

# Effects of Mounting Public Debt on Economic Growth in Nigeria

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DOI: <https://doi.org/10.51583/IJLTEMAS.2026.150300130>

Received: 04 April 2026; 09 April 2026; Published: 25 April 2026

## ABSTRACT

This study used the Auto Regression Distributed Lag (ARDL) technique to analyze the relationship between public debt and economic development in Nigeria between 1999 and 2023. The study specifically looked into how Nigeria's inflation rate, external debt, and domestic debt affected the country's economic growth. GDP served as a stand-in for economic growth, and the explanatory variables were the inflation rate (INF), external debt (ED), and domestic debt (DM). The findings showed that all three factors (DM), ED, and INF had little long-term effects on economic growth. All variables, however, were found to have a negligible long-term relationship with economic growth. Long-term economic growth was found to be positively and marginally correlated with both the inflation rate and domestic debt, suggesting that raising both will eventually boost Nigeria's economy. However, there was a negative and negligible impact of external debt on economic development. In other words, their rise will eventually slow Nigeria's economic progress. The study came to the conclusion that public debt indices have little long-term effect on Nigeria's economic growth. Therefore, it is advised that policymakers incorporate the necessary steps to guarantee appropriate management of domestic debts. The government should make sure that accrued national debts are used to promote investment in the nation and, through the appropriate monitoring committees, ensure that national debts are used to provide the essential facilities and services needed for the advancement of the nation's communities and societies.

**Keywords:** Public Debt, Economic Growth, Econometrics and Nigeria

## INTRODUCTION

Discussions on public debt are common because of worries about how it may affect Nigeria's economic stability and growth potential. The government borrows from both domestic and foreign sources to boost growth and address both immediate and long-term resource shortages when revenue is lower than expenditures. Therefore, the government may use public debt as a crucial tool to efficiently fund capital development, maintain public spending, and foster economic growth when it is difficult to raise taxes and reduce spending. In order to seek economic growth and development, Nigeria was compelled to incur external debt. Numerous loans have since been given for various development initiatives, but the expected results have not been achieved. Due to problems with debt and debt repayment, CBN issued a warning that rising Nigerian debt is impeding economic growth and development. The government should realize that growing debt raises claims on projected future income, which in turn means growing risks. The economy's foundation can be eroded by government debt, which can swiftly become a burden.

To various people, the idea of economic growth may mean different things. It is therefore difficult to come up with a single, sufficient definition. The terms "economic growth" and "economic development" are commonly used interchangeably due to their similar connotations. Therefore, depending on the situation, different

definitions of economic growth apply. While economic growth is only a measure of a country's output, it is a more inclusive term that encompasses social and political improvements in the welfare of its population. Economic growth is the improvement of a country's economic prosperity and standard of living through wealth accumulation and economic diversification, according to Yusuf et al. (2021).

There have been many worries about potential economic consequences as Nigeria, one of Africa's largest economies, has battled with significant debt loads from both internal and external sources. The effects of growing debt must be understood by both citizens and policymakers when the government borrows money to finance various programs and close budget deficits. Growing public debt could put a burden on government budgets by increasing the cost of debt repayment. This reduces the government's ability to address social and economic problems by diverting funds from critical sectors like healthcare, education, and infrastructure development. Nigeria spent over 97% of its earnings on debt payment in 2022, according to a World Bank analysis, underscoring the seriousness of the problem. Investopia (N.D.) defines public debt as the entire sum of money owed by a government to its creditors. When revenue from taxes and other sources is insufficient to fund government spending, both domestic and foreign debts are incurred through borrowing. Bonds issued by the government, Treasury bills, or loans from foreign financial institutions are examples of public debt.

Yusuf, Mohd, and McMillan (2021) asserted in their article that when governments' income fall short of their expenses, they borrow money to make up the deficit in their budgets. Therefore, they held that public debt is a necessary tool for governments to support public spending, particularly when tax hikes and spending reductions are difficult. It should be noted, though, that as a result of this one action over the years, the majority of governments now owe huge sums of money. Essien, Agboegbulem, Mba, and Onumonu (2016) claim that nations borrow money because they are unable to make enough money locally to fund their government activities. Proper utilization of borrowed cash should accelerate a country's economic growth and prosperity. It is anticipated that this will raise the welfare and standard of living of the populace.

The government regularly issues bonds and other financial instruments to fund projects, fill budget shortfalls, or deal with economic challenges. However, as Joy and Panda (2020) noted, taking on excessive debt without adequately planning for investments can lead to huge debt loads and interest payments, which can have a range of detrimental economic effects. The effect of public debt on Nigeria's economic growth is a matter of the highest importance, given the country's dynamic economic environment and hopes for sustainable development. As Nigeria battles to control its debt profile, policymakers, economists, and other stakeholders must all understand the complex relationship between public debt and economic growth.

Nigeria, like many developing nations, relies on borrowing from the public sector to meet its financial requirements and complete necessary infrastructure projects. Nigeria's high levels of public debt have made the country's persistent inflation worse, which has decreased the purchasing power of its citizens. Additionally, high interest rates brought on by a heavy debt burden have made borrowing more expensive for both major corporations and consumers, particularly Micro, Small, and Medium-Sized Enterprises (SMEs). But the increase in public debt necessitates a closer examination of its potential impacts on Nigeria's economic growth. Public debt may therefore boost the economy, but when it reaches a certain level, servicing and repaying the debt will demand a substantial amount of government spending and foreign exchange profits, which will come at a significant opportunity cost, even for future generations. Furthermore, if the cost of debt repayment exceeds the economy's capacity to bear it, efforts to accomplish the planned fiscal and monetary policy goals may suffer.

This research is particularly pertinent given Nigeria's ambitious economic agenda, which seeks to position the country as a significant player in the global economy. According to Yusuf et al. (2021), borrowing wisely to finance public development and infrastructure is the key to faster economic growth. Economic theory predicts that borrowing at appropriate levels will increase the economic growth of a developing country (Pattillo, Ricci, & Poirson 2002). Developing countries like Nigeria borrow to augment their resources in order to foster growth because small capital stocks are prevalent. They might therefore have access to investment opportunities with greater rates of return than those found in developed economies. This works as long as borrowed funds and a portion of funds that are naturally ploughed back are employed for productive investments and are not impacted by macroeconomic instability, policies that distort economic incentives, or large negative shocks. Growth will therefore most likely quicken and make timely debt repayment possible. If this cycle is maintained throughout

time, growth will positively affect per capita income, which is necessary to lower poverty. These predictions are known to be accurate, even in theories based on the more realistic assumption that countries may not be able to borrow freely because of the risk of debt denial.

According to the DMO report (2022) published by the daily premium times in May, public debt levels have climbed steadily over the past few decades and have reached record (peacetime) levels, especially in our country of Nigeria. Despite our natural resources, the impact of successive governments' dramatic increases in public debt over the years has not, according to a number of macroeconomic factors and the management of the funds themselves, significantly improved the lives of the populace or decreased poverty. The issue of public debt and its impact on economic growth are pressing concerns in Nigeria. It has been challenging to manage the country's growing debt, raising questions about its sustainability and potential impact on economic expansion. If the government has too much debt, interest payments will go up and money will be diverted from other important areas. As a result, poverty can get worse and long-term economic growth might be hampered. Finding a balance between keeping financial restraint and using debt to finance infrastructure development is crucial.

## LITERATURE REVIEW

### Public Debt

A country's public debt is the total amount it owes to lenders beyond its boundaries (Dairu, 2017). Public debt, often known as national debt, is the entire amount of debt owed by a nation's government, both domestically and abroad. Udoka and Lari (2011) define external debts as the government's obligations to foreign institutions such as the IMF and AfDB. The government's responsibilities to the people of the country are known as internal debts. The accumulation of loans or borrowings (both internal and external) is caused by a country's budget deficits, which result from the government spending more than it takes in (Orgah, 2013).

Lopes and Ferreira (2014) claim that the national debt is caused by insufficient tax revenue to pay for projected costs. In other words, when governments experience budget deficits, they can use public debt as a helpful instrument. Additionally, they clarify that public debt is a collection of state obligations to third parties, regardless of the currency and nationality of the creditors. It can be categorized as either domestic debt if it is issued on the domestic market or external debt if it is issued on the foreign market.

According to Joyade and Oni (2016), the external component of public debt is counterproductive and entails a greater burden because interest charges and principal repayment require transferring resources to foreign creditors and lenders, whereas a nation's internal debt (borrowing) may not place a significant burden on its citizens because paying off the principal and interest requires transferring purchasing power from one group of citizens to another, making it productive. According to Lawal and Muna (2017), who worked with Joyade & Oni (2016), transferring resources to other nations is a depressing and regrettable fund-raising and financing structure. This is due to the fact that interest payments by itself can reduce the debtor nation's net income, making them ineffective, particularly if the money is misused, as is the case with many emerging African countries.

### Economic Growth

Economic growth is the rise in an economy's capacity to produce goods and services over time. Accordingly, a country is considered to be experiencing economic growth when its actual output of goods and services increases faster than its population (Adams, 2004; Ogosu & Uwan 2009). Economic growth is the process by which a nation's wealth and economy expand over time (Kylon & Krusan, 2001). This crucial measure of a nation's economic health is often determined by tracking its gross domestic product (GDP) growth over time. The four main components that propel economic growth the gradual increase in a country's output—are land, labor, money/capital, and material (David & Moore 2015). Because economic growth is a complex and multifaceted process, researchers continue to investigate its many aspects and contributing variables. To develop effective growth-oriented policies, economists and policymakers must understand the mechanics of economic growth.

One of the main multiplier effects of economic expansion is the generation of wealth with opportunities for development. In comparison to earlier times, it is an increase in the production of economic goods and services (Katuma, 2011). It is an increase in the value of national output, income, and expenditure, according to Gupta

and Gameliel (2002). Increased real incomes, a higher quality of living for the populace, and the government's ability to invest more in infrastructure, including health and education, are the primary benefits of a nation's economic growth.

## **External Debt**

This relates to a nation, for instance. Over time, numerous governments have departed with The money can be borrowed from businesses and private individuals or from the substantial outstanding debt that makes up the national debt for all of her foreign governments. Interest must be paid on all debts, including those owed by foreign nationals. When bonds expire, they are either repaid or refinanced, which is seen to promote economic growth and the development of new borrowing. The Debt Director General (Osinubiet al., 2006). That is the fundamental Management Office, which is the entity tasked with overseeing the first loan borrowing. the debt of Nigeria), Dr. Abraham Nwankwo demanded a He claims that financing a deficit budget has resulted in the development of "the interest payable to internal debt (which constituted external debt 88% of total debt) was too high as it should not normally External debt increases a country's total available exceed 60%," which makes borrowing necessary for governments to restructure the public debt (Anonymous, 2007). Mallam Lamido Sanusi, the governor of CBN, is also paying back the loan and fulfilling the interest commitment in order to support these resources in the future due to the obligation of argument.

## **Overview of Nigeria's Public Debt**

Nigeria has been in debt since before it became an independent nation. Nigeria had relatively little debts before 1978, primarily from long-term loans from official and multilateral sources, such as the World Bank and its main trading partners. The economy was not burdened because the loans were mostly taken out on advantageous terms. However, in 1977–1978, the country received its first jumbo loan for a total of US\$1.0 billion from the global capital market, the World Bank (2010), due to the drop in oil prices and earnings. The loan was used to support a number of medium-to long-term infrastructure projects.

Nigerian government securities such as Treasury Bonds, Federal Government Development Stocks, Nigerian Treasury Bills (NTBs), and Nigerian Treasury Certificates have been issued by the CBN to manage the country's domestic debt thus far. The debt management strategy employed at the time produced inefficiencies that led to significant issues. Given these different obstacles, the government established an autonomous debt management office to achieve efficient debt management practices.

## **THEORETICAL**

### **The Neoclassical Debt Theory**

The neoclassical theory of public debt, which studies how government borrowing impacts economic growth, income distribution, and overall stability, is one of the fundamental concepts in economics. By focusing on capital accumulation and profit reinvestment, the classical growth theory provides a framework for understanding how public debt promotes economic growth. Classical economics holds that profitable reinvestment and productive investment are the primary drivers of continuous economic growth. The concept also supports private property, free commerce, and individual enterprise as essential components of economic success. The conventional perspective on public debt highlights the various impacts that government borrowing has on stability, income distribution, and economic growth. By understanding the classifications, economic repercussions, and theoretical perspectives, policymakers can make well-informed decisions regarding the management of public debt to support sustainable economic development.

### **The Keynesian theory of public debt**

Renowned British economist John Maynard Keynes revolutionized economic theory during the Great Depression by advocating for government intervention in the economy. According to Keynes, during economic downturns, private sector demand often falls short, leading to underutilization of capacity and unemployment. To counter this, he recommended that governments increase expenditure, even at the expense of debt, to

stimulate demand and pull the economy out of the slump. The Keynesian theory of public debt, a cornerstone of modern macroeconomic theory, explains how government borrowing impacts stability and economic growth. The core tenet of Keynesian economics is that government intervention can lead to economic stabilization. This intervention is necessary to manage aggregate demand and prevent economic downturns. According to Keynesian economists, this kind of intervention can lead to price stability and full employment.

Modern Keynesian economists have built upon Keynes's original views by including ever more intricate models of economic activity. They argue that as long as interest rates on public debt remain below the rate of economic expansion, large levels of debt are not as concerning. This point of view emphasizes how important it is to maintain low interest rates to ensure that debt can be serviced. The Keynesian theory of public debt highlights the importance of government intervention in stabilizing the economy, particularly during periods of economic distress. By encouraging deficit spending and emphasizing the significance of aggregate demand, Keynesian economics provides a framework for understanding how public debt can be used as a weapon for economic recovery and growth. But it also emphasizes the necessity of managing debt levels carefully to prevent any detrimental effects on stability and economic growth.

### **Ricardian Theory of Public Debt**

According to an economic theory known as the Ricardian theory of public debt, or Ricardian equivalency, using current taxes or future taxes (as well as existing deficits) to finance government spending will have similar effects on the overall economy. This means that attempts to stimulate an economy by increasing government spending backed by debt would fail since investors and consumers are aware that the debt will eventually need to be paid back through future taxes. The hypothesis argues that people will save based on their expectation of higher future taxes, which would have no discernible influence on rising aggregate demand, since consumers would save the tax cut to pay for the future tax increases. The theory's inception and theoretical justification are attributed to David Ricardo. It is important to keep in mind that even though the concept retains Ricardo's name, he was not persuaded of this equality. The notion has been largely rejected by both Keynesian economists and public policymakers who follow their advice. It does, however, have some validity, as evidenced by a study of how the European Union's member states were impacted by the 2008 financial crisis, which discovered a substantial correlation between the amount of government debt and the net financial assets accumulated in 12 of the 15 nations studied. Critics of the theory argue that human behavior deviates from Ricardian equivalency even in a laboratory setting where all necessary assumptions are guaranteed to hold, and that the assumptions of the theory have been convincingly refuted.

For instance, Martin Feldstein argued that the accumulation of governmental debt lowers savings in an expanding economy. The model was also critiqued by James M. Buchanan, who noted that this is a long-standing issue in public finance theory that was first brought up by Ricardo and subsequently expanded upon by de Viti. In conclusion, the Ricardian theory of public debt maintains that using debt or taxes to finance government spending will have an equal effect on the economy overall since people are anticipated to save money in expectation of future tax increases. However, this idea has drawn criticism, and its viability is still up for discussion in the economic community.

### **Empirical**

Ogege and Ekpudu (2011) conducted a study on the effects of debt on the Nigerian economy. The objective was to ascertain how the quantity of debt affected the country's economic growth. The study's data came from the Central Bank of Nigeria's (CBN) statistical bulletin. The relationship between Nigeria's economic growth and debt load was investigated using a statistical technique known as Ordinary Least Square (OLS). The findings showed a negative relationship between the country's debt stock and economic growth, indicating that an increase in the debt stock would cause the country's growth rate to decrease.

Ndubuisi (2017) assessed the impact of external debt on economic growth in a rising economy using secondary data from 1985 to 2015. The Ordinary Least Square (OLS) method was employed in the study to analyze the data. The results showed that debt service payments had a negative and insignificant effect on Nigeria's economic development, whereas external debt stock had a positive and significant impact on the country's growth index.

Furthermore, the Johansen co-integration test showed a long-term relationship between external debt and the growth index (GDP).

Essien and Ndalo (2017) looked at the consequences of Nigeria's national debt load. Examining the impact of government borrowing on economic growth was the goal. Information on GDP growth rate, external borrowing, and internal borrowing for the five-year period (2014-2018) was available in statistics bulletins from the CBN, the National Bureau of Statistics (NBS), and the Debt Management Office (DMO). Regression study results demonstrated that the rate of GDP growth is negatively impacted by public debt.

Sam (2021) used a dynamic multivariate autoregressive distributed lag (ARDL) based Grangercausality model as an estimation technique to investigate the relationship between public debt and economic growth in Ghana's developing economy. The results demonstrated that, although there is a long-term unidirectional Granger causal relationship between public debt and GDP, there is no short-term causal relationship between the two. Investment spending and GDP also have a long-term positive bidirectional causal correlation but a short-term negative bidirectional causal relationship. On the other hand, long-term Granger causality between GDP and government consumption expenditures leads to the conclusion that public debt has a short-term positive effect on the rate of inflation, even though there is no short-term causal relationship between GDP and government consumption expenditures. It is recommended that governments maintain a high degree of fiscal discipline in order to guarantee the effective and efficient use of recent borrowing. This indicates that in order to boost GDP, the loans should be applied to highly prioritized initiatives (preferably investment spending) that are well examined and self-sustaining.

Mokuolu (2021) examined the relationship between Nigeria's economic development and external debt using data from 1986 to 2014. The study evaluates the data using the Error Correction Mechanism (ECM) using time series data on economic growth factors and proxies for foreign debt. The empirical findings demonstrated a sustained positive relationship between economic development and Nigeria's external debt. Additionally, they showed that of the three external debt variables examined, only the Debt Service Payment (DSP) had a negative link with economic development, whereas the interest rate and External Reserves (ERS) had a positive correlation with GDP expansion. Additionally, over time, every explanatory factor makes a substantial contribution to the explanation of economic growth.

The external debt variables (DSP, ERS, and INT) collectively explained 47% of the variation in GDP, with the model's disturbance mean accounting for the remaining 53%, according to the parsimonious model's coefficient of multiple determination (R Squared) of 47%. Nigeria should implement measures that increase exports and foreign reserve wealth, according to the study's conclusions. The country's debt profile will consequently get better. According to the report, the government should decrease its debt load in order to optimize its impact on economic expansion and preserve political and economic stability in order to gain from external debt.

Usman Umar (2022) examined the impact of domestic debt on economic growth in Nigeria between 1980 and 2020 using the autoregressive distributed lag (ARDL) model technique. The findings demonstrated that while interest rates and government capital expenditures on transfers had a positive but insignificant impact on economic development over the long run, domestic debt had a positive and significant impact. The servicing of public debt was found to have a major detrimental influence on economic growth. While domestic debt, interest rates, and government capital expenditures on transfers were found to have short-term negative and negligible effects, public debt servicing demonstrated a positive but negligible relationship with economic development. Therefore, in order to generate jobs, lessen poverty, and draw in foreign direct investment, the study suggests that borrowed funds be directed toward productive economic sectors, particularly the real sector.

The relationship between Nigeria's economic development and domestic public debt from 1981 to 2019 was examined by Abiodun Akanbi and Uche Joe Uwaleke (2023). During this period, Nigeria was governed by both civilians and the military. The study was able to examine the connection between Nigeria's domestic debt and economic growth depending on the type of regime. The ARDL estimate method was used in the study. The investigation was based on the neoclassical and endogenous growth theories. The findings show that domestic public debt and growth in Nigeria are positively connected during military rule but adversely correlated both over the short and long terms under democratic rule.

Furthermore, the results demonstrated that domestic debt has a long-term, negligible positive impact on growth, but the budget deficit has a positive but not statistically significant relationship with growth. The results also show that prime lending rates considerably increase long-term growth. The long-term negative effects of inflation on economic growth are minimal. The results showed evidence of a unidirectional causal link between population growth and economic expansion. The rise of gross fixed capital formation and the prime lending rate were found to have a unidirectional causal relationship with economic development. The results of the study suggest that public debt and economic growth could be impacted by the political system. According to the study, borrowing should be done cautiously in order to make public debt sustainable.

Eze and Ukwueni (2023) examined the impact of public debt buildup on economic growth in Nigeria using the Autoregressive Distributed Lag (ARDL) model as an estimating technique. The results demonstrated that LGDP is negatively impacted by both external debt (LEXD) and domestic debt (LDD). Domestic debt (LDD) has little effect on LGDP, while external debt has a significant impact. It is recommended that the government focus inward by enacting policies for economic diversification and aggressive domestic income collection, as well as significantly lowering Nigeria's cost of governance, rather than using external debt to cover the country's budget deficit.

In their study, Nanfa Nimvyap, A. J. Daniel, et al. (2023) examined the relationship between state debt and poverty reduction in Nigeria and assessed the effects of external, domestic, and debt servicing. For the investigation, secondary time series data spanning 21 years (2000–2021) was gathered. The study used descriptive statistics, a correlational matrix, and an error correction mechanism (ECM) to estimate the data. The findings demonstrated that external debt had a positive and significant impact on reducing poverty in Nigeria, whereas domestic debt and debt servicing had an inverse and significant relationship with poverty reduction in Nigeria.

Empirical evidence indicates a co-integration of Nigeria's public debt and poverty reduction initiatives. Based on these findings, the study recommends that the government examine and evaluate Nigeria's current foreign borrowing rules and incentives in order to drastically reduce poverty in the nation. In order to address Nigeria's poverty issue, the current administration should also support domestic savings initiatives.

## METHODOLOGY

This analysis uses secondary data from public sources, including the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), the Statistical Bulletin and Annual Economic Report, and International Financial Statistics (IFS). In particular, the data technique makes use of secondary data to measure the effect of public debt on the Nigerian economy. The model parameters will be estimated using ordinary least square (OLS) techniques.

### Model Specification

The aforementioned data was analyzed using a multiple regression econometrics model. The model was selected to convey the functional link between the GDP, inflation rate, external debt, and domestic debt. This model is described below:

$$GDP = F(DB, ED, INF)$$

$$GDP = a_0 + a_1DB + a_2ED + a_3INF + U$$

$$GDP = F(DB, ED, INFL)$$

Where:

GDP= Gross Domestic Product

DB= Domestic debt

ED= External debt

INF= Inflation rate

ao= Constant intercept

a<sub>1</sub>, a<sub>2</sub>, a<sub>3</sub>, a<sub>4</sub>= Slopes of the regression

U= Error term

## Data Presentation and Analysis

### Unit Root Test Result

Table 1: Summaries of Augmented Dickey-Fuller Unit Root Tests for (Model)

| At Levels |               |                | At Differences                                                |               |                |
|-----------|---------------|----------------|---------------------------------------------------------------|---------------|----------------|
| Variable  | ADF Statistic | Remarks        | Variable ( $\Delta = 1^{\text{st}}$ and $2^{\text{nd}}$ diff) | ADF Statistic | Remarks        |
| GDP       | -1.3636       | Non-stationary | $\Delta$ GDP                                                  | -6.9778       | Stationary     |
| DM        | -3.4655       | Stationary     | $\Delta$ DM                                                   | -2.5825       | Stationary     |
| ED        | -3.6476       | Stationary     | $\Delta$ ED                                                   | 0.9764        | Non-stationary |
| INF       | 0.1478        | Non-stationary | $\Delta$ INF                                                  | -5.1642       | Stationary     |

**Source:** Author's computation using E-views 10

While inflation and the gross domestic product are non-stationary at levels, domestic debt and external debt were stationary at levels, according to the results of the ADF unit root test of the variable at levels and difference in Table 1. Nevertheless, at initial differencing, the GDP and INF variables are stationary. This indicates that the combination of  $I(0)$  and  $I(1)$  variables provides a strong defense for applying the ARDL model, also known as the limits test strategy, which was put forth by Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001). Thus, according to the regression result of the unit root test, the null hypothesis of the unit root is always rejected.

### Co-integrationm Test (Bound Test)

Because Johansen co-integration is not as good at determining the long-term relationship between public debt and economic development, the Bounds test was used. This is due to the fact that the limits test permits a combination of  $I(0)$  and  $I(1)$  variables to be used as regressors; in other words, the order in which the relevant variables are integrated may not always be the same. To ascertain the variables' long-term association, the following hypothesis is developed

$H_0 = \beta_1 = 0$  (no long-run relationship)

Against the alternative hypothesis

$H_0 \neq \beta_1 \neq 0$  (a long-run relationship exists)

Table 2 Results of ARDL/Bounds Test

### Bounds Test Results (ARDL)

| Test Statistic | Value  | k | Significance Level | I(0) Bound (Lower) | I(1) Bound (Upper) |
|----------------|--------|---|--------------------|--------------------|--------------------|
| F-statistic    | 3.7829 | 3 | 10%                | 2.37               | 3.20               |
|                |        |   | 5%                 | 2.79               | 3.67               |
|                |        |   | 2.5%               | 3.15               | 4.08               |
|                |        |   | 1%                 | 3.65               | 4.66               |

Source: Researcher's Computation

Table 2 shows the result of the bound co-integration test demonstrated that the null hypothesis against its alternative is easily rejected at the 5% significance level. The computed F-statistic of 3.7829 is greater than the upper bound value, thus indicating the existence of a steady-state long-run relationship between the public debt and economic growth in Nigeria.

## Long Run Autoregressive Distributed Lagg (ARDL) Model

**Table 3: Result of Long Run ARDL Model**

| Variable                                                  | Coefficient | Std. Error | t-Statistic | Prob.  |
|-----------------------------------------------------------|-------------|------------|-------------|--------|
| DM                                                        | -0.000578   | 0.000343   | -1.687745   | 0.1097 |
| ED                                                        | 0.000113    | 0.000172   | 0.654568    | 0.5215 |
| INF                                                       | 0.366394    | 0.228513   | 1.603381    | 0.1273 |
| C                                                         | 3.063000    | 2.706214   | 1.131840    | 0.2734 |
| EC = GDP – (-0.0006*DM + 0.0001*ED + 0.3664*INF + 3.0630) |             |            |             |        |

**Source: Researcher's Computation**

The findings of the long run autoregressive distributed lag model are shown in Table 3 (above). Although it has no effect on GDP, the exogenous variable domestic debt (DM) has a positive coefficient value of -0.0005 and a p-value of 0.109, both of which are over the 0.05 level of significance. This is in line with the study's apriori expectations since low to moderate levels of infrastructure and human capital financing domestic debt will raise the economy's gross domestic product. The external debt (ED) coefficient of 0.0001 is statistically insignificant with a p-value of 0.521 and has a negative influence on GDP. This deviates from the apriori expectation since the gross domestic product decreases by 0.0001 units as the (ED) value rises. Due to foreign exchange restrictions and the burden of debt servicing, a growth in external debt lowers GDP. Gross domestic product (GDP) is not affected by the coefficient of inflation rate (INF) of 0.3663, with p-values of 0.1273 greater than the 5% level of significance. The expectations of apriori are not met by this. This indicates that GDP will drop by 0.3663 units in response to an increase in inflation. Moderate inflation, therefore, raises uncertainty and decreases purchasing power.

## Short Run Autoregressive Distributed Lagg (ARDL) Model

**Table 4: Result of Short Run ARDL**

| Variable           | Coefficient | Std. Error         | t-Statistic | Prob.*   |
|--------------------|-------------|--------------------|-------------|----------|
| DM                 | -5.03E-07   | 1.39E-05           | -0.036093   | 0.9716   |
| ED                 | 0.000103    | 0.000167           | 0.617130    | 0.5453   |
| INF                | -0.008963   | 0.170410           | -0.052597   | 0.9587   |
| CointEq(-1)*       | -0.917691   | 0.189851           | -4.833740   | 0.0002   |
| R-squared          | 0.576465    | Mean dependent var |             | 5.046250 |
| Adjusted R-squared | 0.426982    | S.D. dependent var |             | 3.633648 |
| F-statistic        | 3.856388    | Durbin-Watson stat |             | 1.785564 |
| Prob(F-statistic)  | 0.013017    |                    |             |          |

**Source: Researcher's Computation**

The coefficients of the differenced variables show the short-term impact of these variables on the dependent variable based on the short-term result. With a p-value of 0.9716 above the 5% level of significance, the estimated coefficients of the explanatory variable domestic debt (DM) -5.03E show a positive but unaffected effect on GDP. This is in line with the study's a priori expectations. With a p-value of 0.5453 over the 5% threshold, the coefficient of ED 0.0001 has a negative impact on GDP but is statistically insignificant. With a p-value of 0.9587 above the 0.05 level of significance, the coefficient of INF -0.0089 has not had a beneficial effect on GDP. This is in line with the study's apriori expectations.

The ARDL model may have an exceptionally high coefficient of determination. The R-squared value, which is around 0.5495 (55%), and the corrected R-squared value, which is roughly 0.5066 (51%), both demonstrate this. A statistical measure known as the squared correlation coefficient, or R-squared, establishes the percentage of changes in the independent variable that can be accounted for by changes in the other variables. Therefore, one may say that our model adequately captures our data. The value of the Durbin-Watson statistic is 1.785, or around two. It is well known that when the Durbin-Watson statistic is set to 2, the residuals do not exhibit autocorrelation. When this is taken into consideration, it is possible to claim that the model does not suffer from autocorrelation of any order.

Once the cointegration of the variables has been established, the error correction term (ECT) coefficient must be negative and statistically significant in order to rectify the disequilibrium in subsequent periods and restore the long-term equilibrium. The fact that our model meets this condition is demonstrated by the fact that the coefficient of the one period of the error correction term  $ECT_{t-1}$  is negative (about -0.917) and significant at the 5% level. The fact that  $ECT_{t-1}$  has a negative value indicates that the system is sufficiently stable and has the ability to converge to the long-run equilibrium following the occurrence of some shocks or disturbances in the system. The figure -0.917 suggests that around 92% of the disequilibrium is recovered during a year's time.

## DISCUSSION OF FINDINGS

Our model satisfies this requirement since the one-period coefficient of the error correction term  $ECT_{t-1}$  is negative (around -0.9176) and highly statistically significant at the 5% level. The  $ECT_{t-1}$ 's negative value indicates that the system is sufficiently stable to converge to the long-term equilibrium following a few shocks or perturbations. About 92% of the disequilibrium is restored in a year, according to the value of -0.9176. However, this indicates that the rate of adjustment is slow because it will often take a year for the long-term equilibrium to be fully restored following certain significant economic shocks, such as Nigeria's economic growth. However, given the underdeveloped state of economic institutions, particularly in a developing nation like Nigeria, the results of our model at least make some sense. About 0.5495 (55%) and 0.5066 (51%) percent are the adjusted R-squared and R-squared, respectively, which indicate the proportion of changes in the dependent variable that can be explained by changes in the explanatory factors. Therefore, it can be claimed that our model fits our data quite well.

The Durbin-Watson statistic is 1.7855, or almost 2. There is evidence of positive autocorrelation (first order autocorrelation) in the residuals when DW approaches 0, however when DW equals 2, there is no autocorrelation in the residuals. Nevertheless, negative autocorrelation (2nd order autocorrelation) in the residuals becomes an issue when DW gets closer to 4. In light of this, we can confidently state that autocorrelation of any kind does not bother our model. This suggests that our model is dependable for drawing conclusions.

With a p-value of 0.9716 at the 5% level, the empirical evidence for the short-term positive impact of the explanatory variable domestic debt (DM) -5.03E on GDP was deemed inconsequential. This is in line with the a priori anticipation. A 1% reduction in domestic debt will therefore result in a 97.16% gain in GDP and be negligible over the period under study. The foreign debt coefficient of 0.0001 is statistically insignificant and has a negative effect on GDP, with a p-value of 0.5453 above the 0.05 threshold. A 54.53% drop in gross domestic product will result from a 1% rise in external debt. This is because, among other things, heavily accrued debt continues to be a significant barrier to the expansion of the Nigerian economy because it is unable to direct the borrowed funds toward a profitable industry. The study's apriori expectations are not met by these. GDP has been positively impacted by the INF -0.0089 coefficient, with a p-value of 0.9587 over the 0.05 level of significance. This aligns with the study's apriori assumptions.

According to long-term empirical data, the value of domestic debt (DM) has a positive but unaffected effect on GDP, with a p-value of 0.109 and a coefficient value of -0.0005, both of which are higher than the 0.05 level of significance. This aligns with the study's apriori expectations. This suggests that raising the overall amount of domestic debt will boost economic development, which is consistent with research by Ajayi and Edewusi (2020), Eze, Nweke, and Atuma (2019), and Isibor, Babajide, and Akinjare (2018). This is because the economy's gross domestic product will rise as a result of low to moderate levels of domestic debt funding infrastructure and

human capital. The external debt (ED) coefficient of 0.0001 is statistically insignificant with a p-value of 0.521 and has a negative influence on GDP. This deviates from the apriori expectation since the gross domestic product decreases by 0.0001 units as the (ED) value rises. According to this, economic growth will decline as total external debt rises, which is consistent with research by Isibor, Babajide, and Akinjare (2018), Senadza, Fiagbe, and Peter (2018), Paul (2019), Ajayi and Edewusi (2020), and Muhammad and Abdullahi (2020). Due to foreign exchange restrictions and the burden of debt servicing, a growth in external debt lowers GDP.

In contrast, the inflation rate was shown to be adversely and insignificantly connected to economic growth over the long term, as predicted by theory. The coefficients of inflation rate (INF) were 0.3663, and the p-values were 0.1273, which were higher than the 5% level of significance. This indicates that a rise in inflation will result in a 0.3663 unit decline in GDP. As a result, moderate inflation raises uncertainty and decreases purchasing power. The results of this investigation align with the research conducted by Mokuolu, Adejayan, and Ariyo (2024). These researchers have discovered a long-term correlation between Nigeria's state debt and economic expansion. Additionally, they found that none of the variables significantly affected Nigeria's economic growth. One of Nigeria's biggest economic problems is the country's ongoing, unsustainable debt accumulation, which has resulted in a debt trap.

The probability test, which was used to determine the statistical significance of the parameters in the long run, showed that the inflation rate, total external debt, and total domestic debt do not statistically significantly explain the potential long-term changes in Nigeria's economic growth. Furthermore, it was suggested by the LM correlation test, heteroskedasticity test, normality test, stability test, and multicollinearity test that the outcome is trustworthy and accurately depicts how public debt affects Nigeria's economic growth. Ultimately, it was shown that public debt indexes have little effect on Nigeria's long-term economic growth.

## CONCLUSION AND RECOMMENDATIONS

This study examined the relationship between Nigeria's public debt and economic development from 1999 to 2023 using the ARDL model. Empirical evidence from the study's first hypothesis revealed that, in the short term, the values of the inflation rate (INF) and domestic debt (DM) have a positive and negligible impact on GDP; that is, a decrease in both inflation and domestic debt will result in a marginally higher GDP. A percentage rise in external debt will result in a negligible drop in gross domestic product since the coefficient of external debt (ED) has a negative and statistically insignificant effect on GDP. On the other hand, domestic debt has a statistically negligible positive effect on GDP over the long term, hence a reduction in domestic debt will result in a marginally higher GDP. Gross domestic product is negatively and statistically insignificantly impacted by both the foreign debt and the inflation rate; hence, a percentage increase in both will result in a decline in GDP. Therefore, the total domestic debt, total external debt, and inflation rate are not statistically significant in explaining the changes that may occur in Nigeria's economic growth over the long term, according to the probability test used to determine the statistical significance of the parameters in the long run. Therefore, this analysis disproves the notion that Nigeria's economic growth is significantly impacted by both external and local debt.

### Conclusion

Based on empirical findings, the study comes to the conclusion that the Federal Government must incorporate acceptable measures to ensure appropriate management of public debt, given that in 2023, Nigeria spent approximately 97% of its revenue on debt servicing. In circumstances where raising taxes and cutting spending are difficult, the government may employ public debt as a vital tool to successfully finance capital projects, maintain public spending, and promote economic growth. Nigeria was forced to take on external debt in order to pursue economic growth and development. Since then, a number of loans have been made for different development projects, but the anticipated outcomes have not materialized.

Nigeria's national debt is still among the largest in Africa, despite the country's wealth. Any nation's economic growth and standard of living are indicators of how much debt it has. This is due to the fact that managing debt

sustainably is important for raising living standards and advancing a country's economy. According to economic theory, a developing nation's economic growth is likely to be boosted by appropriate borrowing levels. Because tiny capital stocks predominate, developing nations like Nigeria borrow to supplement their resources in order to promote growth. As a result, they may have access to investment possibilities with higher rates of return than those found in industrialized economies. As long as borrowed money and some organically ploughed back money are appropriately used for profitable investment and are not subject to significant adverse shocks, policies that distort economic incentives, or macroeconomic instability, this becomes effective.

Therefore, from the study, we can conclude that public debt indices have an insignificant impact on economic growth in Nigeria in the long run. Public debt is generally effective theoretically, but it has intrinsic limitations in reality that often gradually undermine its effectiveness in Nigeria.

## Recommendations

Based on the results obtained in this study, it is recommended that;

Appropriate steps should be taken by policymakers to guarantee proper handling of both external and domestic debt. Additionally, a purposeful policy should be implemented to prevent both the quick buildup of national debt and its mishandling in order to boost economic growth and enhance the welfare of the populace.

With the help of the appropriate oversight committees, the government should make sure that the nation's debt is allocated to promoting investment in the nation and to providing the essential facilities and services needed for the advancement of the country's communities and societies. A stable political environment should be maintained since it would lead to and improve effective debt management, which will raise GDP and, ultimately, Nigeria's economy.

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