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Public Debt and Economic Growth in Nigeria

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ABSTRACT

This study investigates the impact of public debt on economic growth in Nigeria and to examine if debt service exert a statistically significant positive or negative effect on with economic growth in Nigeria using time series data covering 1981 to 2024 collected from the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics and World Bank data. The study employed multiple regression analysis using the Autoregressive Distributed Lag (ARDL) model, complemented by descriptive statistics. The findings revealed that domestic debt exerts an adverse influence on economic growth in Nigeria. Specifically, a one percent increase in domestic debt is associated with a 0.03 percent decline in economic growth. Similarly, the coefficient for external debt was also negative, indicating that external borrowing adversely affects Nigeria's economic performance. These results suggest that both domestic and external debt, when not efficiently managed, can hinder the country's growth trajectory. Based on the results of the study, it is recommended that the government should ensure its domestic debts are effectively controlled. The government should also moderate its external debt as the economy seems too weak to absorb shocks from external debt service.

Keywords: Public debt, domestic debt, external debt, economic growth
JEL classification: H63, O40, E62, O55, F34

1. INTRODUCTION

One of the primary objectives of any nation is to attain sustained economic growth and "macroeconomic stability, which includes ensuring full employment, price stability and a favourable balance of payments. In the pursuit of these objectives, governments typically employ a mix of fiscal and monetary policy instruments to promote economic productivity, close infrastructure gaps and reduce socio-economic disparities (Apere, 2014). However, in developing economies like Nigeria, persistent budget deficits and inadequate domestic savings frequently compel the government to resort to borrowing, both domestically and externally, as a significant source of development finance (Egbetunde, 2012). This has significantly increased the country's public debt burden over the years.

The Nigerian economy, despite its vast resource endowment, continues to grapple with challenges of sluggish growth, high unemployment, low per capita income and

an overreliance on oil exports, which exposes the country to external shocks. The structural imbalance between government revenue and expenditure has widened over the decades, necessitating increased borrowing to finance critical developmental needs. According to the Central Bank of Nigeria (2022), Nigeria's total public debt stock rose from ₦137.58 billion in 1987 to a staggering ₦31.01 trillion ($85.9 billion) as of June 2020, representing an 8.31% increase within a single quarter compared to ₦28.63 trillion in March 2020. More concerning is the growing debt service burden, which stood at ₦1.58 trillion in 2016 and continues to rise, often consuming a significant share of national revenue.

Traditional economic theory posits that public debt can contribute positively to economic growth when it is effectively managed and allocated to productive sectors such as infrastructure development, education and healthcare. However, in Nigeria's case, the rising debt levels have not translated into proportional economic growth. Instead, much of the borrowed funds designed to finance recurrent expenditures and debt servicing obligations, limiting their developmental impact. For instance, (Anyanwu, 1998; Sanni, 2007) observed that Nigeria's fiscal operations over the years have led to widening deficits, increased domestic interest rates, crowding out of private investment and a reduction in national output.

The debt overhang theory posits that excessive debt discourages current and future investments, as potential investors anticipate increased taxation or inflationary pressures to finance repayments. This theoretical concern is demonstrated in Nigeria's reality, where the economy faces dual challenges of weak capital formation and declining productivity. As public debt mounts, government revenue is increasingly channeled towards debt servicing rather than capital expenditure, thereby undermining the country's long-term growth prospects (Stiglitz, 2002). The situation is aggravated by the volatility in oil prices Nigeria's main source of foreign exchange earnings leading to recurrent fiscal and current account deficits, commonly known as the twin deficits phenomenon.

The motivation for this study stems from the urgent need to empirically investigate the actual impact of public debt on Nigeria's economic growth within the context of rising debt stock, increasing service costs and poor infrastructural and human development outcomes. While public debt in itself is not inherently harmful, its misapplication and the failure to channel it into growth-inducing sectors make it imperative to re-examine its effectiveness in driving Nigeria's development agenda. Despite decades of borrowing, Nigeria continues to grapple with weak economic indicators, including a GDP growth rate of just 2.5% as of 2022, an unemployment rate exceeding 33% and a poverty headcount ratio of over 40% (World Bank, 2023). These statistics raise critical questions about the efficacy of borrowing and its alignment with the country's development priorities.

Thus, this study is timely and necessary. It aims to assess the relationship between public debt and economic growth in Nigeria, with the intention of offering policy-relevant recommendations on how public debt can be better managed and channeled to stimulate sustainable economic growth. Understanding this dynamic is essential not only for effective fiscal policy formulation but also for promoting economic resilience and achieving inclusive development in the years to come.

2. LITERATURE REVIEW

2.1. Conceptual literature

2.1.1. Debt

Debt, according to (Oyejide et al., 2004), refers to resources or funds utilized by an organization that are not provided by its owners and do not otherwise belong to them. It is a liability represented by a financial instrument or other formal equivalent.

2.1.2. Debt servicing

Debt service refers to the total amount required within a specific period to repay the loan principal and meet interest payment obligations. Debt servicing is the required payments of both principal and interest in respect of outstanding debts (Adesola, 2009) defines debt servicing as the total amount required to repay the loan principal and interest at a specified point in time.

2.1.3. External Debt

External debt defined as the portion of a country's debt that is obtained from foreign sources, such as international corporations, foreign governments, or financial institutions. External debt refers to the portion of a country's total debt that is owed to foreign creditors, including international financial institutions, foreign governments and private external lenders. The debtors can be the government, corporations or private households.

2.1.4. Internal Debt

The government incurs internal debt, also known as domestic debt, when it borrows from lenders within the country as part of its overall debt obligations. Internal debt complements external debt. Commercial banks and other financial institutions constitute the sources of funds for the internal debt. The government borrows from the citizens through the issuance of bonds and treasury bills Theoretically, this variable is expected to have a positive relationship with economic growth.. The higher the amount of domestic debt sourced by the government, the greater the expenditure that would be committed to the provision of economic growth for the citizenry while the reverse is true (Choong et al., 2010).

2.1.5. Concept of public debt

This is the total amount of money that a country borrows both from external sources and internal sources.

2.1.6. Economic Growth

Economic growth is a rise in the capacity of an economy to produce goods and service, compared from one period of time to another (Hunt, 2007). It is the key policy objective of any government. It is described as the positive and sustained increase in aggregate goods and services produced in an economy within a given time period (Malik et al., 2010). When adjusted for population size, economic growth can be expressed in terms of per capita income, which is calculated by dividing the total value of goods and services produced in a given year by the population of the country during that period. Economic growth can also be expressed in nominal terms, which include the effects of inflation, or in **real terms**, which are adjusted to remove the impact of inflation. (Sulaiman & Azeez, 2012).

2.2. Theoretical Literature

a. Debt Overhang Theory

Krugman developed the concept of debt overhang theory in 1992. The theory explains a situation where the debt of a country is in excess of its future capacity to repay the debt. The theory is anchored on the fact that if the country's repayment capacity is exceeded by the amount of its loan, the expected debt servicing may likely decrease the function of its output level. As a result, a portion of the country's investment income is used to service outstanding foreign debts, while both domestic and new foreign investments are discouraged. The debt overhang theory posits that when a country's debt exceeds its repayment capacity, the burden of debt servicing can crowd out investment and impede economic growth. Debt overhang is a circumstance where the debt burden is so huge that a country cannot secure further debts to finance new project. According to Coccia (2017) the theory posits that public debt and debt servicing affect economic growth by prioritizing debt repayment over other productive public expenditures. Excessive public borrowing has a dual effect on the domestic economy. The first involves the crowding-out effect and an associated increase in interest rates. High interest payment obligations can raise a country's budget shortfall. Huge debt service will hamper growth by reducing the public resources productive spending to stimulate growth (Yusuf & Mohammed, 2021).

b. Neoclassical growth theory

The Neoclassical growth theory is an economic model of growth that outlines how a steady economic growth rate results when three economic forces come into play: labor, capital and technology. The prominent representatives of this school are Alfred Marshall (1842-1924), Carl Menger (1840- 1921), Friedrich von Wieser (1851-1926), Leon Walras (1834-1910), John Bates Clark (1847 –1938), William Stanley Jevons (1835-1882), Irving Fisher (1867-1947). The simplest and most popular version of the Neoclassical growth model is the Solow-Swan growth model. Solow's theory was outlined for the first time in an article entitled A Contribution to the Theory of Economic Growth in 1956 and then developed in the Technical Change and Aggregate Production Function in 1957. The theory postulates that short-term economic equilibrium is a result of varying amounts of labor and capital that play a vital role in the production process. Solow proceeds from the assumption that a necessary condition for equilibrium of the economic system is the equality of aggregate demand and aggregate supply. In his theory, aggregate supply is determined on the basis of the production function of Cobb-Douglas, which expresses the functional dependence between production volumes on the one hand and the factors used and their combinations, on the other.

The theory argues that technological change significantly influences the overall functioning of an economy. Neoclassical growth theory outlines the three factors necessary for a growing economy - investments, workforce and technological progress. However, the

theory puts emphasis on its claim that temporary, or short-term equilibrium, is different from long-term equilibrium and does not require any of the three factors.

The Neoclassical Growth Model argues that capital accumulation in an economy and how people make use of it, is essential for determining economic growth. It further argues that the relationship between capital and labor in an economy determines its total output. Finally, the theory states that technology augments labor productivity, increasing the total output through increased efficiency of labor. Therefore, the production function of the neoclassical growth model is used to measure the economic growth and equilibrium of an economy. The general production function in the neoclassical growth model takes the following form:

$$Y = AF(K, L) \quad (2.1)$$

Where:
Y = Income, or the economy's Gross Domestic Product (GDP)
K = Capital
L = Amount of unskilled labor in the economy
A = Determinant level of technology

2.3. Empirical Literature

Karogol, (2002) investigated both the short-run and long-run relationships between economic growth and external debt service for Turkey during 1956 – 1996. The study employed a standard production function model analyzed using multivariate co-integration techniques. The Vector Autoregression estimates showed that there exists one Co-integrating equation. It also revealed that debt service is negatively related to economic growth in the long-run. The causality test showed unidirectional causality between debt service and economic growth. The study was not conducted for Nigeria; therefore, the results found in Turkey may not be applicable to the Nigerian context due to differences in their economic systems. Clements et al., (2003) examined the channels through which external debt affects growth in low-income countries. Their results suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries (HIPC) would directly increase per capita income growth by about 1 percentage point per annum. Reductions in external debt service could also provide an indirect boost to growth through their effects on public investment.

Furthermore, Audu, (2004) examined the impact of external debt on economic growth and public investment in Nigeria from 1970 to 2002. The empirical investigation was done using the Co-integration test and Error Correction Method. The study shows that debt servicing pressure in the country has had a significant adverse effect on the growth process and past debt accumulation negatively affect public investment. No pre-test was done on the variables.

The study by Abdelmawla & Mohammed, (2005) investigated the impact of external debt on economic growth of Sudan from a period spanning 1978 – 2001. The study showed that export earnings have a significant positive impact while external debt and inflation had negative impact on Sudan's economic growth. Study not related to Nigeria case.

In another study by Adepoju et al., (2007), the autors analyzed the effects of external debt management on the economic growth of Nigeria for a period between 1962 to 2006 using time-series data of the various bilateral and multilateral arrangements. Their study concluded that accumulation of external debt adversely affected Nigeria's economic growth. No cointegration test was carried out to find out if the variables were co-integrated or not.

Previous study by Hameed et al., (2008) on Pakistan analyzed the long run and short run relationships between external debt and economic growth. Annual time series data from 1970 to 2003 was obtained to examine the dynamic effect of GDP, debt service, capital stock and labour force on her economic growth. The study concludes that debt servicing burden has an adverse effect on the productivity of labor and capital, thereby adversely affecting economic growth. Study was also carried out in Pakistan and not Nigeria. As such, the recommendations may not be effective or applicable to Nigeria.

The study by Ayadi, (2008) examined the impact of the huge external debt, with its servicing requirements on economic growth of the Nigerian and South African economies. The Neoclassical growth model which incorporates external debt, debt indicators and some macroeconomic variables was employed and analyzed using both Ordinary Least Square (OLS) and Generalized Least Square (GLS) methods. Their findings revealed negative impact of debt and its servicing requirement on the economic growth of Nigeria and South Africa. This study was a comparative study.

Empirically, Adesola, (2009) investigated the effect of external debt service payment practices on the economic growth of Nigeria. Ordinary Least Square method of multiple regression was used to examine how debt payment to multilateral financial creditors, Paris club creditors, London club creditors, Promissory Notes holders and other creditors relates to gross domestic product (GDP) and gross fixed capital formation (GFCF) using data from 1981 to 2004. The study provides evidence that debt payment to Paris club creditors and Promissory Notes holders are positively related to GDP and GFCF while debt payment to London club creditors and other creditors shows an adverse significant relation to GDP and GFCF. The scope of the study was short to be able to carry out a robust regression analysis.

Empirical studies not related to Nigeria are also reviewed to show evidence from other countries like Choong et al., (2010) who examined the effect of different types of debts on the economic growth in Malaysia during the period 1970 – 2006. Using Co-integration test, the findings suggest that all components of debts have an adverse effect on long run economic growth. The Granger causality test reveals the existence of a short-run causality linkage between all debt measures and economic growth in the short-run. Study not carried out in Nigeria.

The study by Malik et al., (2010) explored the relationship between external debt and economic growth in Pakistan for the period between 1972 – 2005, using time series econometric technique. Their result shows that external debt is negatively and significantly related to economic growth. The evidence suggests that increase in external debt will lead to decline in economic growth. Study not for Nigeria as such the result found in Pakistan would definitely no apply to Nigeria because of the differences in economic system.

On the study to examine whether external debt promotes economic growth in Nigeria (Ogunmuyiwa, 2011) using time-series data from 1970-2007. The regression equation was estimated using econometric techniques such as Augmented Dickey-Fuller test, Granger causality test, Johansen co-integration test and Vector Error Correction Method (VECM). The results revealed that causality does not exist between external debt and economic growth in Nigeria. The scope of the study (1970-2007) was old enough to have impacted a different result. The effect of external debt on economic growth and development of Nigeria employing ordinary least square method of data analysis. They found that external debt burden had an adverse effect on the national income and per capita income of the nation and high level of external debt led to devaluation of the nation's currency, increase in retrenchment of workers, continuous industrial strike and poverty. The use of ordinary least square method without proper pre-test of the variable to ascertain their stationarity level is misleading.

Utomi, (2014) investigated the impact of external debt on economic growth in Nigeria for the period 1980-2012. The study used time series data on external debt stock and external debt service was used to capture external debt burden. The study employed the Augmented Dickey Fuller (ADF) test, Johansen Co-integration, Vector Error Correction Mechanism and Granger Causality Test. The study found an insignificant long run relationship and a bi-directional relationship between external debt and economic growth in Nigeria. The scope differs with that of the present study. The effect of loan servicing on economic growth of Nigeria for the period covering 1981 to 2013. Using the ordinary least square regression method and the Granger Causality Test they found that debt servicing has a positive and significant impact on economic growth. The authors did not carry out a pre-test on the variables before ascertaining which method to use in estimation.

Adamu & Rasiah, (2016) studied the effect of external debt on economic growth in Nigeria. The period of the study covered 1970 to 2013. The method of estimation was ARDL. The findings of the study showed that external debt is detrimental to growth despite the 2006 external debt relief. No pre-test was done to ascertain the use of ARDL.

Ndubuisi, (2017) carried out a study to analyze the effect of external debt on economic growth of Nigeria from 1985 to 2015. The data was analyzed using OLS, Johansen cointegration and error correction test. The study found out that debt service payment has an adverse link with growth. The study used two control variables exchange rate and external reserve. These variables showed a positive and significant connection with growth. The importance of foreign direct investment as a variable was neglected. The influence of domestic debt servicing on the Nigerian GDP covering 2000 to 2016. Using the ordinary least square estimation technique of multiple regression analysis, he found that there is a significant relationship between domestic loan servicing and economic growth in Nigeria. The author did not take into consideration the impact of foreign direct investment as a variable.

Ogbonna et al., (2021) adopted the ARDL model to study the relationship between external debt services and growth. The period of the study was from 1986 to 2018. The study concluded that there is a long run negative and significant link between external debt services and economic growth in Nigeria. The study recommends an optimal use of external debt in Nigeria. The recommendations proffered by the authors do not seem to be clear enough for easy understanding.

3. METHODOLGY

3.1. Model specification

The theoretical foundation upon which this study is based is the neoclassical growth theory which emphasizes the role of labour and capital in the growth process. This is because the neoclassical model is essentially of the same structural form with the Cobb-Douglas production function which is an economic model of growth that outlines how a steady economic growth rate results when three economic forces come into play. Using an AK version of endogenous growth model, Pagano (1993) postulates that the three factors (Labour, Capital and Output) aforementioned in turn increase the rate of economic growth. The extended model predicts that there is an additional efficiency gain caused by the accumulation of human capital as a result of financial openness. To explain the model, it is assumed that aggregate output is a linear function of aggregate capital stock. Our baseline neoclassical model is of the form:

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} \quad (3.1)$$

Where;
Y = Output
A = Total factor productivity or efficiency parameter
K = Stock of capital
L = Labour force
t = time
α = output elasticity of capital
β = output elasticity of labour

3.1.1. Domestic (Internal) debt and economic growth equation

This study is based on the neoclassical growth theory which states that an economic model of growth outlines how a steady economic growth rate results when three economic forces come into play: labor, capital and technology. This study shall examine a modified version of the growth model used by (Ozdemir & Erbil, 2008) where the growth rate of real GDP per capita is regressed on other financial sector indicators and other macroeconomic variables.

$$RGDP = f(CPS, HL, DOD, INF, EXR, INT) \quad (3.2)$$

Where:

RGDP	=	Real Gross Domestic Product in billions of Naira representing output
CPS	=	Credit to private sector in dollars
L	=	Labour (Proxied by secondary school enrolment rate)
DOD	=	Domestic debt in billions Naira
EXR	=	Exchange rate measured in percentage
INF	=	Inflation in percentage
INT	=	Interest rate measured in percent

From equation (3.2) above, credit to the private sector is included in the model because it captures the improvements in the banking sector. Interest rate is included in the model for the study because interest rate according to McKinnon-Shaw hypothesis, leads to increase in savings tha rise in investments and ultimately leading to increase in economic growth. Using a simple aggregate production function framework, shows that interest rate liberalisation can alter the economic growth rate through three main channels: (i) increase in investment resulting from the increase in savings rate; (ii) improvement in the efficiency of capital stock and (iii) improvement in the financial intermediation.

Thus equation (3.2) is as depicted in a more explicit and log-linear or econometric form can be expressed as:

$$lnRGDP_t = \beta_0 + \beta_1 ln(CPS)_t + \beta_2 ln(DOD)_t + \beta_3 L_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_5 INT_t + \varepsilon_t \quad (3.3)$$

Where:
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 are parameters to be estimated
"t = time dimension
ln = Log
ε= Stochastic error term
Log-linearization reduces the computational complexity of macroeconomic models and allows the simultaneous computation of the equations.

3.1.2. External public debt and economic growth equation

This equation shall be anchored on the neoclassical growth theory. This equation shall examine a modified version of the growth model used by (Ozdemir & Erbil, 2008) where the growth rate of real GDP per capita is regressed on other external public debt indicators and other macroeconomic variables.

RGDP = *f*(INT, FDI, EXD, EXR, GFCF) (3.4)

Equation 3.16 can be further expressed econometrically as:

$$\text{RGDP} = \alpha_0 + \alpha_1\text{INT} + \alpha_2\text{FDI} + \alpha_3\text{EXD} + \alpha_4\text{REER} + \alpha_5\text{GFCF} + \varepsilon t \quad (3.5)$$

Presenting equation 3.18 in its log linear form:

$$ln\text{RGDP} = \alpha_0 + \alpha_1\text{INT} + \alpha_2 ln\text{FDI} + \alpha_3\text{EXD} + \alpha_4\text{REER} + \alpha_5\text{GFCF} + \varepsilon t \quad (3.6)$$

RGDP = Real Gross Domestic Product measured in billions Naira
INT = interest rate measured in percentage
FDI = Foreign Direct Investment measured in billion Naira
EXD = External debt measured in billions of dollars
EXR = Exchange rate measured in percentage
GFCF = Gross Fixed Capita formation measured in millions Naira
$\alpha_1, \alpha_2, \alpha_3\ \alpha_4, \alpha_5$, parameters to be estimated

3.2. Sources of data

The relevant data for this study shall be obtained from secondary sources, mainly Central Bank of Nigeria (CBN) Statistical bulletin (Various years), National Bureau of Statistics (NBS) various years, The Federal Ministry of Finance (FMF), National Planning Commission (NPC), publications of the International Monetary Fund (IMF) and the World Bank (IBRD) and other relevant journals and publications. These are the recognized and reliable sources of published data that are valid for information.

3.3. Model estimation technique

The estimation technique used in the above model is the descriptive and the regression analysis which is computed using the Autoregressive Distributed Lag (ARDL)model and the co-integration technique which is an improvement on the classical Ordinary Least Squares technique. The technique was developed in 1997 by Pesaran. It is a standard least squares or linear least squares which is a method for estimating the unknown parameters in a linear regression model, with the goal of minimizing the sum of the squares of the differences between the observed responses in the given dataset and those predicted by a linear function of a set. It also includes the lags of both dependent and the independent variables as regressors and it is employed in this study because both the short run and the long run parameters can be estimated concurrently irrespective of the order of the integration.

Another reason for the choice of this technique is that, first, it is generally argued that most economic series are non-stationary. By non-stationary, we mean that the variables do not have a mean which is constant over time or has a strong trend over time and as such direct application of least squares technique could give spurious results. This causes the results of most OLS regressions to be statistically invalid and challenging to interpret in a theoretical context. It also requires less data points which makes it easy to use.

The generalized ARDL model as well as the short and long-run model is specified as

$Y_t = y_{oi} + \sum_{i=1}^{p} \delta_1 Y_{t-i} + \sum_{i=0}^{q} \beta i \, X_{t-i} + \varepsilon t$

Where Y_t is a vector and the variables in (X'_t) are allowed to be purely I(0) or I(1) or co-integrated; β and δ are coefficients; Y is the constant; i = 1,….,k; p, q are optimal lag orders; εt is a vector of the error terms- unobservable zero mean white noise vector process (serially uncorrelated or independent).

The dependent variable is a function of its lagged values, the current and lagged of other exogenous variables in the model.

The lag lengths for p, q may not necessarily be the same

P lags: used for the dependent variable

Q lags: is used for exogenous variable

However, the cointegration test was carried out to determine if there is a long run relationship between the variables in the model specified (Abang et al., 2024). The cointegration test that was used in this study is the ARDL as stated above and is also known as the bound test. Two critical values known as the upper critical bound and the lower critical bound are computed at a given level of significant. The bounds test is used to determine the presence of cointegration regardless of whether the regressors are I(0) or I(1) against the alternative hypothesis based on the F-statistic is as follows:

:$\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \ldots\ldots\beta_n = 0$

:$\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \ldots\ldots\beta_n \neq 0$

This test used the F-statistic (Bounds test). If the computed F-statistic is greater than the upper bound critical value, the null hypothesis of no cointegration is rejected. Similarly, if the lower critical bound value is greater than the F-statistic, then the null hypothesis will be accepted. If this is discovered then our variables will be said not to be co-integrated in the long run (Abang et al., 2025).

4. RESULTS

4.1. Stationarity (Unit root) test

Table 1 shows the unit root test result. The unit root test was conducted with the aim of establishing the stationarity conditions of the variables. The test was based on the Augmented Dickey-Fuller (ADF) test as well as the Phillips-Perron test. The result of the stationary test below (Table 1) shows that all the variables except real gross domestic product (RGDP), credit to private sector (CPS), real interest rate (RINT), human labour (HL), inflation (INF), Domestic debt (DOD) and EXD (EXD), Foreign Direct Investment (FDI) were not stationary at level. The Phillips Perron test which is a confirmatory test stated same result as ADF. However, upon first differencing, all the variables which did not attain stationarity at level became stationary. Stationarity was achieved for both ADF and Phillips Perron at 5 percent level of significant. With a mixture of stationarity order, that is both I(0) and I(1), the justification for the use of ARDL comes to play.

Table 1: Unit root test result using Augmented Dickey-Fuller (ADF) and Phillips-Perron tests

Variables	ADF			Phillips-Perron		
	Level	1st Difference	Order of Integration	Level	1st Difference	Order of Integration
RDGP	-2.531464	-	I(0)	-2.796295	-	I(0)
CPS	1.460999	-4.211868	I(1)	6.788921	-3.435560	I(0)
RINT	-0.349081	-3.887516	I(1)	-0.423197	-8.064613	I(1)
REER	-3.048145	-	I(0)	-3.192246	-	I(0)
INF	-1.361322	-6.821962	I(1)	-1.623988	-2.640475	I(0)

L	2.849597	-	I(0)	37.08631	-	I(0)
DOD	-0.941954	-5.816266	I(1)	-0.930011	-5.803136	I(1)
EXD	-0.563300	-7.281570	I(1)	-0.503273	-7.284186	I(1)
GFCF	-3.371349	-	I(0)	-2.093806	-	I(0)
FDI	0.827878	-8.634211	I(1)	0.509283	-8-695572	I(1)

ADF test critical test values. Phillip-Peron test critical values

Level: 1st Difference: Level: 1st Difference:

At 5% = -2.938987 5% = -2.938987 At 5% = -2.925169 5% = -2.926622

10% = -2.607932 10% = -2.607932 10% = -2.600658 10% = -2.601424

Source: Author's computation using Eviews 10. (2025)"

4.2. Descriptive statistics

In Table 2 we present the descriptive statistics. The reason for this is to find the statistical properties of the various variables under study. As can be seen, on an average, real gross domestic product (RGDP) stood at "35149.25 billion naira over the period of study. Having a maximum and minimum values of 72322.18 and 13779.26 billion naira respectively. For domestic debt and external debt, statistics as presented in Table 2 shows the value of 29.32758 and -1.057237 respectively. The highest mean value was that of labour (L) with a value of 42505434 while domestic debt recorded the lowest mean with a value of -1.0572. The analysis was also fortified by the values of the skewness and kurtosis of all the variables involved in the models. The skewness is a measure of the symmetry of the histogram while the kurtosis is a measure of the tail shape of the histogram. The bench mark for symmetrical distribution i.e. for the skewness is how close the variable is to zero. An analysis of skewedness of the distribution shows that CPS, GFCF, L, INF, FDI, REER, RGDP and RINT are all positively skewed while DOD and EXD, are negatively skewed.

Table 2. Descriptive statistics

	CPS	DOD	EXD	GFCF	FDI	L	INF	REER	RGDP	RINT
Mean	23311.76	29.33	-1.06	19559	1.06	42505434	18.47	171.53	35149.25	11.18
Median	2160.725	31.90	-0.85	1636	1.20	37993680	12.00	100.86	23688.28	10.11
Maximum	117873.8	53.28	-0.65	748291	1.67	64245813	72.81	622.63	72322.18	23.24
Minimum	27.30	9.13	-1.92	1317.36	0.47	21249840	4.67	49.78	13779.26	5.39
Std. Dev.	34913.34	12.21	0.50	115189	0.42	12373703	16.11	160.22	20812.04	3.95
Skewness	1.32	-0.27	-0.87	6.25	-0.43	0.35	1.89	1.76	0.65	0.91
Kurtosis	3.37	1.96	2.19	40.02	1.55	2.01	5.70	4.70	1.83	3.84
Jarque-Bera	12.16	2.34	6.28	2671.92	4.68	2.51	36.87	26.20	5.26	6.91
Probability	0.00	0.31	0.04	0.00	0.10	0.28	0.00	0.00	0.072	0.03
Sum	955782.1	1202	-43.34	821464.3	43.43	1.62E+09	757.42	7032.90	1441119.	458.29
Sum Sq. Dev.	4.88E+10	5962.915	9.83	5.44E+11	7.00	6.12E+15	10383.65	1026755.	1.73E+10	612.65
Observations	46	46	46	46	46	46	46	46	46	46

Source: Author's computation using Eviews 10 (2025)

4.3. Correlation matrix

The correlation matrix shows the correlation values, which measure the degree of linear relationship between each pair of variables. The correlation values can fall between -1 and +1. -1 means a perfectly negative linear correlation between two variables. 0 means no linear correlation between two variables. 1 means a perfectly positive linear correlation between two variables. From the result as shown in Table 3, the result shows that all the variables that enter the model are positive and are correlated.

Table 3. Correlation matrix

	CPS	DOD	EXD	GFCF	FDI	L	INF	REER	RGDP	RINT
CPS	1.000000									
FODF	-0.063086	1.000000								
FODJ	0.547653	-0.016180	1.000000							
GFCF	0.859530	0.074462	0.642978	1.000000						
FDI	-0.786271	0.033124	-0.461846	-0.795182	1.000000					
HL	0.898497	0.294770	0.627321	0.836764	-0.669112	1.000000				
INF	-0.233578	-0.129443	-0.506268	-0.336265	0.202063	-0.304216	1.000000			
REER	-0.262288	-0.636914	-0.142738	-0.196765	0.137842	-0.533816	-0.083114	1.000000		
RGDP	0.940746	0.172621	0.651421	0.935552	-0.775864	0.969333	-0.317953	-0.427862	1.000000	
RINT	-0.351926	0.271646	-0.479938	-0.446259	0.401970	-0.210185	0.401108	-0.529307	-0.335563	1.0000

Source: Author's computation using E-views 10 (2025)

4.4. Domestic public debt and economic growth equation

4.4.1. Co-integration test

From the result of the unit root test, the variables were stationary at both I(0) and I(1). The ARDL bound test was conducted so as to test if there is any existence of long run relationship among the variables. As seen from the result in Table 4, the calculated F-statistic with the value of 4.140878 is greater than the upper and lower bound critical bound value of all level of significant. This however means that the null hypothesis of no cointegration is rejected while the alternative hypothesis of cointegration is accepted. Thus, there is cointegration and long run relationship between the variables.

Table 4: Cointegration result

ARDL Bounds Test		
Test Statistic	Value	K
F-statistic	4.140878	6

Critical Value Bounds		
Significant	I0 Bound	I1 Bound
10%	1.99	2.94
5%	2.27	3.28
2.5%	2.55	3.61
1%	2.88	3.99

LOWER BOUND @ 5% = 2.27

UPPER BOUND @ 5% = 3.28

Source: Author's computation using E-views 10 (2025)

4.4.2. Long run and short run ARDL analysis of internal (domestic) public debt and economic growth equation

The long run results of the domestic public debt and economic growth is reported in Table 5. From the result and in contradiction with theoretical expectations, an adverse relationship exists between credit to private sector (CPS) and real gross domestic product (RGDP) in Nigeria. The value of the coefficients of (-0.057915) implies that a rise in credit to private sector by one percent will result to a decrease in real gross domestic product by approximately 0.06 percent.

There exists an adverse relationship between real interest rate (RINT) and real gross domestic product (RGDP). This is not consistent with theoretical expectations. Thus, a one percent increase in real interest rate will lead to a 0.035 percent decrease in real gross domestic product. According to the result, domestic debt has a negative but statistically significant relationship with real gross domestic product (RGDP). The result shows that a one percent increase in domestic debt (DOD) will lead to a 0.028 percent decrease in real gross domestic product (RGDP) ceteris paribus. This result supports theoretical expectations.

Real effective exchange rate (REER) has an adverse but statistically significant relationship with real gross domestic product (RGDP) given its probability value of 0.0349. The magnitude of the coefficients shows that a one percent increase in real effective exchange rate will lead to a one percent decrease in teal gross domestic product by 0.003 percent. This is also consistent with theoretical expectations.

Furthermore, inflation (INF) has an adverse coefficient but not statistically significant given its probability value of 0.9693. The result shows that a one percent increase will lead to a 0.015569 decrease in real gross domestic product (RGDP). The result of the coefficient of labour shows that a one percent increase will lead to a 0.22663 increase in real gross domestic product.

The short run results of domestic debt and economic growth equation is reported in Table 6. The error correction mechanism (ECM) has the correct sign and size. The ECM coefficient of -0.351078 means that it takes about 35 percent for the short run disequilibrium to adjust to the long run equilibrium within the year. The t-statistics of -8.916550 showed that the error correction term is statistically significant at five percent level of significant. R-squared value of 0.961571 and the value of R-squared adjusted of 0.884714 means that about 96 percent of total variation in the RGDP is explained by credit to private sector (CPS), real interest rate (RINT), domestic debt (DOD), labour (L), inflation (INF) and real effective exchange rate (REER) and only four percent was unexplained which may be accounted for by other factors not included in the model. The Durbin Watson (D-W) statistics of 2.75 means no autocorrelation in the model. Therefore, the results can be used for forecasting and economic simulation.

The one and two period lag of real gross domestic product was both negative and positive and where both statistically significant with a coefficient of -0.487 and 0.448 percent respectively. Hence a one percent increase in the one and second period lag of real gross domestic product (RGDP) will lead to a 0.487 percent decrease and 0.447 percent increase respectively in current period of real gross domestic product. The relationship between credit to private sector (CPS) and real gross domestic product (RGDP) in the short run is negative in both the current period and the second period lag while the first period lag was positive. They are however statistically significant. Hence a one percent increase in credit to private sector will lead to a 0.21 percent decrease in real gross domestic product and 0.091 percent increase after the first lag and again decrease by 0.087 percent decrease in real gross domestic after the second lag.

The relationship between real interest rate (RINT) and real gross domestic product (RGDP) in the short run is positive both in the current, after first, second and third period lags. All are statistically significant. Hence a one percent increase in real interest rate (RINT) will lead to a 0.0073, 0.017, 0.018 and 0.016 percent increase in real gross domestic product (RGDP) during the current, first, second and third lag period. The result also reveals that there an adverse relationship exists between inflation (INF) and real gross domestic product (RGDP). Thus, a one percent increase in inflation (INF) in the first and third period lag will lead to a decrease in 0.00007 and 0.002 percent in real gross domestic product. While the second lag period of inflation (INF) has a positive relationship with real gross domestic product, indicating that a one percent increase in inflation will lead to a 0.003 percent increase in real gross domestic product.

For domestic debt (DOD), the result shows that there exist a positive relationship between domestic debt and real gross domestic growth in the current and second lag period while the first lag period shows an adverse relationship. Both the current and and second lag period are statistically significant as the value of their p-value is less than the 0.005 percent level of significant. The result suggests that the current real effective exchange rate (REER) have an impact on real gross domestic product (RGDP). It is positive in the current period but negative after the first, second and third period lag. It is not statistically significant in the current period, but it became statistically significant after the first, second and third period lag. The result shows that a one percent increase in real effective exchange rate in the current period will lead to a rise in real gross domestic product (RGDP) by 0.0004 percent and also a decrease in real gross domestic product by 0.00059, 0.0006", 0.00063 percent in the first, second and third period lag. This is inconsistent with theoretical expectations.

Table 5. Long run ARDL result of domestic public debt (DOD) and economic growth equation

Dependent variable: LRGDP				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LCPS	-0.057915	0.298487	-0.194028	0.8538
RINT	-0.035189	0.031577	-1.114411	0.3158
L	0.122663	0.288004	0.425906	0.6879
DOD	-0.027642	0.011050	-2.501542	0.0544
INF	-0.015569	0.384412	-0.040500	0.9693
REER	-0.003459	0.001204	-2.872033	0.0349
C	11.98789	1.202744	9.967118	0.0002

Source: Author's computation using E-views 10 (2025)

Table 6. Short run ARDL (Error Correction) result of domestic public debt (DOD) and economic growth equation

Dependent variable: D(LRGDP)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LRGDP(-1))	-0.487438	0.129343	-3.768569	0.0130
D(LRGDP(-2))	0.446718	0.084738	5.271761	0.0033
D(LCPS)	-0.208547	0.029841	-6.988517	0.0009
D(LCPS(-1))	0.091612	0.025141	3.644235	0.0148
D(LCPS(-2))	-0.087137	0.022693	-3.842746	0.0121
D(RINT)	0.007344	0.001429	5.137892	0.0037
D(RINT(-1))	0.017316	0.002120	8.167388	0.0004
D(RINT(-2))	0.018430	0.002387	7.722053	0.0006
D(RINT(-3))	0.016881	0.002371	7.119372	0.0008
D(LL)	0.108987	0.013559	8.038133	0.0005
D(LL(-1))	0.186842	0.021065	8.869869	0.0003
D(LL(-2))	0.184240	0.022521	8.180794	0.0004
D(LL(-3))	0.079620	0.014598	5.454261	0.0028
D(INF)	0.010471	0.001237	8.461579	0.0004
D(INF(-1))	-7.33E-05	0.000462	-0.158608	0.8802
D(INF(-2))	0.002681	0.000595	4.505710	0.0064
D(INF(-3))	-0.002138	0.000464	-4.604910	0.0058
D(LDOD)	0.129529	0.019193	6.748768	0.0011
D(LDOD(-1))	-0.014321	0.013538	-1.057851	0.3385
D(LDOD(-2))	0.159578	0.018027	8.852317	0.0003
D(REER)	4.17E-05	5.36E-05	0.778689	0.4714
D(REER(-1))	-0.000594	9.83E-05	-6.040141	0.0018
D(REER(-2))	-0.000599	7.21E-05	-8.315219	0.0004
D(REER(-3))	-0.000635	6.58E-05	-9.660424	0.0002
CointEq(-1)*	-0.351078	0.042374	-8.916550	0.0003
R-squared	0.961571	Mean dependent var		0.044672
Adjusted R-squared	0.884714	S.D. dependent var		0.036274

S.E. of regression	0.012316	Akaike info criterion	-5.730432
Sum squared resid	0.001820	Schwarz criterion	-4.641974
Log likelihood	131.0130	Hannan-Quinn criterion.	-5.346700
Durbin-Watson stat	2.051987		

* p-value incompatible with t-Bounds distribution.

Source: Author's computation using E-views (2025)

4.4.3. Stability Test for domestic debt (DOD) and economic growth equation

The Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) tests was applied so as to examine the stability of the parameter after the ECM models was estimated. Figure 1 and 2 shows that both the CUSUM and CUSUMSQ statistics falls within the critical bound of ± five percent level of significant.

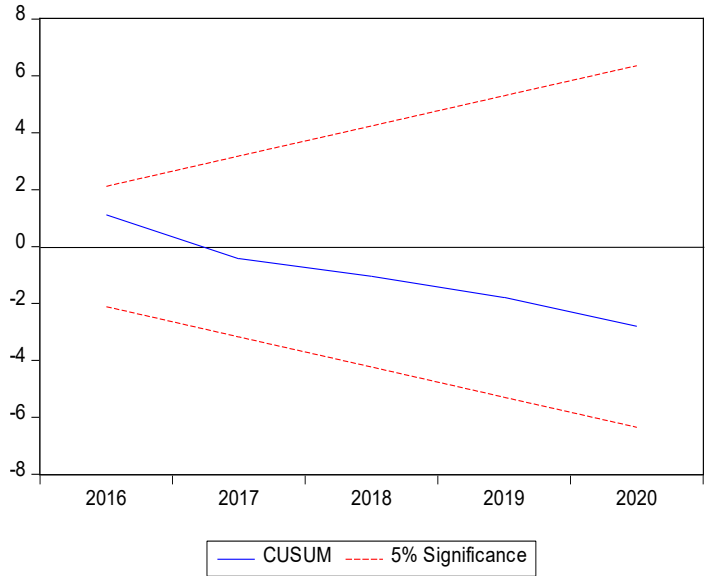

Figure 1. CUSUM Squares test of domestic public debt and economic growth; Author's computation using E-views (2025)

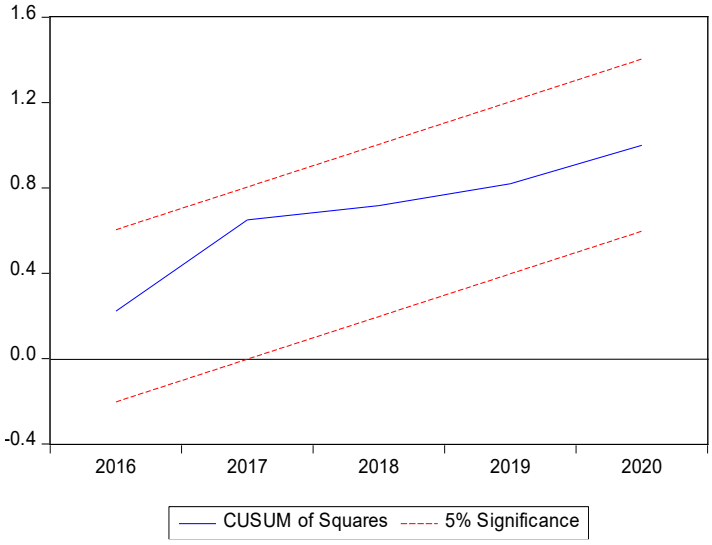

Figure 2. CUSUM of Squares test of domestic public debt and economic growth; Author's computation using E-views (2025)

This plot means that the coefficients of the results been estimated are in the long run during the period 1980 to 2022 and that there exists a long run relationship between domestic debt (DOD) and economic growth in Nigeria. This thus implies that the coefficients are changing gradually.

4.5. External debt economic growth equation

4.5.1. Co-integration test

From the result of the unit root test, the variables were stationary at both I(0) and I(1). The ARDL bound test was conducted so as to test if there is any existence of long run relationship among the variables. As seen from the result in Table 7, the calculated F-statistic with the value of 8.037383 is greater than the upper and lower bound critical bound value of all level of significant. This however means that the null hypothesis of no cointegration is rejected while the alternative hypothesis of cointegration is accepted. Thus, there is cointegration and long run relationship between the variables.

Table 7. Cointegration result

ARDL Bounds Test		
Test Statistic	Value	K
F-statistic	6.276734	5

Critical Value Bounds		
Significant	I0 Bound	I1 Bound
10%	2.08	3
5%	2.42	3.38
2.5%	2.7	3.73
1%	3.06	4.15

LOWER BOUND @ 5% = 2.42
UPPER BOUND @ 5% = 3.38
Source: Author's computation using E-views 10 (2025)

4.5.2. Long run and short run ARDL analysis of external debt and economic growth equation

The long run results of the external debt and economic growth is reported in Table 8. From the result and in consonance with theoretical expectations, a positive but not statistically significant relationship exists between interest rate (INT) and real gross domestic product (RGDP) in Nigeria. The value of the coefficients of (0.006583) implies that a rise in interest rate (INT) by one percent will result to a rise in real gross domestic product by 0.006583 percent.

There exist a positive and statistically significant relationship between foreign direct investment (FDI) and real gross domestic product (RGDP). This is consistent with theoretical expectations. Thus, a one percent increase in foreign direct investment will lead to a 0.065830 percent increase in real gross domestic product. However, a one percent increase in external public debt (EXD) will lead to a 0.025608 percent decrease in real gross domestic product. This is consistent with theoretical expectations and it is likewise not statistically significant.

According to the result, real effective exchange rate has an adverse but statistically significant relationship with real gross domestic product (RGDP). The result shows that a one percent increase in real effective exchange rate will lead to a 0.000966 percent decrease in real gross domestic product (RGDP) ceteris paribus. Gross fixed capita formation (GFCF) has a positive and also significant relationship with real gross domestic product (RGDP). The result shows that a one percent increase in Gross fixed capita formation (GFCF) will lead to a 0.000909 percent increase in real gross domestic product (RGDP). This is consistent with theoretical expectations.

The short run results of external debt and economic growth equation is reported in Table 9. The first, second and third period lag of real gross domestic product were both positive, negative and negative respectively but not statistically significant except the third lag which was statistically significant with a coefficient of 0.159835, -0.247276 and -0.464751 percent respectively. Hence a one percent increase in the one, second and third period lag of real gross domestic product (RGDP) will lead to a 0.159835 percent increase and 0.247276 and 0.464751 percent decrease respectively in real gross domestic product. The relationship between interest rate (INT) and real gross domestic product (RGDP) in the short run is negative in the current period and positive in first, second and third period lag. They are all however statistically significant except the first period lag which is not statistically significant. Hence a one percent increase in interest rate will lead to a 0.000678 percent decrease in real gross domestic product in the current period and 7.822305, 0.000209 and 0.000335 percent increase after the first, second and third period lag respectively.

The relationship between foreign direct investment (FDI) and real gross domestic product (RGDP) in the short run is negative in the current period and positive after the first, second and third period lags. Only the first and second period lag are statistically significant. Hence a one percent increase in foreign direct investment (FDI) will lead to a 0.002 percent decrease in real gross domestic product and, 0.011, 0.013 and 0.003 percent increase in real gross domestic product (RGDP) during the first, second and third lag period.

Similarly, the relationship between external debt (EXD) and real gross domestic product (RGDP) are all positive and statistically significant both at the current, after first, second and third period lags. The result shows that a one percent increase in external debt during the current, after first, second and third period lags will lead to a one percent decrease in real gross domestic product (RGDP) by 0.010, 0.018, 0.028 and 0.025 percent respectively. The result also reveals that there exist a positive and statistically significant relationship in the current period between real effective exchange rate and real gross domestic product (RGDP). A one percent increase in real effective exchange rate (REER) will lead to a 0.00019 percent increase in real gross domestic product respectively. While an adverse relationship exist between real effective exchange rate and real gross domestic product (RGDP) after the first, second and third lag period. Thus, a one percent increase in real effective exchange rate in the first, second and third period lag will lead to a decrease by 5.74, 7.86 and 4.21 percent in real gross domestic product.

The result suggests that the current, first, second and third period lag of gross domestic product per capita have a positive impact on real gross domestic product (RGDP). It is positive in the current period but negative after the first, second and third period lag. It is not statistically significant in the first period lag only, but it is statistically significant in the current, second and third period lag. The result shows that a one percent increase in gross domestic product per capita in the current, first, second and third period will lead to a rise in real gross domestic product (RGDP) by 0.0004, 3.52, 0.000147 and 0.000219 percent respectively.

The error correction mechanism (ECM) has the correct sign and size. The ECM coefficient of -0.165163 means that it takes about 16 percent for the short run disequilibrium to adjust to the long run equilibrium within the year. The t-statistics of -9.033136 shows that the error correction term is statistically significant at five percent level of significant. R-squared value of 0.993005 and the value of R-squared adjusted of 0.980630 means that about 99 percent of total variation in the RGDP is explained by interest rate (INT), foreign direct investment (FDI), external debt (EXD), real effective exchange rate (REER), gross fixed capita formation (GFCF) and only one percent was unexplained which may be accounted for by other factors not included in the model. The Durbin Watson (D-W) statistics of 2.18 means no autocorrelation in the model. Therefore, the results can be used for forecasting and economic simulation.

Table 8. Long run ARDL result of external debt and economic growth equation

Dependent variable: RGDP				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
INT	0.006583	0.004159	1.582831	0.1575
LFDI	0.065830	0.019720	3.338265	0.0124
EXD	-0.025608	0.128450	-0.199361	0.8476
REER	-0.000966	0.000381	-2.531646	0.0421
GFCF	0.000909	0.000109	8.360021	0.0001
C	7.335342	0.616200	11.90416	0.0000

Source: Author's computation using E-views 10 (2025)

Table 9. Short run ARDL (Error Correction) result of external debt and economic growth equation

Dependent variable: D(LRGDP)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LRGDP(-1))	0.159835	0.153823	1.042085	0.3333
D(LRGDP(-2))	-0.247276	0.126489	-1.954919	0.0915
D(LRGDP(-3))	-0.464751	0.101734	-4.568282	0.0026
D(INT)	-0.000678	0.000117	-5.773566	0.0007
D(INT(-1))	7.822305	0.000116	0.674341	0.5217
D(INT(-2))	0.000209	9.85E-05	2.122427	0.0715
D(INT(-3))	0.000335	9.44E-05	3.546959	0.0094
D(LFDI)	-0.001877	0.001384	-1.357034	0.2169
D(LFDI(-1))	0.011463	0.001949	5.882276	0.0006
D(LFDI(-2))	0.012849	0.001851	6.940418	0.0002
D(LFDI(-3))	0.002683	0.001401	1.915433	0.0970
D(EXD)	-0.010102	0.004185	-2.413882	0.0465
D(EXD(-1))	-0.018250	0.005124	-3.561733	0.0092
D(EXD(-2))	-0.028268	0.005206	-5.429415	0.0010
D(EXD(-3))	-0.024678	0.004915	-5.020472	0.0015
D(REER)	0.000193	2.263732	8.568375	0.0001
D(REER(-1))	-5.744205	2.329005	-2.476058	0.0425
D(REER(-2))	-7.861402	2.352301	-3.348762	0.0123
D(REER(-3))	-4.206505	2.111204	-1.991308	0.0867
D(GFCF)	0.000410	2.201521	18.61248	0.0000
D(GFCF (-1))	3.520005	7.850025	0.448236	0.6675
D(GFCF (-2))	0.000147	5.621192	2.619110	0.0345
D(GFCF (-3))	0.000219	4.721002	4.635062	0.0024
CointEq(-1)*	-0.165163	0.018284	-9.033136	0.0000
R-squared	0.993005	Mean dependent var		0.044672
Adjusted R-squared	0.980630	S.D. dependent var		0.036274
S.E. of regression	0.005048	Akaike info criterion		-7.488133
Sum squared resid	0.000331	Schwarz criterion		-6.443214
Log likelihood	162.5305	Hannan-Quinn criter.		-7.119750
Durbin-Watson stat	2.181942			

* p-value incompatible with t-Bounds distribution.

Source: Author's computation using E-views 10 (2025)

4.5.3. Stability Test for external debt (DOD) and economic growth equation

The Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) tests was applied so as to examine the stability of the parameter after the ECM models was estimated. Figure 3 and Figure 4 shows that both the CUSUM and CUSUMSQ statistics falls within the critical bound of ± five percent level of significant. This plot means that the coefficients of the results been estimated are in the long run during the period 1980 to 2022 and that there exists a long run relationship between external debt (EXD) and economic growth in Nigeria. This thus implies that the coefficients are changing gradually.

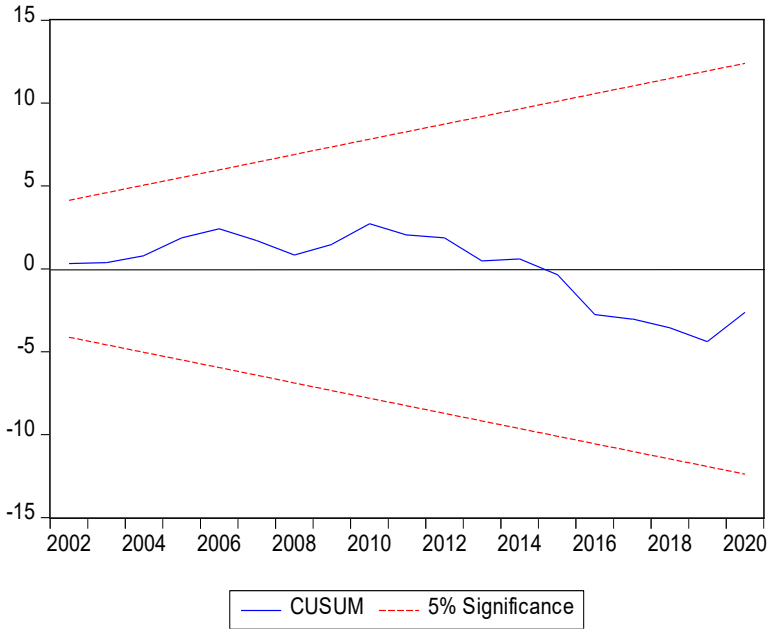

Figure 3. CUSUM of external debt and economic growth equation
Source: Author's computation (2025)

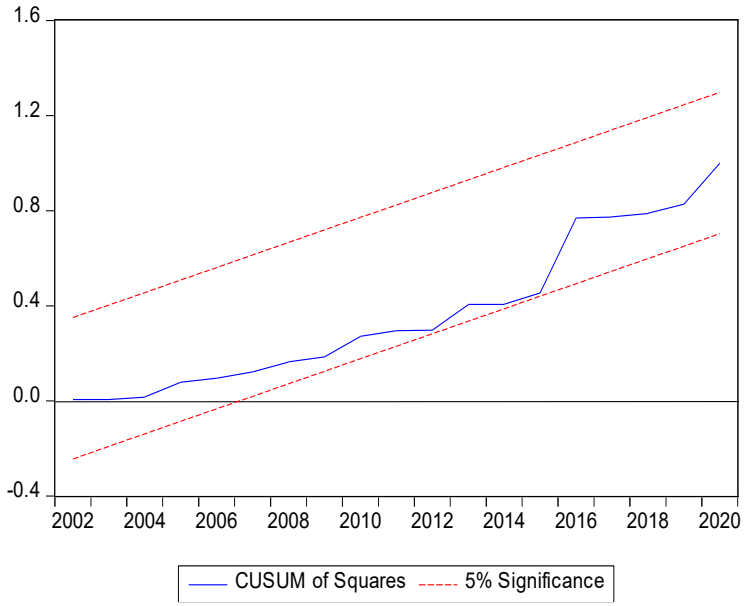

Figure 4. CUSUM of SQUARES of external debt and economic growth equation
Source: Author's computation (2025)

5. DISCUSSION

The first objective of the study is to assess the effect of domestic debt servicing on economic growth in Nigeria. From the result of the analysis, it is discovered that domestic debt servicing has no significant effect on economic growth in Nigeria. From our findings and the period covered in the study, it could be seen that the domestic debts servicing has not contributed to economic growth in Nigeria. This finding contradicts the supply lending theory which states that public debts spur economic growth. This outcome is in tandem with the findings of (Aminu et al., 2013; Amassoma, 2011; Uma et al., 2013) but not in line with the outcome of (Sheikh et al., 2010; Maana et al., 2008; Abbas & Christensen, 2007; Tajudeen, 2012) that domestic debt servicing has significant effect on economic growth.

The second objective of this study was to ascertain the effect of foreign debt servicing on economic growth in Nigeria. The study found that foreign debt servicing has no significant effect on economic growth in Nigeria. The result of the study was analyzed using multiple regression analysis and the result of the analysis means foreign debt servicing has significant and positive effect on economic growth in Nigeria. The implication of the result showed that changes in foreign debt servicing will affect economic growth Nigerian positively. This finding supports the supply lending theory. This finding is also consistent with the studies of (Aminu et al., 2013; Tajudeen, 2012) but disagree with the findings of (Amassoma, 2011; Uma et al., 2013) that foreign debt servicing has no significant effect on economic growth.

6. CONCLUSION AND RECOMMENDATIONS

The study explored the relationship between domestic and external debt and economic growth in Nigeria. The study applied the augmented Dickey-Fuller (ADF) test, the Phillip-Peron test, Autoregressive Distributed Lag (ARDL) bounds approach, Granger Causality test and the Error Correction Model (ECM) regression analysis technique. The broad objective of the study of the study was to determine the impact of financial openness and foreign trade, on economic growth in Nigeria. The specific objectives include determine the impact of domestic debt on economic growth in Nigeria and equally assess the impact of external debt on economic growth in Nigeria.

A time series data that spanned a period of forty years, from 1980 to 2023 was utilized. The error correction model is correctly signed for all the equations and statistically significant. The Granger causality test shows that there is a causal relationship between macroeconomic policy variables and economic diversification.

The effects of domestic and external debt were tested and the results showed that they have significant effects on economic growth in Nigeria thus leading to the rejection of the null hypotheses earlier proposed in chapter one that domestic and external debt individually, do not have any effect on economic growth in Nigeria and the acceptance of their alternative that they do have significant effects on economic growth.

The study shows that a positive relationship exists between domestic debt and economic growth. In addition, interest rate, foreign direct investment and gross fixed capita formation has a lesser impact on economic growth than external debt in Nigeria. The study therefore, concluded that domestic debt and external debt play significant roles in the economic growth of Nigeria.

Policy recommendations

Based on the findings of the study, the following recommendations are made to boost the economic growth of the Nigerian economy:

i. Government should ensure that its domestic debt is put in checks. Thus, every borrowing which the government gets involved in should be monitored and ensure that it is judiciously use so as to improve the economic growth and development of the economy. They should thus acquire less of it.
ii. The Nigerian government needs to moderate its external debt as the economy seems too weak to absorb the adverse shocks from external debt. Most importantly, the problem that arises from exchange rate should be tackled and put in place to offset the likely negative effects of exposing the economy to external influences as a result of the debt.

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Author Contributions

All the 3 authors coined the topic after several editorial work. Femi Ayodele wrote the bulk of the work, did the methodology, provided data used for analysis, analyzed and interpreted the result. Christopher Nyong Ekong and Paul Atanda Orebiyi read and

editied the introduction and also part of the literature and the conclusion. The three authors read through the manuscript and did the final editing of the article.

Informed consent
Not applicable.

Conflicts of interests
The authors declare that there are no conflicts of interests.

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Data and materials availability
All data associated with this study are present in the paper.

REFERENCES

1. Abang SO, Arasomwan KO, Ayodele O. Fuel subsidy removal, insecurity, the impact on rising food inflation in Nigeria: A comparative of time series analysis and machine learning techniques. Discovery 2024; 60: e27d1483
2. Abang, SO, Okey OO, Abuh-Amasi SA. Navigating Naira devaluation on the performance of small and medium-scale enterprise in Nigeria. Discovery 2025; 61: e14d3103
3. Abbas ASM, Christensen JE. The Role of Domestic Markets in Economic Growth: An Empirical Investigation for Low-income Countries and Emerging Markets. IMF, 2007.
4. Abdelmawla M, Mohammed A. The Impact of External Debt on Economic Growth: An Empirical Assessment of the Sudan: 1978 – 2001, Eastern Social Science Research Review, 2005; Vol. 21(2), 53-66.
5. Adamu IM, Rasiah R. External Debt and Growth Dynamics in Nigeria. African Development Review, 2016;28:291-303.
6. Adepoju AA, Salau, A.S, Obayelu, AE. The Effects of External Debt Management on Sustainable Economic Growth and Development: Lessons from Nigeria, MPRA. Paper 2007 No. 2147.
7. Adesola WA. Debt servicing and economic growth in Nigeria: An Empirical Investigation. Journal of Social Science, 2009 8(2), pp.1-11.
8. Amassoma D. External debt, internal debt and economic growth bound in Nigeria using a causality approach. Cur Res J of Soc Sci. 2011;3(4):320-325.
9. Aminu U, Ahmadu AH, Salihu M. External debt and domestic debt impact on the growth of the Nigerian economy. International Journal of Educational Research. 2013;1(2):70-85.
10. Anyanwu JC. Public finance in a developing economy: The Nigerian case. Onitsha: Joanee Educational Publishers; 1998.
11. Apere TO. Macroeconomic policy and economic growth in Nigeria: A cointegration approach. International Journal of Academic Research in Economics and Management Sciences. 2014;3(6):111–122.
12. Audu, I. The impact of external debt on economic growth and public investment: the Case of Nigeria. Dakar, Senegal: African Institute for Economic Development and Planning (AIEDP) 2004.
13. Ayadi FS. The Impact of external debt on economic growth: A Comparative Study of Nigeria and South Africa. Journal of Sustainable Development in Africa, 2008:10(3), 234-244.
14. Central Bank of Nigeria. Statistical Bulletin. 2022.
15. Choong C K, Evan L, Venus LK, Puah CH. Does debts foster economic growth? The Experience of Malaysia. African Journal of Business Management, 2010; 4(8):1564-1575.
16. Clements B, Bhattacharya Nguyen TQ. External Debt, Public Investment and Growth in Low-Income Countries, IMF Working Paper WP/03/249, International Monetary Fund, 2003; Washington D.C.
17. Coccia M. Asymmetric Paths of Public Debt and of General Government Deficits across Countries within and outside the European Monetary Unification and Economic Policy of Debt

Dissolution. The Journal of Economic Asymmetries, 2017:17, 17-31.
18. Egbetunde T. Public debt and economic growth in Nigeria: Evidence from Granger causality. American Journal of Economics. 2012;2(6):101–106
19. Hameed A. Ashraf H., Chaudhary, MA. External Debt and Its Impact on Economic and Business Growth in Pakistan, International Research Journal of Finance and Economics, 2008; 20, 132-140.
20. Hunt SD. Economic growth: Should policy focus on investment on dynamic competition? European Business 2007; 19(4), 279-291.
21. Krugman P. Towards a counter-counter revolution in development theory. In proceedings of the World Bank annual conference on development economics. 1992.
22. Maana I, Owino R, Mutai N. Domestic Debt and its Impact on the Economy-The Case of Kenya. Paper Presented During the 13th Annual African Econometric Society Conference in Pretoria, South Africa, 2008.
23. Malik S. Hayat MK, Hayat M U. External debt and economic growth: empirical evidence from Pakistan. International Research Journal of Finance and Economics, 2010; 44(88) 97.
24. Ndubuisi P. Analysis of the Impact of External Debt on Economic Growth in an Emerging Economy: Evidence from Nigeria. African Research Review, 2017;11:156-173.
25. Ogbonna O, Ihemeje I, Obioma O, Hanson H, Amadi A. Impact of External Debt Management on Economic Growth of Nigeria. Journal La Bisecoman, 2021;2:25-41.
26. Ogunmuyiwa. Does debt promote economic growth in Nigeria? Current Research Journal of Economic Theory, 2011; 3(1), 29-35.
27. Oyejide TA, Soyede A, Kayode MO. Nigeria and the IMF. Ibadan: Heinemann Educational book. 1994
28. Ozdemir D, Erbil C. Does Financial Liberalization Trigger Long-Run Economic Growth?: Evidence from Turkey and Other Recent EU Members. Paper prepared for the EcoMod International Conference on Policy Modelling, July 2-4, Berlin, 2008.
29. Pagano M. Financial Markets and Growth: An Overview. European Economic Review, 1993;613-22.
30. Pesaran MH. The Role of Economic Theory in Modelling the Long Run. The Economic Journal 1997;107:440:178–91.
31. Sanni MR. Public sector spending and economic growth in Nigeria: An empirical analysis. Journal of Business and Economic Research. 2007;6(8):10–15.
32. Sheikh MR, Faridi MZ, Tariq K. Domestic Debt and Economic Growth in Pakistan: An Empirical Analysis. Pakistan Journal of Social Sciences, 2010;30(2):373-387.
33. Stiglitz JE. Globalization and its discontents. New York: W.W. Norton & Company; 2002.
34. Sulaiman L, Azeez BA. Effect of debt servicing on economic growth in Nigeria. Journal of Economics and Sustainable Development, 2012; 3(8), 71-79.
35. Tajudeen E. Public debt and economic growth in Nigeria: Evidence from Granger Causality. American Journal of Economics, 2020; 2(6), 101-106.
36. Uma KE, Eboh FE, Obidike PC. Debt and debt service: Implications on Nigerian economic development. Asian J of SocSci & Hum. 2013;2(2):275-284.
37. Utomi OW. The impact of external debt on economic growth in Nigeria (1980- 2012). A research project submitted in partial fulfillment of the Requirements for the award of the bachelor of science (honours) degree in economics. 2014
38. World Bank. Nigeria Economic Update: Leveraging trade for growth. Washington, DC: World Bank Group; 2023.
39. Yusuf A, Mohammed S. The Impact of Government Debt on Economic Growth in Nigeria. Cogent Economics & Finance, 2021;9:1946249.