debt stock can be attributed to the financing of developmental projects toward high economic growth rate and to combat covid19 and treat affected citizens in 2020 (WDI, 2024).

Source: Author's computation, 2024

Figure 2. 4: Trends of Selected SADC Countries External Debts Stock

The figure 2. 4 shows that the selected countries from the SADC were more indebted than ECOWAS countries during the period of the study. This differences in the external indebtedness of the ECOWAS and SADC countries can be a sources of research idea for economic researchers and policy-makers. The high external indebtedness in the ECOWAS and SADC countries calls for institutional strengthening and debt management strategies to be looked into for the purpose of growth and development.

3. Review of Literature

Several studies have been carried out on the impact of external debt on economic growth. This study reviewed a good number of studies on the subject to have a better understanding of the findings. Akinola and Ohonba (2024) investigated the relationship between foreign direct investment, external debt servicing, and economic growth in Nigeria; investigated how foreign direct investment and

external debt impact Nigeria's economic growth; and analyzed the direction of causality among the three macroeconomic variables. Descriptive statistics, time series autoregressive distributive lag, and robust Granger causality tests were adopted as the estimating techniques. The results showed that from 2011 to 2022, Nigeria's FDI continued to decline, Nigeria's external debt servicing continued to grow on an upward trajectory, and the growth of the GDP has been meandering. ARDL analysis results confirmed that the lag of FDI and current exchange rate exerted positive effects on current economic growth in Nigeria, with a 1%increase in FDI, current external debt, and current exchange rate increasing growth by 1.49%, 1.58%, and 0.02%, respectively. Results from the Granger causality showed that FDI and external debt did Granger cause GDP in Nigeria. The study recommended that policymakers should focus on prudent debt management practices and strive to reduce domestic debt levels in Nigeria.

Osevwe-Okoroyibo, Akpokerere and Onatuyeh (2024) examined the effect of external debt (EXTD) on economic growth (EG) in Nigeria and Ghana from 1981 to 2022, (42) years using the Autoregressive Distributed Lag (ARDL) model. External debt was proxied with foreign debt stock (FDS), foreign debt servicing (FDTS) and exchange rate (EXCHR) in relation to EG proxied with gross domestic product per capital ratio (GDPPCR). Data were obtained from the International Monetary Fund, World Economic Outlook and the World Bank Development Indicators report. The findings revealed that FDS, FDTS and EXCHR had no significant effect on GDPPCR in Nigeria and Ghana, and also indicate that debts had not produced the necessary outcomes to promote growth in general. The study recommended that government in both countries should offer employment opportunities to the vast unemployed in addition to providing social assistance. This could help in funding the enormous infrastructure projects like power, water supply, and others by consuming their products.

Mugobera1 and Mahebe (2024) examined the impact of external debt on in selected Sub-Saharan African (SSA) countries. The 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 indicated that institutional quality influenced a positive and significant relationship between external debt and economic growth. Therefore, policymakers in SSA countries should strive to improve institutional quality regarding external debt management to reap more economic benefits from external debt.

Osobase, Ojo and Ojo (2023) investigated the relationship between external debt and economic growth in Nigeria. The dependent variables utilized was economic growth measured using real gross domestic product while the explanatory variables were total external debt, debt servicing, gross fixed capital formation and inflation rate. The main econometric tools were the Autoregressive Distributed Lag Model (ARDL) estimate and Granger causality tests. The ARDL results indicated that total external debt, gross fixed capital formation and inflation rate had negative significant nexus with economic growth in the short-run but insignificant direct effect in the long-run period. Furthermore, the Granger causality test unveiled bidirectional causation between external debt and real gross domestic product. Based on the findings, the study proposed that the utilization of external loans be aligned with their intended purpose, focusing largely on basic requirements and infrastructure development. Also, the government should frequently and promptly pay the debt service to avoid accumulating more debt.

Omesi, Nkak, and Orlu (2023) examined the nexus between debt, debt service, and economic growth in Nigeria with data ranging from 2012 to 2019 that was extracted from the debt management office and statistical bulletin of the Central Bank of Nigeria (CBN) using regression analysis to test stated hypotheses. The findings revealed that debt with a statistical value of 0.2232, and debt servicing with a statistical value of 0.4134 were not the factors behind economic growth in Nigeria. The study also found out that the independent variables debt (Internal and external), total debt servicing and inflation which served as control variables were on the increase with a statistical value of 0.8445. The study recommended that Government should engage in proper analysis on ways to invest borrowed funds in profitable projects that would yield significant impact on the economic growth and Policy makers should match borrowed funds properly to avoid over servicing of borrowed funds.

Sandow, Oteng-Abayie and Duodu (2022) empirically examined the effect of external debt on economic growth, taking into account heterogeneity in public sector management (PSM) across 31 selected sub-Sahara African (SSA) countries spanning 2005 to 2017 using the system-generalized method of moment (system GMM) and the panel smooth transition regression (PSTR) methods for the analysis. The results without differences in PSM quality showed that external debt had a significant negative effect on economic growth in SSA. However, the effect of external debt on economic growth tended to be positive for SSA countries with strong PSM quality when external debt interacts with PSM quality. Furthermore, the results showed that countries with strong PSM quality experienced higher economic growth than those with weak PSM quality. The PSTR also showed strong evidence of a nonlinear relationship between external debt and economic growth and estimated the indebtedness threshold value at 45% for the selected SSA countries. The implication of the findings calls for governments in SSA to strengthen the quality of public sector management via structural reforms aimed at public sector reform, tax reforms and strengthening debt management capacity to ensure positive growth impact of external debt.

Akanbi, Uwaleke and Ibrahim (2022) investigated the relationship between external debt service and economic growth in Nigeria from 1981 to 2020 using the Auto-Regressive Distributed Lags (ARDL) model. The ARDL bound test results showed there was co-integration. The speed of change between the short-run and long-run of the co-

integrating equations was 88.86%. The study used debt overhang theory, the neo-classical theory and endogenous theory as the theoretical framework. The study provided evidence of a negative relationship between external debt service and economic growth although this was not statistically significant. The result showed resource depletion effect of external debt services on growth. External debt stock had a positive but not significant relationship with growth. There was a positive but not significant relationship between external reserves to external debt ratio with growth. Debt service to export ratio had a positive relationship with growth. The study recommended that policy makers in Nigeria should develop a methodology to compare the return on external debt to be incurred with the cost of debt so that gains that may eventually offset the cost of debt service.

Osadume and Ovuokeroye (2021) examined the relationship between external debt, external reserves , total debt service costs and Nigeria's economic growth and how these variables impact on the Nigerian transport economy employing profligacy theory. The study used secondary data from 1979 to 2019. The econometric techniques used include OLS, Granger causality and Engle-Granger cointegration at a 0.05 confidence level. The results showed that EXDT had a statistically significant negative relationship with EXRS, with no statistically significant relationship existing with RGDP and TDS in the short term. All the variables showed significant cointegration over the long term, with the conclusion that the relationship between EXRS and EXDT was negatively significant in the short term, while the other variables were insignificant. The recommendations of the study included, that the government and monetary authorities should reduce the creation of foreign debt for non-reproductive projects in key sectors due to its adverse effect on external reserves, and instead pursue aid, grants and domestic long-term loan options necessary for effective growth of the transport and other key sectors of the economy.

4. Model Specification and Method of Data Analysis

The model was specified based on the assumptions of the neoclassical growth theory. The study specified one model to examine the impact of external debt on economic growth in the selected ECOWAS and SADC countries. The model is specified below:

$$GDPGR_{it} = \alpha_0 + \alpha_1 GCF_{it} + \alpha_2 EMP_{it} + \alpha_3 EXDBT_{it} + \alpha_4 INFL_{it} + \alpha_5 TOPN_{it} + \alpha_6 EXCH_{it} + \mu_{it}$$ ----------------- (1)

Where:
GDPGR=Gross Domestic Product Growth Rate; proxy for economic growth,
GCF = Gross capital formation; proxy for capital
EMP = Employment; proxy for labour
EXDT = Total external debt stock
INFL = Inflation rates
TOPN = Trade openness
EXCH = Exchange rates

i= Individual countries in the selected ECOWAS and SADC countries
t = Time factor
μ = The error term
α= The parameters of the variables

4.1. Method of Data Analysis

The estimation of the models specified for this study as stated in equation 1(one) was achieved using the Fixed Effect model and panel fully modified ordinary least squared- FMOLS (Greene, 2008). These methods are used in estimating long panel data where we have time series observations, t= 1, 2, T on a number of groups, i= 1, 2,…..N. The number of the time series observations (T) is relatively large that we can estimate individual equations for each of the countries. Which is to say, the number of time series observation (T) is greater than the number of cross-section (N); T> N. In a situation of long panel (T>N), GMM methods of estimation may not be appropriate (Wooldridge, 2001). The panel data set can be in stationary form; integrated in order zero [I(0)] , follow unit root process [I(1)] or mixed. The order of integration of the panel data set is not a major problem in the application of Ordinary Least Squares model, Fixed Effect model and Random Effect model (Kennedy, 2008)

The choice of these methods is motivated by the need to deal with heterogeneity or individual effects that may exist in the panel data set. A fixed effect model examines if intercepts vary across group or time period, a random effect model explores differences in error variance components across individual or time period.

The panel fully modified ordinary least squares (PFMOLS) is applied to validate the results obtained from the fixed effect model and random effect model. The PFMOLS is a cointegration estimation technique used to obtain the long run estimates of the parameters in a model. The Johansen and Kao cointegration technique showed the presence of a long-run relationship among the variables. This estimation technique is also suitable for the objectives of the study and following the presence of a long-run relationship among the variables.

Preceding the estimation of the specified regression model, the panel data set for the study was described to ascertain whether the data follow a normal distribution or not. The variables were tested for unit root using Levin, Lin and Chu, LLC (2002); homogeneous unit root procedure and the Im, Pesaran and Shin, IPS (2003); heterogeneous unit root testing procedure. The application of cointegration and unit root test to our panel data set was to ascertain the properties of the data.

4.2. The Data and Sources

Secondary annual data on economic growth (GDPGR) capital (GCF), labour (EMPL), external debts (EXDBT), institutional quality (GOVEFF) and inflation rate (INFL) were used in this study. The data were stacked in panel form because of the nature of our study (cross-sectional study). The data were sourced from the World Development Indicators (2024) and the home country's data custodians such as the Central Banks (CB) and National Bureau of Statistics (NBS)—theannual

data for the study covered from1990 to 2023. The studyused gross domestic product growth rate (GDPGR) to proxy economic growth as the dependent variable, and capital, labour, total external debt stock as a percentage of GDP,government effectiveness and inflation as the independent variables. Capital and labour were used as the base variables in the Neo-classical growth model, external debt and government effectiveness were used as the primary variables for the study, and the inflation rate was used as a macroeconomic environment control variable.

5. Presentation and Discussion of Results

5.1 Descriptive Statistics

The results of the descriptive statistics of the variables of the study are presented in Table 5.1. These include the mean (average) values of the variables, the median, maximum and minimum values of the variables, the Jarque-Bera statistic, and others.

Table 5.1. Group Descriptive Statistics of Variables

	GDPGR	GCF	EMP	EXDBT	EXCH	INFL	TOPN
Mean	4.345	22.109	61.614	75.512	306.42	43.978	54.615
Median	4.506	21.287	62.592	52.424	91.905	7.2803	53.898
Maximum	15.32	56.395	85.434	581.11	2297.7	4145.1	135.27
Minimum	-23.98	0.0000	0.0000	0.0000	0.0000	-3.2333	0.0000
Std. Dev.	3.967	11.419	15.192	80.235	433.54	285.92	24.686
Skewness	-1.162	0.0463	-1.1708	2.4740	2.3300	11.708	0.2877
Kurtosis	10.91	3.1416	6.6547	11.339	9.8560	151.91	3.8383
Jarq-Bera	937.39	0.3952	259.83	1296.8	947.79	313389	14.259
Probability	0.0000	0.8206	0.0000	0.0000	0.0000	0.0000	0.0008
Sum	1438.2	7318.3	20394	24994	10143	14557	18078
S. Sq. Dev.	5195.1	43031	76170	21244	62026	269787	20110
Observat.	331	331	331	331	331	331	331

Source: Author's Computation

The economic growth rate of the selected ECOWAS and SADC countries was between 15.32% and -23.98% with a standard deviation of 3.967and an average growth rate of 4.345% between 1990 and 2023. The median growth rate within the period was 4.506%. External debt accumulation as a percentage of GDP was between 58.11% and 0.0000% with a standard deviation of 80.24%and an average of 75.512% between 1990 and 2023. The median of external debt within the period was 52.42%. This showed that the external debt accumulation in the ECOWAS and SADC countries was very high during the period of the study. Gross capital formation as a percentage of GDP, which proxied capital in the model was between 56% and 0.00% with an average of 22% during the period of the study. The median value of gross capital formation was 21% and a standard deviation of 11%. Labour as a percentage of the working-age population, which was

proxied by the employment rate was between 85% and 0.00% with an average rate of about 62% during the period of the study. The median value of employment was about 63%.

The exchange rate was between 2297 and 153.8625 with a standard deviation of 433.54and an average value of 306.42between 1990 and 2023. The median exchange rate within the period was 91.90572 during the period of the study. The inflation rate in the selected ECOWAS and SADC countries was between 41% and -3% with a standard deviation of about 28%. The average and median values of inflation rate were about 44% and 7% during the period of the study.

5.2. Correlation Coefficients

The Pearson's pairwise correlation coefficients between pair variables of the study are presented in Table 5.2. The coefficients indicate the extent or degree of correlation between pairs of the variables.

Table 5.2: Results of Group Correlation Matrix

Variables	GDPGR	GCF	EMP	EXDBT	EXCH	INFL	TOPN
GDPGR	1	0.147	0.272	-0.168	0.062	0.049	0.197
GCF	0.147	1	0.316	-0.065	0.205	-0.227	0.441
EMP	0.272	0.316	1	0.158	0.291	0.013	0.114
EXDBT	-0.168	-0.065	0.158	1	-0.191	0.268	0.137

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EXCH	0.062	0.205	0.291	-0.191	1	-0.093	-0.215
INFL	0.049	-0.227	0.013	0.268	-0.093	1	-0.250
TON	0.197	0.441	0.114	0.137	-0.215	-0.250	1

Source: Author's Computation

Focusing on the dependent variable of interest, which is the growth rate of the selected ECOWAS and SADC countries, (GDPGR), it can be observed that gross capital formation is positively correlated with the growth rate. Though the coefficients is quite low (14%), signifying weak correlation and direct relationship. Other explanatory variables are observed to be positively corrected with GDP growth rate except external debt variable.

Gross capital formation (GCF) is positively correlated with gross domestic product growth rate (GDPGR) at about 15%, perfectly and positively correlated with itself, and positively correlated with employment, government effectiveness, exchange rate, foreign direct investment, and trade openness at about 32%, 13%, 21%, 18%, and 44% respectively. GCF is negatively correlated with external debt and inflation at about 8% and 23% respectively.

Employment is positively and perfectly correlated with itself. It is positively correlated with gross domestic product growth rate(GDPGR), gross capital formation(GCF), external debt accumulation(EXDBT), exchange rate (EXCH), inflation rate(INFL), trade openness(TOPN) and negatively related with government effectiveness.

External debt is positively and perfectively correlated with itself. It is positively correlated with employment (EMP), foreign direct investment (FDI), trade openness (TOPN) and inflation rate(INFL) and negatively correlated with gross domestic product growth rates (GDOGR), gross capital formation(GCF), exchange rates (EXCH) and government effectiveness(GOEF).

Exchange rate is positively and perfectly correlated with itself. It is positively correlated with gross domestic product growth rates (GDPGR), gross capital formation (GCF), employment (EMP) and government effectiveness (GOEF). It is negatively correlated with external debt accumulation, foreign direct investment (FDI) and trade openness (TOPN). Inflation is positively and perfectly correlated with itself and positively correlated with gross domestic product growth rate (GDPGR), employment (EMP), external debt accumulation (EXDBT) and foreign direct investment (FDI). Inflation rate is negatively correlated with gross capital formation (GCF), exchange rates (EXCH), and trade openness (TOPN).

Trade openness (TOPN) is positively and perfectly correlated with itself and positively correlated with gross domestic product growth rate (GDPGR), employment (EMP), external debt accumulation (EXTDBT), government effectiveness(GOEF) and foreign direct investment(FDI). It is negatively related with exchange rates (EXCH) and inflation rates (INFL).

Overall, an examination of the various correlation coefficients reveals that the coefficients were mainly less than 0.50. It was a pointer to the possibility that regression models estimated with the variables might not suffer the problem of multicollinearity which is usually associated with highly correlated variables.

5.3 Unit Root Tests

Before estimating the specified models, the variables were tested for unit roots to ascertain whether they were stationary. The Augmented Dickey-Fuller, Levin, Lin & Chu, Im, Pesaran and Shin, PP - Fisher Chi-square and ADF - Fisher Chi-square unit root testing processes were used. The results of the panel unit root test are presented in Figure 8.

Table 4.3. Results of Unit Root Tests

Variable	LLC Test/ (Prob.)	IPS Test/ (Prob.)	ADF/FiTest (Prob.)	PP Fisher/ (Prob.)	LLC Test/ (Prob.)	IPS Test/ (Prob.)	ADF/FiTest/ (Prob.)	PP Fisher/ (Prob.)	
Variables	Level Test Results				First Difference Test Results				Remark
GDPGR	-3.6809/ 0.0001	-3.9783/0.0000	48.7776/0.0003	121.74/0.0000	N/A	N/A	N/A	N/A	I(0)
GFCF	0.93459/0.8250	0.33634/0.6317	20.6394/0.4186	25.6343/0.1782	3.68098/0.0001	3.97832/0.0000	48.777/0.0003	121.74/0.0000	I(1)
EMP	28.0644/1.0000	0.3698/0.6443	18.609/0.5473	240.56/0.5123	-11.2495/0.0000	-9.5393/0.0000	123.78/0.0000	173.31/0.0000	I(1)
	-	-	15.0909/0.	16.5418/0.	-	-	50.4705/0.	127.52/0.0	

EXTDEBT	0.41681/0.3384	0.0041/0.5016	7712	6825	7.63948/0.0000	3.67671/0.0001	0002	000	I(1)
EXCH	3.56870/0.9998	2.91204/0.9982	19.8289/0.4687	16.3025/0.6977	-3.92266/0.0000	-6.12222/0.0000	93.4405/0.0000	137.179/0.0000	I(1)
INFL	-.4.73103/0.0000	-5.44725/0.0000	67.6287/0.0000	84.0618/0.0000	N/A	N/A	N/A	N.A	I(1)
TOPN	-1.6895/0.0456	-1.87239/0.0306	32.8092/0.0354	33.0337/0.0335	N/A	N/A	N/A	N/A	I(0)

Source: Author's Computation

The four tests showed that the variables considered for the study were integrated of different orders. Gross domestic product growth rate (GDPGR) and trade openness were integrated of order zero while gross capital formation (GCF), employment, (EMPL), external debt (EXTDEBT), exchange rate (EXCH), and inflation rate (INFL) were integrated in order one. It could be inferred therefore from the panel unit root tests that the variables were of mixed order of integration.

5.4. Panel Co-integration Tests
The study conducted the Kao co-integration tests to determine the existence of a long run relationship among the variables. The results of the co-integration test presented in Tables 5.4

proved the existence of a long-run relationship among the variables. (Ashakah & Wanogho 2021).

Table 4.4: Results of Kao Cointegration Test

	t-statistic	Probability
ADF	-4.388926	0.0000
Residual variance	17.42128	
HAC variance	6.177314	

Sources: Author's Computation

5.5 Model Estimation Results
The results of model estimation using the fixed effect (FE) model and the fully-modified ordinary least squares (FMOLS) are presented in Tables 5.5 and the results of Hausman test in

Table 4.5: Results of Model Estimation
Dependent Variables: GDPGR
Sample: 1990-2023

	Fixed Effect Model		Random Effect Model		Panel Fully Modified OLS	
Variable	Coefficient	t-statistic/Prob	Coefficient	t-statistic/Prob.	Coefficient	t-statistic/Prob.
GCF	-0.044356	-1.803281/ 0.0723	-0.027201	-1.209233/ 0.2274	-0.053292	-1.818583/ 0.0699
EMP	0.043611	2.245468/ 0.0254	0.068452	4.253945/ 0.0000	0.182629	2.294935/ 0.0224
EXDBT	-0.023234	-7.403862/ 0.0000	-0.018661	-6.641547/ 0000	-0.021339	-5.867154/ 0.0000
INFL	0.003414	4.416083/ 0.0000	0.003037	4.012522/ 0.0001	0.003618	4.072697/ 0.0001
TOPN	0.045069	3.857749/ 0.0000	0.044717	4.2500801/ 0.0000	0.046954	3.227149/ 0.0014
EXCH	-0.00030	-0.160036/ 0.8730	-1.390500	-0.022351/ 0.9822	7.48E.05	0.077545/ 0.9382
C	1.807464	1.361141/ 0.1744	-0.448823	-0.419440/ 0.6752		
R^2	0.270910		0.1947		0.264250	
R^{-2}	0.236840		0.1800		0.228764	
F-st.	7.951662		13.287			
P.(F-st.)	0.000000		0.0000			
D.W sta.	1.592527		1.4147			

Source: Author's Computation

5.5.1 Model Selection Criteria
Table 5.6 : Hausman's Test Results

Null Hypothesis: Random Effect Model is Appropriate

Test Summary	Panel A: Model 1
Chi-Sq. Statistic	13.750516

Chi-Sq. d.f	6
Probability	0.0326

Source: Author's Computation, 2025

The Hausman's test was adopted as the selection criteria between the fixed effect and random effect models in the discussion of model estimation results (Nguyen and Le (2015). The results of the Hausman's test presented in Table 4.6 showed that the fixed effect model was more appropriate for estimating the specified. We rejected the null hypothesis that the random effect model was more appropriate when the probability of the cross-section Chi-Sq. statistic was 5% and below. We accepted the null hypothesis that the random effect model was more appropriate when the probability of the cross-section Chi-Sq. statistic was more than 5%.

5.5.2. Discussion of Model 1 Estimation Results

The individual effects of the explanatory variables on the explained variable were determined based of the coefficient and the sign and size of the p-values of the variables. The results revealed that the key independent variable (external debt) in model one (1) had a significant negative implication for growth in the selected ECOWAS and SADC countries. The coefficient of external debt was estimated at -0.023571 with a probability value of 0.00000. The results showed that external debt was highly significant at the 1% level. Meaning that external debt was a hindrance of economic growth in the selected ECOWAS and SADC countries during the period of the study. This result is agreement with the finding of Odejimi and Ozor (2018) that found s significant negative impact of external debt on economic growth in a study covering countries in West Africa.

Employment, inflation and trade openness had positive and significant (1% level) impact on economic growth during the period of the study. Exchange rate and gross capital formation had no a negative and insignificant impact on economic growth during the period of the study. The findings are in line with the results obtained by Ogbebor and Ashakah, 2021. The Fully Modified OLS results in columns 6 and 7 in table 5.5 validates the results of the fixed effect model.

The empirical results obtained from the estimation of fixed effect model showed that the value of the coefficient of determination (R-square) stands at 27%; indicating that only about 27 percent of the systematic variations in the dependent variable – GDPGR was captured by all the explanatory variables in the model 1. The low R-squared value is however not a major issue (problem) in the result as Iyoha (2004) noted; the coefficients of panel data studies are sometimes low due to heterogeneity effects. The F-statistic (7.9516) and the corresponding p-value (0.00000) indicate that a significant relationship exists between GDPGR and all the explanatory variables in the model 1. The Durbin Watson statistic of 1.5925 suggests there is no likelihood of autocorrelation in the estimated model.

6. Conclusion and Recommendation

The study examined the implication of external debt accumulation on economic growth in selected ECOWAS and SADC countries. Annual data on gross domestic product growth rate, capital, labour, external debt, exchange rates, inflation rates, and trade openness were sourced from the World Development Indicators (WDI)and country-specific data custodians agencies from 1990 to 2023. The study employed the fixed effect model, and the fully modified ordinary least squares (FMOLS) in model estimation. The Hausman test tested the fixed effect model more appropriate in model estimation. The study found that external debt accumulations had a negative and significant implication on economic growth, in the selected ECOWAS and SADC countries during the period of the study. The implication of the finding is that external debt accumulation hinders growth in ECOWAS and SADC countries. Based on the findings, the study recommended that the governments at all levels in ECOWAS and SADC countries should reduce external debt accumulation, and make effective use of external debt to enhance economic growth.

References

1. Akanbi, A., Uwaleke, U. J. & Ibrahim, U. A. (2022). Effect of External Debt Service on Economic Growth in Nigeria. Journal of Service Science and Management, 15, 437-451

2. Akinola, G. W. & Ohonba, A. (2024). The Effects of External Debt and Foreign Direct Investment on Economic Growth in Nigeria. Economies, 12(142), 1-23.

3. Ashakah et. al. (2025). External Debt, Debt Service and Economic Growth: Empirical Evidence from the ECOWAS Sub-Region. International Journal of Economics and Financial Issues, 15(1), 422-430.

4. Berensmann, K. (2019). Why are developing countries facing a renewed debt crisis? German Development Institute.

5. Edo, S. & Ashakah, O. F. (2022). Fiscal Imbalance, Financial Development and External Debt Accumulation in Selected African Countries. International Journal of Monetary Economics and Finance, 15(6), 542-566.

6. Ekpe, J. P. & Ogbuabor, J. E. (2023). Foreign Debt, Institutional Quality, and Economic Performance in Nigeria: An Experimental Evaluation. MPRA Paper No. 119735, 1-23.

7. Iyoha, M. A. (2004). African Economic Integration: Are there lessons for the West African Monetary Zone? *West African Financial and Economic Review, 1*(2), 74-105.

8. Martins, N. C., & Villanueva, E. (2003). The impact of interest-rate subsidies on long-term household debt: Evidence from an extensive program.

9. Mohammed, S. S., Kassem, G. M. & Ali, (2024). Financial Inclusion, Institutional Quality and Economic Growth in Sub-Saharan African

Countries. Energy Research Letter, 4, 1-5.

10. Mugobera, R. & Mahebe, D. (2024) External Debt and Economic Growth Nexus in Sub-Saharan Africa: the Role of Institutional Quality. Journal of Economics, Finance and Management Studies, 7(6). 3453-3462

11. Naeem, M. Z., Akhlaque, S., & Ashiq, R. (2016). External debt and external rate of interest: An empirical analysis of Pakistan. Bulletin of Business and Economics (BBE), 5(3), 116–125.

12. Odejimi, P. O. & Ozor, D. L. (2018). Effects of Debt on Economic Growth in West Africa. International Journal of Economics, Commerce and Management, 11(1), 224-243

13. Ogbebor, T. O. & Ashakah, O. F. (2021). Access to Electricity and Economic Growth in Sub-Sahara Africa: Is There an Energy-Growth Nexus? Journal of Economics and Allied Research, 6(1), 103-119.

14. Omesi, I. Nkak, P. & Orlu, C. (2023). Debt, Debt Servicing, and Economic Growth: An Empirical Analysis of Nigeria. Journal of Business and Management, 23(5), 44-49.

15. Osadume, R. C. & Ovuokeroye, E. U. (2021). External Debt, External Reserves, Debt Service Costs, and Economic Growth: Implications for the Nigerian Transport Sector. Scientific Journal on Transport and Logistics, 12(1), 182-191.

16. Osevwe-Okoroyibo, E. E., Akpokerere, O. E. & Onatuyeh, A. E. (2024). External Debt and Gross Domestic Product in Nigeria and Ghana. African Banking and Finance Review Journal, 9(9), 162-171.

17. Sandow, J. N, Oteng-Abayie, E. F. & Duodu, E. (2022). External debt and economic growth in Sub-Saharan Africa: does heterogeneity in the quality of public sector management make a difference? *Heliyon,* 8, 1-9.