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External Debt and Economic Growth in Nigeria (1990–2023)

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Abstract- ***This study examines the impact of external debt on economic growth in Nigeria over the period 1990–2023. Specifically, the study investigates how external debt, debt servicing, exchange rate, and money supply influence Real Gross Domestic Product (RGDP), which serves as a proxy for economic growth. The study adopts an ex-post facto research design and utilizes annual time-series data obtained from the Central Bank of Nigeria (CBN) and the Debt Management Office (DMO). The Autoregressive Distributed Lag (ARDL) modelling approach was employed to estimate both the short-run and long-run relationships among the variables. Prior to estimation, the Augmented Dickey–Fuller (ADF) unit root test was conducted to determine the stationarity properties of the series, while the Bounds cointegration test confirmed the existence of a long-run relationship among the variables. The empirical results reveal that money supply exerts a positive and statistically significant impact on economic growth in both the short run and long run. Debt servicing, however, shows a negative effect on economic growth, indicating that increasing repayment obligations reduce funds available for productive investment. External debt exhibits a positive but statistically insignificant relationship with economic growth, suggesting that external borrowing has not significantly contributed to Nigeria's economic performance. Exchange rate movements show a positive short-run effect but a negative long-run influence on economic growth. The study concludes that although external borrowing can support development, its effectiveness depends largely on efficient utilization and prudent debt management. The study recommends that government should ensure that borrowed funds are directed toward productive sectors of the economy while strengthening debt management policies to enhance sustainable economic growth.***

Keywords: External Debt, Economic Growth, Debt Servicing, Exchange Rate, Money Supply, ARDL, Nigeria.

I. INTRODUCTION

The foremost determination and policy antecedence of Government of every country has been to stimulate and preserve a workable economic growth and development. Realization of this condescending objective is not instinctive, but necessitates that Government of every country has a considerable amount of capital to finance investment expenditures on productive sectors (George, Chioma and Edet, 2020). Contrarily, inability of countries to accrue this necessary capital for industrious endeavors has made most countries to resort to borrow externally so as to curtail the economic challenges (Tumba, Hamisu &Tumba, 2022).

This stalks from the fact that savings which stimulates the growth of a nation is a function of investment, and when domestic savings required for investment is not sufficient enough, external borrowing is needed to ensure growth and development of a country. External debt as the name suggests, is a debt from outside the country's provincial periphery.

It is defined as debt owed to a foreign country or countries repayable in terms of foreign currency, goods or service. In other words, external debt is simply borrowing from international organizations such as the World Bank and international financial institutions like Africa Development Bank and bilateral agencies such as the China Exim Bank, the French Development Bank, or the Japanese Aid Agency.

This suggests that the debtors can be the government, corporations or citizens, and it equally includes money owed to private commercial banks, other

governments, or international financial institutions such as the International Monetary Fund (IMF) or World Bank.

External debt is a vital measure for spanning the financial gaps of the government. Discreet utilization of this external fund leads to higher economic growth. It also helps the government to carry out its social and economic goals.

Nigeria external debts dated back before independence era precisely 1959 when its first loan of twenty-eight (28) million US dollars was acquired from World Bank, to finance the construction of railway, (George, Chioma and Edet (2020), Nigeria's external debt stock stood at $13.1 billion in 1982.

The quest for growth-oriented projects and the financial limitation of the government in Nigeria surged up the country's external debt to 1 billion US dollar by 1971 (George, et. al., 2020). The increase in external debt continued which was however due to fall in oil price in 1978 and sharp decline in the balance of payments.

Different states in the country amalgamated in contracting loans from international creditors which gave rise to Nigeria external loan of about N17.3 billion in 1986, a situation that compelled the nation to adopt the Structural Adjustment Programme (SAP) in 1986, which was packaged by International Monetary Fund (IMF) as a means to refurbishing the nation's economy (Ayadi & Ayadi, 2016).

Since 1990, Nigeria's external debt stock has been rising steadily. The increase continued as Nigeria's external debt for 2018, 2019 and 2020 were 54.2 billion, 60. 05 billion and 70.57 billion US dollar respectively (Central Bank of Nigeria, CBN, 2020).

Consequently, Nigeria's external debt rose from 37955.090 billion US dollar to 39969.190 billion US dollar from October 2021 to January, 2022 (CBN, 2022).

Statement of the Problem

Borrowing from external source to finance national programmes and projects does not necessarily put a wedge to national economic development. However, lack of knowledge of the terms and conditions as well as corruption, which makes the borrowed fund unproductive, is the problem of external debt as it makes countries to excessively earmark huge amount of their resources in offsetting outstanding liabilities, thereby compromising their domestic growth and development objectives (Oti, Odigbo & Odey, 2016).

Going by the Keynesian theory of debt which holds firmly that increment in public debt leads to increment in economic growth of a country, using trend analysis, it is perceived that the ratio of external debt increased from 2.8% to 5.6% from 1985 to 1990 and 6.5% in 1995 respectively while that of debt servicing consequently rose from 22.1% to 24.0 and up to 24.4% within the respective periods and within these periods, that of GDP though increased from 5.9% to 11.7% from 1985 to 1990, but decreased to 0.07% in 1995.

Similarly, debt servicing increased from 26% to 27.7%. From 2000 to 2005 respectively, external debt decreased from 8% to 7.8% and GDP increased from 5.02% to 6.44% respectively. Similar trend was also observed between 2010 and 2015 where external debt and debt servicing increased from 6.5% to 7.67.6% and 25.9% to 26.4% from 2010 to 2015 respectively; while that of GDP decreased from 8.01% to 2.65% within the same periods.

Lastly, within 2016 to 2019 via 2020, external debt rose from 8.1% to 8.9% and decreased to 7.8% in the respective years. However, within the observed periods, though that GDP slightly increased from 1.62% to 2.21 % from 2016 to 2019 respectively, it decreased to 1.79% in 2020 (CBN, 2020; Debt Management Office, DMO, 2020).

From the trend analysis, it is observed that these variables did not move in the pattern of direction with the theory as they move in opposite path; and even when they move in the same direction, they did not possess equal proportionate change.

The adverse economic implications of these deviations in the country's economic activities are the periodic increase in the country's unemployment and inflation rates as well as the external sector disequilibria; and these factors are highly conjectured

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as being able to militate against the growth rate of any economy.

Therefore, the central concern of this research is to empirically verify the existence of a causal relationship between external debt and economic growth in Nigeria.

Objectives of the Study

The main objective of the study is to investigate the impact of external debt burden on economic growth in Nigeria. The specific objectives of the study are to;

i. ascertain the extent in which external debt impact on Real Gross Domestic Product in Nigeria.
ii. determine whether debt service payments have any significant impact on Real Gross Domestic Product in Nigeria.
iii. examine if there exist any significant causal relationship between exchange rate and economic growth in Nigeria.

II. LITERATURE REVIEW

Theoretical Literature

a. The Debt Overhang Theory

The word "debt overhang" originates from the communal finance works and it refers to a situation where a organization's debt is so high that every profit from fresh investment projects are entirely appropriated by existing debt holders; even projects with a positive net present value cannot lower the stock of debt for the organization or increase the organization's value (Kim, Lisic, Myers, & Pevzner 2011).

Therefore, for a given tax rate, lower current investment levels result in lesser growth, poorer government earnings, lower ability to pay, and lower predicted debt values. Because new loans would only be worth a fraction of their nominal value, no new creditor would lend money to a country that was experiencing the negative impacts of debt overhang (Kobayashi, 2015).

As a result of this, these nations would not be able to access net asset flows. The "Debt Laffer curve" describes a state in which partial debt cancellation that reduces the expected tax burden can make both lenders and borrowers better off by increasing investment and growth and, this will result to, tax revenues and the value of debt (Arai, Takuma, & Keigo, 2014).

Countries that experience the adverse impacts of debt dimness may be placed on some undesirable side of the "Debt Laffer curve" Debt cancellation compels a synchronizing mechanism that constrains all creditors to suffer some minimal losses, albeit reducing debt may put banks in an ideal position. Arai, Takuma, and Keigo (2014), state that without such a synchronization mechanism, one creditor will choose to wait it out while other creditors partially discharge their claims.

b. Keynesian Theory

This theory is also referred to as Income Expenditure Approach and Conventional Approach. According to Keynesian approach, fiscal deficit positively affects growth. There would be an increase in government outlays due to addition in money supply which explains how addition in money supply comes about.

There is relative short fall of demand in accordance with money supply. The lending rate will decrease as a result of increased money supply. Investment will increase especially in private sector due to incentive of reduced lending rate. Keynesian multiplier will work and investment will increase.

As investment increases, the output capacity will be enhanced. Keynesian theory also provides the room for crowding out private investment. If fiscal deficit is financed through debt instrument, then there will be increase in lending rate and private investment will be crowded out due to limited availability of finance (Saleh, 2003).

By putting increase in money supply and crowding out effect together, the positive effect of fiscal deficit on growth gets obscured. The Keynesians further posit that fiscal deficits could have a negative impact on the external sector, reflected through trade deficit, but only if the domestic economy is unable to absorb the additional liquidity through an expansion in output.

Hence, if the supply of output does not expand in response to the deficit, the surplus spending would only add to the level of imports, thereby resulting in a trade deficit and subsequent decrease in the exchange rate: "the twin-deficits" hypothesis (Monacelli & Perotti, 2006; Neaime, 2008; Okpanachi & Abimiku, 2007).

Neo-Classical Theory

The neoclassical school proposes an adverse relationship between domestic and macroeconomic variables. They argue that fiscal deficits lead to higher interest rates, discourages the issue of private bonds, private investments and private spending, increases inflation level, and cause a similar increase in the current account deficits and finally slows the growth rate of the economy through resources crowding out.

The Neoclassical school considers individuals planning their consumption over their entire cycle. By shifting taxes to future generations, fiscal deficits increase current consumption. By assuming full employment of resources, the neoclassical school argues that increased consumption implies a decrease in savings.

Interest rate must rise to bring equilibrium in the Capital markets. Higher interest rates, in turn, result in a decline in private investment, domestic production and an increase in the aggregate price level.

Harrod-Domar Models

This theory originated from the works of Harrod (1939) and Domar (1946) in their savings-investment gap hypothesis. The basic assumption of this theory is that there exists investment gap in the poor or capital-deficit economies which can be filled by the inflows of capital from foreign sources including international monetary institutions.

In other words, low-income countries with limited capital tend to rely on international monetary institutions to advance their development process. The Harrod-Domar model has been described as one of the foremost models in economic literature used for analyzing the drivers of economic growth in developing economies.

It has been described as the foundation of development models used by some organizations such as the World Bank and International Monetary Fund (IMF) as it measures theThe theory further assumes a neutral technical progress in the sense that technical progress is neither saving nor absorbing of labour or capital.

Based on these assumptions, Harord –Domar proposed that the rate of growth of the economy, or, simply, economic growth is a function of the net saving ratio, and the capital output ratio. This can mathematically be expressed as:

$$\frac{\Delta Y}{Y} = \frac{s}{c}$$

Where ΔY is change in national income, s is net saving ratio, and c is the capital output ratio. The left-hand side could be represented by G which is growth. The whole expression says that economic growth is directly proportional to the net saving ratio and inversely proportional to the capital output ratio. For the economy to achieve economic growth, it must save and invest some part of the national income.

However, the rate of its growth depends very much on the inverse of capital output ratio, which is the ratio of output to investment. Thus, investment and productivity are important to economic growth. The Harold-Domar model takes capital as the crucial factor for economic growth and development. In fact, they emphasize the dual role of capital accumulation.

In the Harold Domar model, capital, labour, and technological progress are the three main important factors in economic growth. But the HD model did not explicitly discuss the contributions of labour because they assumed that labour is abundant in the underdeveloped economies.

However, they see technological progress as fall in output-investment ratio. The critical obstacle to the growth of the underdeveloped economies is the low capital formation. That is, inadequate savings. The only means that is left for the underdeveloped economies to grow and develop is to augment the capital constrain is through importation to fill the saving gap.

This conclusion from the HD model, to wit, that the main cause of underdevelopment in the LDCs is inadequate capital justifies the need for foreign aid and foreign direct investment for the LDCs as a strategy to engender development in these countries. Lakewood (1987) finds the theory applicable in the eastern European countries.

He finds the theory simple and adaptable to the capital needs of the developing countries. Many developing economies achieved higher investment rate than most developed economies. However, they could not grow faster than the latter.

The HD model did not take into cognizance the sufficient conditions. High investment rate is a necessary, but not a sufficient condition. Several development economists have faulted the Harold - Domar model. Harvey (1994) and Udiney (2008) criticized it on the ground that it is mechanical. The theory does not consider the role of human capital and institutional quality.

Empirical Literature Review

The impact of external debt on a nation's economy has been a subject of dispute among many scholars. Some were of the opinion that external debt increases economic growth (Hameed, Ashraf and Chandhary, 2008). This opinion is in line with neoclassical model of economic growth –the Keynesian theory in which capital accumulation is seen as a catalyst to economic growth.

This was confirmed by the significant growth by the Asian Tigers- Malaysia, Singapore, Indonesia and Taiwan and South American country, Brazil. These nations were able to transform their economy using external debt (Momodu, 2012).

Other scholars that saw that external debt has negative impact on the economy stem from the fact that at certain level, debt accumulation becomes a burden and will no longer stimulate the economic growth (Elbadawi, Ndulu and Ndungu, 1996). Furthermore, the liquidity constraint referred to as 'crowding out' effect of debt, that is, the need to service debt reduces funds available for investment and growth. Debt servicing is like the proboscis of mosquito for sucking out blood from its victim.

Panagiotis (2018) examines the relationship that exist between economic growth and different economic variables (investment, private and government consumption, trade openness, population growth and government debt), where imbalances continue many years after the financial crisis.

The results show that there exists a long-run relationship between the variables. Investment as private and government consumption and trade openness have positive effect on growth. On the other hand, there is an adverse long-run impact of government debt and growth in population on economic growth.

Furthermore, the study addresses the issue of break effects between government debt and economic growth. The results indicate that the node between government debt and economic growth depends on the debt breaks.

Alfredo and Francisco (2004) investigated the nexus between external debt and economic growth for a number of Latin American and Caribbean countries. The result of their study showed that lower total external debt levels were related with higher growth rates, and that this adverse relationship was driven by the incidence of public external debt levels, and not by private external debt levels.

Nwanedo (2021) investigated the nexus between public debt and economic development. From 1981-2019, the study made use of annual time series data for the consumer price index, exchange rate, domestic debt stock, and external debt stock. In this work, the multiple regression analysis, Unit Root test, Johansen cointegration test, and Granger causality test were all used.

According to the results of the multiple regression study, domestic debt in Nigeria has a positive link with economic development whereas external debt has a substantial adverse relationship with it.

Amassoma (2011) carried a study on the effect of External Debt, Internal Debt and Economic Growth and development Bound in Nigeria using a Causality Approach, the VEC model revealed a unidirectional

causality from economic development to external debt in Nigeria.

Ajayi and Oke (2012) investigated the effect of the external debt burden on economic growth and development of Nigeria. The statistical tool employed was OLS regression.

The study found that external debt burden had an adverse effect on the national income and per capita income of the nation. High level of external debt led to the devaluation of the national currency, increase in the retrenchment of workers, continuous industrial strike and poor educational system. This led to the economy of Nigeria getting depressed.

Osuji and Ozurumba (2013) investigated the impact of external debt financing on economic development in Nigeria using stationarity test, co-integration test and vector error correction model.

The study shows that London debt financing possessed positive impact on economic growth while Paris Club debt and Promissory Note were inversely related to economic development in Nigeria. The study recommended that debt services should be cancelled to encourage survival of SMEs in Nigeria.

lyoha (2000) investigated the impact of external debt on economic growth in sub-Saharan African countries using simulation approach. It was observed that external debt variables have significant impact on economic growth in sub-Saharan African countries and that debt stock reduction would have significantly increased investment and growth performance. The study concludes that mounting external debt depresses investment through both a disincentive effect and a crowding out effect.

Agbaeze Clifford, Chilasa Onoh, Uloma Adonye and Efanga, Udeme Okon (2023) investigated the impact of domestic debt on Nigerian economy. The study utilized a time series data from 1990 to 2018, and adopts among other techniques the Ordinary Least Squares (OLS) test method.

A multiple regression model is formulated to ascertain the relationship between the economic growth and debt financing variables.

The findings establish that Domestic Debt and Debt Servicing (DBS) will increase the Real Gross Domestic Product. However, our result with positive coefficients for Domestic Debt (DDB) and Debt Servicing (DBS), indicates that if they are increased, can also increase economic growth. External Debt (EXD) on the other hand exhibited a positive but insignificant relationship with Real Gross Domestic Product (RGDP). This means that government External Debt (EXD) has not contributed too meaningfully to the economy.

Ekperiware and Oladeji (2012) stressed that within the year 1980 to 2009 with a view to examine the effect of external debt relief on economic growth in Nigeria. This has resulted in debt restructuring of various kinds in Nigeria with some concesiona1 loans, as well as the external debt relief in 2005. A decade after the debt relief critical sectors of the economy such as education, health, electricity, transport and exchange rate etc. suppose o show evidence or sources of such debt relief.

Festus and Saibu (2019) offered further evidences on the effect of external debt on economic growth in Nigeria. Time series data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank indicators.

The study set out to test for the long run and short run relationship as well as presenting further evidences on the relationship between external debt and economic growth.

The Autoregressive Distributed Lag (ARDL) Model was employed as a technique of estimation in the study and the results led a finding that the external debt contribute negatively to growth in Nigeria Kharusi and Ada (2018) investigated the relationship between government external borrowing and economic growth, prompted by continuous increases in Oman's external debt to finance its annual budget.

Time series data were collected from the World Bank and the Central Bank of Oman. The study employed the Autoregressive Distributed Lag cointegration approach explain the error correction mechanism to ascertain the short-run dynamic nature of external debt and economic growth. Consistent with some

existing empirical evidence, the study reveals a negative and significant influence of external debt on economic growth in Oman.

Utomi (2013) investigated the effect of external debt on the development of the Nigeria economy using a time series date and series of estimating tools which includes Johansson co-integration test, unit root test among others.

External debt stock and external debt servicing was proxy for external debt burden while real gross domestic product was proxy as economic development indicator. Findings reveal long run insignificant relationship and a bi-directional relationship between external debt and economic development in Nigeria.

Agwu, Ohaegbu and Nnodim (2019) examined the impact of external debt on economic development in Nigeria from 2014 to 2018 using OLS regression technique for the empirical data analysis. The study revealed that external debt had a positive relationship with gross domestic product while external debt service had negative relationship with gross domestic product.

The study concluded that government should encourage domestic or private saving because absence or inadequate saving leads to debt or borrowing to finance the obligatory of its citizenry. The study recommended that the external borrowed funds should be effectively managed.

Omagbemi Christopher Sola (2016), reviewed the External Debt and Economic Growth in Nigeria with specific emphasis on Nigeria Over the period of 1985-2014.

The ordinary least square multiple regression analytical method was- used. T-test and Pearson correlation was used to test the hypotheses. The analysis of the data revealed that all the forms of external debts contributed towards the growth of the GDP, the Pearson correlation explained that GDP had an inverse relationship with Paris club debt and Promissory notes while the dependent variable had a direct relationship with the rest of the independent variables.

Osuji and Ozurumba (2013) investigated the impact of external debt financing on economic development in Nigeria using stationarity test, co-integration test and vector error correction model. The study shows that London debt financing possessed positive impact on economic growth while Paris Club debt and 45

Liu and Lyu (2021) re-examine the threshold effects of public debt on economic growth in Africa.

The study applies panel smooth transition regression approach advanced by González et al. (2017). The method allows for both heterogeneity as well as a smooth change of regression coefficients from one regime to another. A debt threshold in the range of 62–66 per cent is estimated for the whole sample.

Low debt is found to be growth neutral but higher public debt is growth detrimental. For middle-income and resource-intensive countries, a debt threshold in the range of 58–63 per cent is estimated.

George-Anokwuru and Nimino (2020) examined the impact of external debt on economic growth in Nigeria for the period of 1980 to 2017 using the Autoregressive Distributed Lag (ARDL) techniques for the data analysis.

The results of the study revealed that external debt and external debt service have negative and significant relationship with economic growth in Nigeria both in the long run and short run.

Kharusi and Ada (2018) investigated the relationship between government external borrowing and economic growth, prompted by continuous increases in Oman's external debt to finance its annual budget.

Time series data were collected from the World Bank and the Central Bank of Oman. The study employed the Autoregressive Distributed Lag cointegration approach explain the error correction mechanism to ascertain the short-run dynamic nature of external debt and economic growth. Consistent with some existing empirical evidence, the study reveals a negative and significant influence of external debt on economic growth in Oman. Further, gross fixed capital was found to be positively significant in determining growth performance in Oman.

Francis Chukwudi Onyedibe, Mbah Catherine Chidinma and Maria Chinecherem Uzonwanne (2022) investigated Impact of Budget Deficit Financing on Money Supply in Nigeria. Due to the homogeneity of macroeconomic variables, it adopted a vector error correction mechanism (VECM) which shows the existence of long run relationship between money supply and indicators of financing budget deficit.

The general findings revealed that external source of financing budget deficit; internal source of financing budget deficit as well as debt servicing has a significant effect on money supply for the period under review in the Nigerian context.

Distinguishing between two forms of external financing such as debt and foreign direct investment, Gaies and Nabi (2019) investigated how external financing affects growth in developing countries. The study followed quantitative analysis approach by using descriptive and inferential statistics. The findings revealed that both debt and foreign direct investment favour growth by boosting investment through the credit channel.

However, excessive external debt increases vulnerability to financial crises. Contrariwise, FDI plays an amortizing role by reducing a crisis' effects.
Literature Gap: The literature reviewed in this study shows that some studies attempted to explore the relationship that exists between external debt and economic growth in Nigeria.

But, the studies in this area play little or no emphasis on economic growth proxy for real gross domestic product. Most of the scholars that ventured into this field, focused on the relationship between economic growth, external debt, government spending, inflation rate and exchange rate in Nigeria. In respect to these, this study seeks to find out the relationship that exists between economic growth external debt, debt service payment, exchange rate and money supply in Nigeria. The period (1990- 2023) covered by this study extends beyond other studies reviewed which makes it relevant for formulating policies in order to meet current realities in external debt and dynamics of economic growth.

III. METHODOLOGY

Research Design
Owing to the nature of this study, an ex-post facto research design was adopted. The choice of an ex-post facto research design resonates from the fact that the study relies on existing secondary data from which cannot be manipulated.

As explained by Kerlinger (1973), ex-post facto research design is appropriate for investigating the cause-and-effect relationship between dependent and independent variables. It is, therefore, considered ideal for this study.

Model Specification
The theoretical underpinning of this study was hinged on Keynesian theory given of its relevance to this study. The theory indicates that during economic recession and underdevelopment, expansionary fiscal policy should be embraced to upsurge the aggregate demand in the economy thus boosting economic activities, thereby enhancing social wellbeing.

For the purpose of this study also, multiple regression model was adopted. Multiple linear regression model was adopted. The following formulation of the model was used for this study:
Functionally, the model is stated as follows:

$$RGDP = f(EDT, DEBTS, EXCR, MS) \quad (3.1)$$

Mathematically, the model is stated as follows:

$$RGDP = \beta0 + \beta1EDT + \beta2DEBTS + \beta3EXCR + \beta4MS \quad (3.2)$$

Econometrically, the model is stated as follows:

$$RGDP = \beta0 + \beta1EDT + \beta2DEBTS + \beta3EXCR + \beta4MS + \mu t \quad (3.3)$$

The log linear model is stated as follows:

$$InRGDP = \beta0 + \beta1InEDT + \beta2InDEBTST + \beta3InEXCR + \beta4InMS + \mu t \quad (3.4)$$

The Autoregressive Distributed Lag (ARDL) model specifications of the above models are given as;

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$$\Delta \ln(RGDP_t) = \beta_0 + \beta_{11}\Delta \ln(RGDP_{t-1}) + \beta_{21}\Delta \ln(EDT_{t-1}) + \beta_{31}\Delta \ln(DEBTS_{t-1}) + \beta_{41}\Delta \ln(EXCR_{t-1}) + \beta_{51}\Delta \ln(MS_{t-1}) + \sum_{i=1}^{p} \delta_{1i}\Delta \ln(RGDP_{t-1}) + \sum_{i=1}^{q} \delta_{2i}\Delta \ln(EDT_{t-1}) + \sum_{i=1}^{p} \delta_{3i}\Delta \ln(DEBTS_{t-1}) + \sum_{i=1}^{q} \delta_{4i}\Delta \ln(EXCR_{t-1}) \sum_{i=1}^{q} \delta_{5i}\Delta \ln(M2_{t-1}) + \infty ECT_{t-1} + \varepsilon_{2t} \quad (3.5)$$

Where: RGDP = Real Gross Domestic Product: EDT = External debt; DEBTS = Debt servicing EXC = Exchange rate, MS = Money supply; β0 = Slope of the Regression Line; β1= Parameter of External debt; β2 = Parameter of Debt Servicing debt; β3 = Parameter of Exchange rate; β4 = Parameter of Money supply; μt = Error term

IV. DATA PRESENTATION AND FINDINGS

Descriptive Analysis

The statistical properties of the data presented in table 4.1 were further confirmed with the help of descriptive statistics. The concern basically was to get a more descriptive aspect of the data through summary statistics comprising the mean, median, standard deviation, amongst others.

This was done to form the basis for a clearer appreciation of the more extensive inferential statistical analysis which subsequently followed. The results of the descriptive analysis are presented as follow:

Table 4.1: Descriptive Statistics

	RGDP	MS	EXR	EXDEBT	DEBTS
Mean	46450.36	11559.71	153.5098	3421.914	1533.455
Median	43837.39	3797.91	129.3565	1387.33	221
Maximum	77936.1	48461.42	395.0455	18702.25	10369.7
Minimum	21757.9	47.42	8.0378	298.61	1
Std. Dev.	20599.87	14022.18	105.4575	4581.828	2606.689
Skewness	0.112126	1.089094	0.889722	2.040394	2.099616
Kurtosis	1.384232	3.025658	2.988875	6.45569	6.503592
Jarque-Bera	3.658869	6.524598	4.354	39.31761	41.12448
Probability	0.160504	0.0383	0.113381	0.000	0.000
Sum	1532862	381470.6	5065.824	112923.2	50604
Sum Sq. Dev.	1.36E+10	6.29E+09	355881.2	6.72E+08	2.17E+08
Observations	34	34	34	34	34

Source: Researcher's Computation (EViews 12), 2025.

Table 4.1 above presents the descriptive statistics of the variables. Beginning with Real Gross Domestic Product (RGDP), the mean value of ₦46,450.36 billion and median of ₦43,837.39 billion suggest that Nigeria's economic output experienced steady expansion during the period under review. The maximum value of ₦77,936.10 billion and minimum value of ₦21,757.90 billion indicate substantial growth in real economic activities over time.

The standard deviation of ₦20,599.87 billion shows a moderate level of dispersion around the mean, suggesting variations in economic performance across the years. Similarly, Money Supply (MS) recorded a mean value of ₦11,559.71 billion with a median of ₦3,797.91 billion, showing that liquidity in the Nigerian economy has increased significantly over time.

The variable ranges from a minimum value of ₦47.42 billion to a maximum value of ₦48,461.42 billion, indicating rapid monetary expansion particularly in the later years of the study period. The relatively high standard deviation of ₦14,022.18 billion suggests considerable fluctuations in money supply across the years. Furthermore, Exchange Rate (EXR) has a mean value of 153.51 and a median of 129.36, with a minimum value of 8.04 and a maximum value of 395.05.

The standard deviation of 105.46 indicates high volatility in exchange rate movements. In addition, External Debt (EXDEBT) recorded a mean value of ₦3,421.91 billion and a median value of ₦1,387.33 billion, suggesting that external borrowing increased significantly during the study period.

The variable ranges from a minimum value of ₦298.61 billion to a maximum value of ₦18,702.25 billion, indicating a large accumulation of external debt in recent years. The standard deviation of ₦4,581.83 billion reflects considerable variability in the external debt profile of Nigeria. Moreover, Debt Servicing (DEBTS) has a mean value of ₦1,533.46 billion and a median of ₦221 billion.

The variable ranges from a minimum value of ₦1 billion to a maximum value of ₦10,369.70 billion, reflecting the growing burden of debt repayment in Nigeria. The standard deviation of ₦2,606.69 billion shows substantial fluctuations in debt servicing costs across the years.

Unit Root Test

The data representing variables in this study were subjected to test of stationarity by testing for the presence or absence of unit root using Augmented Dickey-Fuller (ADF) to overcome this undesirable outcome. The results are summarized in the table 4.4 below:

Table 4.2: Augmented Dickey-Fuller (ADF) Test Results

	At Levels			At First Difference				
Variables	ADF	Mackinnon Value @ 5%	Critical	ADF	Mackinnon Value @ 5%	Critical	Remark Stationary @	Order of Integration
LOG(RGDP)	-0.641544	-2.957110		-2.991083	-2.957110		1st Difference	I(1)
EXC	1.266245	-2.963942		3.622380	-2.960411		1st Difference	I(1)
EDT	-0.118347	-2.954021		-3.852872	-2.957110		1st Difference	I(1)
DEBTS	5.251395	-2.976263		-	-		Level	I(0)
MS	-1.567549	-2.960411		-4.399022	-2.960411		1st Difference	I(1)
LOG(MS)	-4.131555	-2.954021		-	-		Level	I(0)

Source: Researcher's Computation (EViews 12), 2025

The results of the Augmented Dickey-Fuller (ADF) Unit Root Test are presented in Table 4.3. The ADF test was conducted to determine the stationarity properties of the variables used in the study in order to avoid the problem of spurious regression. The results reveal that some of the variables are non-stationary at levels but become stationary after first differencing, while others are already stationary at levels.

Specifically, Log of Real Gross Domestic Product (LOG(RGDP)), Exchange Rate (EXR), External Debt (EDT), and Money Supply (MS) are not stationary at levels since their ADF statistics are less than the Mackinnon critical values at the 5 percent significance level.

However, these variables become stationary after taking their first difference, indicating that they are integrated of order one, I(1). This implies that these variables possess long-run stochastic trends and that shocks affecting them may persist over time, but the series become stable once differenced. In contrast, Debt Servicing (DEBTS) was stationary at levels, as

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the ADF statistics exceed the Mackinnon critical values at the 5 percent significance level.

This indicates that these variables are integrated of order zero, I(0), meaning they naturally revert to a stable mean and variance without requiring differencing.

Bounds Cointegration Test

The results of the Bound cointegration test are presented in Table 4.3 below:

Table 4.3: Bounds Cointegration Test

Null Hypothesis: No Long-Run Relationships Exist				
Critical Value Bounds				
T-statistic	Value	Significance	I(0)	I(1)
F-statistic	6.735368	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Researcher's Computation (EViews 12), 2025

From the result of the Bounds Cointegration Test in Table 4.4, the computed F-statistic (6.735368) is greater than the upper bound critical value (3.49) at the 5 percent significance level. Therefore, the null hypothesis (H_0) of no long-run relationship is rejected. This implies that there is cointegration among the variables included in the model.

This result indicates that there is sufficient statistical evidence to conclude that a long-run equilibrium relationship exists among Real Gross Domestic Product (RGDP), Money Supply (MS), Exchange Rate (EXR), External Debt (EXDEBT), and Debt Servicing (DEBTS) in Nigeria over the period under study.

In other words, although the variables may fluctuate in the short run, they tend to move together and converge to a stable long-run equilibrium over time. However, the existence of this long-run relationship, together with the mixed order of stationarity (I (0) and I (1)) observed in the unit root test, satisfies the key condition for applying the Autoregressive Distributed Lag (ARDL) modelling approach.

The ARDL framework is therefore appropriate for examining both the short-run dynamics and the long-run relationship between external debt and economic growth in Nigeria.

Table 4.4: Short run ARDL and Error Correction Results of External Debt and Economic Growth Equation

Dependent variable: D(AGDP)
Selected Model: ARDL(2, 4, 3, 4, 1, 3, 3)

Variable	Coefficient	Standard Error	t-Statistic	Probability
D(RGDP(-1))	-0.370092	0.165281	-2.239161	0.0449
D(RGDP(-2))	0.332404	0.093702	3.547456	0.0040
D(MS)	0.429592	0.097141	4.422338	0.0008
D(MS(-1))	1.682607	0.189090	8.898467	0.0000
D(MS(-2))	0.559142	0.232191	2.408106	0.0330
D(DEBTS)	-0.791547	0.351124	-2.254325	0.0437
D(DEBTS(-1))	-2.300112	0.512590	-4.487236	0.0007
D(DEBTS(-2))	-2.956570	0.467221	-6.327988	0.0000
D(EXDEBT)	0.201182	0.164076	1.226152	0.2437
D(EXDEBT(-1))	0.221925	0.175878	1.261811	0.2310

D(EXDEBT(-2))	0.719563	0.177112	4.062757	0.0016
D(EXR)	48.55031	9.887340	4.910351	0.0004
ECT (-1)	-0.163255	0.021576	7.566415	0.0000
Diagnostic tests				
Adjusted R-squared	0.881304	Durbin-Watson statistic		2.070251

Source: Researcher's Computation (EViews 12), 2025

The results of the short-run ARDL model in Table 4.5 revealed that Real Gross Domestic Product (RGDP) exhibits both positive and negative dynamic responses to its lagged values. Specifically, D(RGDP(-1)) has a negative and significant effect on RGDP in the short-run because the coefficient is negatively signed (-0.370092) and has a p-value (0.0449) which is less than 0.05, as well as a t-statistic (-2.239161) which is greater than the t-tabulated value of 1.96 in absolute terms.

This implies that a previous decline in RGDP tends to reduce current output in the short run. However, D(RGDP (-2)) shows a positive and significant effect with a coefficient of 0.332404 and p-value (0.0040), indicating that earlier economic expansion can stimulate current economic growth.

Furthermore, the results of the short-run ARDL in Table 4.5 revealed that Money Supply (MS) has a positive and significant effect on Real Gross Domestic Product in Nigeria in the short run. This is because D(MS) is positively signed (0.429592-) and has a p-value (0.0008) which is less than 0.05, with a t-statistic (4.422338) greater than the t-tabulated value of 1.96.

This implies that an increase in money supply will bring about a 0.429592 significant increase in Real Gross Domestic Product in the short run. Similarly, the lagged values D (MS (-1)) = 1.682607 (p = 0.0000) and D(MS(-2)) = 0.559142 (p = 0.0330) are also positive and statistically significant, indicating that monetary expansion continues to stimulate economic growth over time.

This suggests that liquidity expansion encourages investment and consumption which ultimately increases economic output. In addition, the results revealed that Debt Servicing (DEBTS) has a negative and significant effect on Real Gross Domestic Product in Nigeria in the short run.

This is because D(DEBTS) is negatively signed (-0.791547) and has a p-value (0.0437) which is less than 0.05, with a t-statistic (-2.254325) greater than the t-tabulated value of 1.96 in absolute terms. This implies that an increase in debt servicing will bring about a 0.791547 significant decrease in Real Gross Domestic Product in the short run.

Furthermore, the lagged values D (DEBTS (-1)) = -2.300112 (p = 0.0007) and D (DEBTS (-2)) = -2.956570 (p = 0.0000) are also negative and significant. This indicates that higher debt repayment obligations exert increasing pressure on the economy over time, reducing funds available for productive investments and economic development. Moreover, the results of the short-run ARDL in Table 4.5 revealed that External Debt (EXDEBT) has a positive but insignificant effect on Real Gross Domestic Product in Nigeria in the short run at the contemporaneous period.

This is because D(EXDEBT) is positively signed (0.201182) but has a p-value (0.2437) which is greater than 0.05, indicating that the effect is not statistically significant. Similarly, D (EXDEBT (-1)) = 0.221925 (p = 0.2310) also remains statistically insignificant. However, D (EXDEBT (-2)) has a positive and significant effect with a coefficient of 0.719563 and p-value (0.0016), implying that external borrowing may take some time before translating into economic growth through investment in infrastructure and development projects.

Similarly, the results show that Exchange Rate (EXR) has a positive and significant effect on Real Gross Domestic Product in Nigeria in the short run. This is because D(EXR) is positively signed (48.55031) and has a p-value (0.0004) which is less

than 0.05, while the t-statistic (4.910351) is greater than the t-tabulated value of 1.96.

This implies that exchange rate movements significantly influence economic growth in the short run, possibly through their effects on trade, capital flows, and government revenues. Moreover, the error correction term (ECT (-1)) is correctly signed and statistically significant, with a coefficient of -0.163255 and p-value (0.0000).

The negative sign indicates the existence of a stable long-run equilibrium relationship among the variables. The magnitude of -0.163255 implies that approximately 16 percent of the disequilibrium in the previous period is corrected in the current period.

This shows that the system gradually adjusts toward long-run equilibrium after short-run shocks. Lastly, the Adjusted R-squared value of 0.881304 indicates that approximately 88 percent of the variation in Real Gross Domestic Product is explained by money supply, exchange rate, external debt, and debt servicing in the short run, while the remaining 12 percent of the variation is captured by other factors outside the model. In addition, the Durbin-Watson statistic of 2.070251 suggests the absence of autocorrelation in the model, indicating that the estimated results are reliable for policy interpretation.

Table 4.6: ARDL Long Run Estimation of External Debt and Economic Growth Equation Equation

Dependent variable: RGDP				
Variable	Coefficient	Standard Error	t-Statistic	Probability
MS	6.633494	2.492724	2.661142	0.0207
DEBTS	-22.27977	10.45559	-2.130896	0.0545
EXDEBT	2.880685	2.274775	1.266360	0.2294
EXR	-207.4667	146.7248	-1.413985	0.1828

Source: Researcher's Computation (EViews 12), 2025

The results of the long-run ARDL estimation in Table 4.6 revealed that Money Supply (MS) has a positive and significant effect on Real Gross Domestic Product in Nigeria in the long run. This is because money supply is positively signed (6.633494) and has a p-value (0.0207) which is less than 0.05, as well as a t-statistic value (2.661142) that is greater than the t-tabulated value of 1.96.

This implies that an increase in money supply will bring about a 6.633494 significant increase in Real Gross Domestic Product in the long run. This suggests that monetary expansion plays an important role in stimulating economic activity by increasing liquidity in the economy, encouraging investment, and promoting consumption, which ultimately leads to higher output growth.

Furthermore, the results of the long-run ARDL in Table 4.6 revealed that Debt Servicing (DEBTS) has a negative but marginally insignificant effect on Real Gross Domestic Product in Nigeria in the long run. This is because debt servicing is negatively signed (-22.27977) and has a p-value (0.0545) which is slightly greater than 0.05, while the t-statistic value (-2.130896) is close to the t-tabulated value of 1.96.

This implies that an increase in debt servicing will bring about a 22.27977 decrease in Real Gross Domestic Product in the long run, although the effect is not statistically significant at the 5 percent level.

This finding suggests that increasing debt repayment obligations may reduce the funds available for productive investments and development projects, thereby exerting downward pressure on long-term economic growth.

Moreover, the results of the long-run ARDL in Table 4.6 revealed that External Debt (EXDEBT) has a positive but insignificant effect on Real Gross Domestic Product in Nigeria in the long run. This is because external debt is positively signed (2.880685) and has a p-value (0.2294) which is greater than 0.05, while the t-statistic value (1.266360) is less than the t-tabulated value of 1.96.

This implies that an increase in external debt will bring about a 2.880685 increase in Real Gross

Domestic Product in the long run, although the effect is statistically insignificant. This result suggests that while external borrowing may contribute to economic growth by financing development projects, its overall long-run contribution to Nigeria's economic performance appears limited, possibly due to inefficiencies in the utilization of borrowed funds. Similarly, the results of the long-run ARDL in Table

4.6 revealed that Exchange Rate (EXR) has a negative and insignificant effect on Real Gross Domestic Product in Nigeria in the long run. This is because the exchange rate is negatively signed (-207.4667) and has a p-value (0.1828) which is greater than 0.05, while the t-statistic value (-1.413985) is less than the t-tabulated value of 1.96.

This implies that an increase in exchange rate depreciation will bring about a 207.4667 decrease in Real Gross Domestic Product in the long run, although the effect is statistically insignificant. This result suggests that exchange rate fluctuations may create uncertainty in the economy and increase the cost of imports and debt repayment, thereby potentially slowing down economic growth.

Post-Estimation Test of Real Gross Domestic Product (RGDP) Model

This study conducted post-estimation test to determine how reliable and valid the result analyzed above were. The results of the post-estimation tests conducted are presented in Table 4.8 below:

Table 4.5: Post-Estimation Tests Results

Test	Null Hypothesis	F-Statistic	Probability	Decision
Normality Test	H_0: Normally Distributed	2.166812	0.110308	Retain H_0
Serial Correlation LM Test	H_0: No serial Correlation	1.402531	0.2835	Retain H_0
Heteroskedasticity Test	H_0: Homoscedasticity	0.358699	0.9739	Retain H_0
Ramsey RESET Test	H_0: Correctly Specified	0.171132	0.6859	Retain H_0

Source: Researcher's Computation (EViews 12), 2025.

The post-estimation test results were presented in Table 4.8. Specifically, the result of normality test showed that the error term is normally distributed. This is because the p-value (0.110308) that emerged from the normality test result is greater than 0.05, indicating the null hypothesis of "normally distributed".

In furtherance, the result of serial correlation LM test showed that there is no evidence of autocorrelation given that Breush Godfrey LM test probability value was greater than 0.05. This is because the p-value (0.2835) that emerged from the Serial Correlation LM test result is greater than 0.05, indicating the null hypothesis of "no serial correlation".

In addition, the result of heteroscedasticity test showed that it is absent in the model hence confirmed the assumption of homoscedasticity. This is because the p-value (0.9739) that emerged from the Heteroskedasticity test result is greater than 0.05, indicating the null hypothesis of "Homoscedasticity".

Finally, the result of Ramsey RESET test showed that the model was correctly specified while no variable is missing in the model. This is because the p-value (0.6859) that emerged from the Ramsey RESET test is greater than 0.05, indicating the null hypothesis of "correctly specified".

In conclusion, post-estimation test results in Table 4.7 provided evidence that all the variables (Real Gross Domestic Product), domestic debt, external debt, debt servicing, inflation rate and money supply) in our model conform to the basic assumptions of ordinary least squares estimation.

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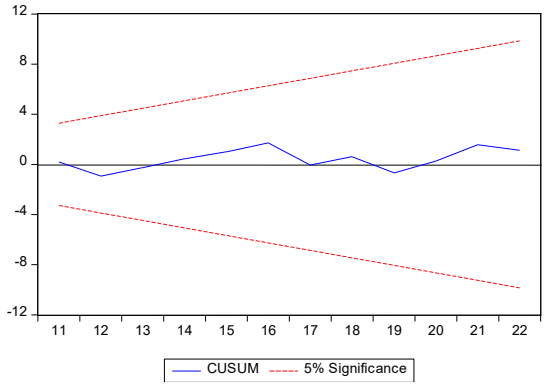
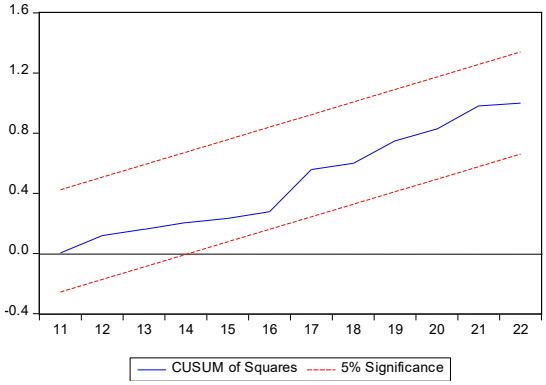


Author's Computation, 2025 (EViews, 12.0 Output).

Figure 4.1: Stability Cusum Tests

The results of the stability test using cumulative sum (CUSUM) as shown in Figure 4.7 indicate that CUSUM line stayed within the 5 percent critical bound. Thus, CUSUM plot did not across the 5 percent critical lines, hence, these statistics prove the stability of the long-run coefficients of the regressors that have an effect on economic growth in Nigeria.

Therefore, the results of the model of the effect of external debt measures on economic growth in Nigeria show the existence of parameter stability.



Author's Computation, 2025 (EViews, 12.0 Output).

Figure 4.2: Stability Sum Cusum Square Tests

The results of the stability test using cumulative sum (CUSUM) as shown in Figure 4.7 indicate that CUSUM line stayed within the 5 percent critical bound. Thus, CUSUM plot did not across the 5 percent critical lines, hence, these statistics prove the stability of the long-run coefficients of the regressors that have an effect on economic growth in Nigeria. Therefore, the results of the model of the effect of external debt measures on economic growth in Nigeria show the existence of parameter stability.

Discussion of Findings

Impact of Money Supply (MS) on Economic Growth Indicator (Real Gross Domestic Product)

The results of this study revealed that money supply has a positive and significant effect on Real Gross Domestic Product in Nigeria in both the short run and long run.

This finding implies that expansionary monetary policy enhances liquidity in the economy, stimulates investment and consumption, and ultimately increases economic output. The result is consistent with the findings of Onyedibe, Mbah and Uzonwanne (2022) who reported that money supply significantly influences macroeconomic stability and economic performance in Nigeria.

Impact of Debt Servicing (DEBTS) on Economic Growth Indicator (Real Gross Domestic Product)

The results of this study revealed that debt servicing has a negative and significant effect on Real Gross Domestic Product in Nigeria in the short run, but a negative and insignificant effect in the long run.

This finding is consistent with the study of George-Anokwuru and Nimino (2020) who found that external debt servicing exerts a negative impact on economic growth in Nigeria. Similarly, Iyoha (2000) noted that high debt servicing obligations reduce investment and economic performance due to debt overhang and crowding-out effects.

Impact of External Debt (EXDEBT) on Economic Growth Indicator (Real Gross Domestic Product)

The results of this study revealed that external debt has a positive but insignificant effect on Real Gross Domestic Product in Nigeria in both the short run and long run. This finding is consistent with Agbaeze et al. (2023) who also found that external debt had a positive but insignificant relationship with economic growth in Nigeria.

However, the result contrasts with the findings of Festus and Saibu (2019) and George-Anokwuru and Nimino (2020) who reported that external debt has a

negative and significant impact on economic growth in Nigeria.

Impact of Exchange Rate (EXR) on Economic Growth Indicator (Real Gross Domestic Product)
The results of this study revealed that exchange rate has a positive and significant effect on Real Gross Domestic Product in Nigeria in the short run, but negative and insignificant effect in the long run. This finding aligns with Gaies and Nabi (2019) who observed that exchange rate instability increases economic vulnerability and financial crises in developing economies.

Policy Recommendations
Based on the findings of this study on the relationship between external debt and economic growth in Nigeria, the following policy recommendations are proposed:

i. The government should ensure that external debt is directed toward productive sectors of the economy such as infrastructure, agriculture, manufacturing, education, and energy. Proper utilization of borrowed funds will enhance economic productivity and ensure that debt contributes positively to economic growth.

ii. There is a need for the government to strengthen the activities of the Debt Management Office (DMO) to ensure prudent borrowing and effective monitoring of Nigeria's debt profile. Borrowing should be limited to sustainable levels in order to avoid excessive debt accumulation and future debt crises.

iii. Since debt servicing has been found to exert negative pressure on economic growth, the government should restructure existing debts and negotiate better repayment terms with creditors. This will reduce the fiscal burden and free more resources for

iv. developmental projects.

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