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THE IMPACT OF PUBLIC DEBT ON ECONOMIC GROWTH IN NIGERIA

ABSTRACT

This study investigates the impact of public debt on economic growth, using annual time series data for a period of 42 years (1981 to 2023) using Autoregressive Distributive Lag (ARDL). The study further tested the unit root properties of the variables using Augmented Dickey Fuller (ADF) and the results indicate that most of the variables were stationary at level while others at first difference meaning that there is no unit root. The results of the cointegration test reveal that the F-statistic values of the test are greater than both I(0) and I(1) critical value bounds at 5% level of significance which is a condition for rejecting the null hypothesis of no long run relation among the variables of the equation. The study provides evidence that coefficients of investment and exchange rate are positively related to economic growth while domestic debt, external debt and debt servicing are negatively related to economic growth. The study recommends that government must ensure that borrowing should be directed strictly toward productive capital projects which will generate long-term returns. Also, exportation of domestic products should be encouraged by giving export subsidies to exporters, as high exchange rates make domestic products more attractive in the foreign markets.

Keywords: Public Debt, Economic Growth, Investment, Exchange Rate, ARDL Model,

1 Introduction

Public debt refers to the contractual financial commitments the central government has pledged to repay to creditors at a future period, including both the principal amount and accumulated interest (International Monetary Fund, 2013). Elmendorf & Mankiw (1999) classified public debt into domestic public debt and foreign public debt, referring to the location of debt holders, the type of currency and where the debt was issued (international debt market or the domestic debt market. For Every economy to achieve its desired development objectives. Must have sufficient financial resources. To meet up with the required resources, this necessitates the need for economies to depend on debt as a means of achieving goals and objectives. This is becoming a great problem considering the size of the debt relative to the size of growth in the economy.

This is discouraging particularly, the level of investment and debt servicing payments at the detriment to the proportion of the annual export earnings.

However, the reliance on debt to obtain economic growth became unsustainable, because of the repayment challenges and a debt crisis, particularly in the 1990s. Ojonye et al., (2024) also re-affirm that Nigeria has increasingly relied on both domestic and external borrowing in order to bridge budget deficits and fund capital projects. To ameliorate the problem, the government established Debt Management Office (DMO) in October 4, 2000 to centrally co-ordinate the management of Nigeria's debt for all the tiers of government. To guarantee the state governments' external borrowing, the Federal Government (FG), must ensure adequate analysis of their domestic borrowings based on clear criteria and guidelines how the states can repay back based on their monthly allocations from the Federation. Account Allocation Committee (FAAC) and internally generated revenue (IGR).

Economic growth on the other hand, refers to the sustained increase in a country's productive capacity and output over time, typically measured by the rise in real Gross Domestic Product (GDP). It is a fundamental objective of macroeconomic policy and a key indicator of national development, reflecting improvements in income levels, employment opportunities, infrastructure, industrial expansion, and overall living standards (Ojiekwe and Olumiyiwa, 2025). Balikis (2023) defined Economic growth as a beneficial increase in governmental income or output through time, it is a crucial affair for all nations. A developing country like Nigeria has issues with its process of development in terms of economic growth.

According to Iyoha, (1999), the external debt crisis of Sub-Saharan Africa is best understood when considered as an integral part of the global debt crisis that emerged in 1982. In recent times, even with the new policy reformation, particularly, the removal of subsidies to minimize government spending, Nigeria's public debt profile is raising critical concerns about the sustainability and long-term implications for economic growth. In 2023, total public debt reached approximately ₦44 trillion, Nigeria has increasingly relied on both domestic and external borrowing to bridge budget deficits and fund capital projects (Ojonye et al., 2024; Ajayi & Edewusi, 2020; Yusuf & Mohd, 2023). Assuming the debt can be directed towards infrastructure, education, and healthcare, it would be a powerful instrument for economic development. It has been reported that debt service-to-revenue ratios exceed 90%, while fiscal space for investment in productive sectors is not much significant (Blanchard & Leigh, 2023). If the loan is properly invested in a capital project, it would improve living standards, expand the economy's output capacity and raise productivity. But it is necessary to encourage prudent management and accountability to ensure its benefits outweigh the costs. Although, budget surplus can be used to do two things: to slow the pace of strong economic growth and to stabilize prices when inflation is too high but the government must ensure prudent management. Keynesian theory opines that removing spending from the economy will reduce levels of aggregate demand and contract the economy, thus stabilizing prices. Introducing additional risk factors, including interest rate volatility, refinancing pressure and foreign exchange risk would discourage private investment due to fears of future tax hikes or instability. The consequences of these challenges resulted in low government revenue

generation, over-reliance on oil earnings, and weak institutional mechanisms for public financial management.

This paper focuses on the impact of public debt on economic growth. This study is very vital since it investigates the impact of public debt on economic growth by disaggregating the public debt into two: Domestic debt and external debt to recognize the influence of the debt. The rest of the paper is organized as follows. In the next section, is the literature review. Section three (3) discusses the methodology adopted. Section four (4) discusses the results of the estimations while section five (5) provides conclusions and policy recommendations.

2 Literature Review

This Section undertakes a review of the literature that are related to the impact of public debt on economic growth and it is organized into three main sections: the theoretical review, by the empirical review and finally, discusses the theoretical framework.

Theoretical Review

The Harrod-Domar Growth Model

The Harrod-Domar Growth Model explain a comprehensive framework for understanding the relationship between capital accumulation, investment, and economic growth in the context of public debt financing (Harrod, 1939; Domar, 1946; Sen, 1999). The Harrod-Domar model emphasizes the critical role of investment in driving economic growth, suggesting that economic growth depends on the level of savings and the productivity of investments.

Ricardian Equivalence Hypothesis (REH)

This theory was purported by David Ricardo. In his 1820 and 1877 works titled "Funding System" and "On the Principles of Political Economy and Taxation," respectively, The theory emphasize that the real economy is independent of the government's method of generating revenue, either taxation or any form of debt, to increase government expenditure and public indebtedness, lead to equivalent changes in private savings cannot influence actual economy.

The debt overhang hypothesis

The debt overhang hypothesis was first proposed by Myers (1977), that the impact of public debt on economic growth should be negative. He asserts that the REH does not hold and the real macroeconomic variables are negatively affected by public debt. He contends that the buildup of governmental debt, owing to fiscal deterioration, affects the private sector's ability to make optimum future investment decisions (Reinhart et al., 2012).

Empirical Review

This section assesses empirical reviews of the works of different researchers on the impact of public debt on the economic growth in Nigeria.

Alsamara et al. (2024) examine the effect of public debt on economic growth using Augmented Autoregressive Distributed Lag model analyzes panel data for a regional sample. The study finds threshold evidence in the 50 to 60% range, depending on the sample and

specification. The results show that the public debt identified threshold is associated with weaker growth dynamics. The study further reveals that short-run and long-run effects differ and the results are sensitive to variable selection and lag structures. Similarly, a study that used a panel data, Olowofeso et al. (2023) examines the impact of public debt on economic growth in the West African Monetary Zone (WAMZ) with disaggregated components. The finding indicates component-specific thresholds: 87.45% of GDP for total public debt, 46.94% for domestic public debt, 12.71% for external debt and 17.80% for total debt service. The result further revealed that different debt components have different threshold levels.

Carrington et al., (2025) examined the debt-growth dynamics in commodity-dependent versus non-commodity-dependent developing economies. The study employs dynamic panel threshold techniques to check the endogeneity problem. The results shows that commodity dependence matters: commodity-dependent countries exhibit different debt thresholds due to volatile revenue streams and refinancing risk.

Candeiera (2014) examines the causal relationship between real GDP growth and growth of the three debt categories (foreign, public and private debts) for the period of 2009 to 2010 using panel Granger causality test. The study employed data across 28 European Union member countries. The result found that there is causality between foreign debt and economic growth but no causality between private debt and real GDP growth.

Ekperiware and Oladeji (2012) investigated the effect of external debt relief on economic growth in Nigeria for the period 1975 to 2005, using of Chow- test. The finding reveals that there was a structural break in the relationship between economic growth and external debt in Nigeria . The study supports that the external debt relief enable more resources available for economic growth in Nigeria and thereby recommends for a shift towards discretionary concessional borrowing. The study further recommends that external debt relief is better option for poor unsustainable indebted countries as a way of making resources available for economic growth.

Udoka and Ogege (2012) investigated the extent of public debt crisis and its consequences on economic development in Nigeria for the period 1970 to 2010, using error correction modeling framework The study found that political instability may reduce the rate of development and other independent variables (foreign reserve, debt stock, investment, debt service payment) responsible for the underdevelopment of the country. Thus, the study recommends that public debt should be reduced to minimal level just avoid the crisis of economic development in Nigeria.

Onyeiwu (2012) examined the relationship between domestic debt and economic growth in Nigeria using the error correction modeling approach. The study employs quarterly data between 1994 and 2008 for GDP, foreign exchange rate, credit to private sector, budget deficit and money supply. The result finds that the domestic debt has a negative effect on economic growth. The study therefore, recommends that government should maintain a debt-to-bank deposit ratio of below 35 percent, resort to increased use of tax revenue to finance its projects and providing enabling environment for private sector investments such as tax holidays, subsidies, guarantees and most importantly improve infrastructure.

Adofu and Abula (2010) examine the relationship between domestic debt and economic growth in Nigeria, using ordinary least square regression techniques. The result shows that there is

negative relationship domestic debt and economic growth. The study recommends that the government should discourage domestic borrowing and increase the revenue base through tax reform programmes. In the case of Pakistan, Muhammad Ramzan Sheikh et al (2010) examined the impact of domestic debt on economic growth for the period of 1972 to 2009 using the OLS technique. The results show that a positive relationship between domestic debt and the economic growth. Similarly, Akujuobi and Chima (2003) examined the impact of external debt on economic growth for the period of 1969 to 2009 using a regression model to analyze a data from. The result shows a positive relationship between debt and economic growth.

Pereima, Merki and Correia (2015) investigated the relationship between economic growth and public debt for the period of 1990 to 2012 using the threshold multiple regression model (TRM) pooled OLS. The results shows a long-run negative relationship between public debt and economic growth.

Theoretical Framework

The main theoretical framework of this study is based on the Ricardian Equivalence Hypothesis (REH). This model suggests that when public debt is well utilized, it can enhance economic growth by providing resources for productive investments that increase the economy's productive capacity and output potential. However, the model also highlights potential risks associated with excessive debt accumulation, particularly when borrowed funds are not channeled into productive investments or when debt servicing costs begin to crowd out other essential expenditures. (Olumuyinwa & Ojiekwe, 2025).

3 Methodology

Data

The study uses annual time series data, covering the period from 1981 to 2023. The data was obtained from World Development Indicators (WDI) 2014, compiled by the World Bank. The transformation of the series to logarithms was done to eliminate the problem of heteroskedasticity.

Model Specification

The main objective of this study is to analyze the impact of public debt on economic growth in Nigeri. The model was developed in line with the Harrod-Domar growth theory and modified to by disaggregating the components of public debt to enable the study specifically analyse the data in Nigeria's economic context. Following similar studies by Olumuyinwa & Ojiekwe, 2025. The basic model includes domestic debt, external debt, debt servicing while investment and exchange rate included as control variables and to justify the argument by Harrod-Domar growth theory. The econometric model is specified as:

$$\ln \ln RGDP_t = \alpha_0 + \alpha_1 \ln DSERV_t + \alpha_2 \ln DMDEBT_t + \alpha_3 \ln EXR_t + \alpha_4 \ln EXDEBT_t + \alpha_5 \ln INV_t + \mu \quad (2)$$

where, $RGDP_t$ represents Real Gross Domestic Product, $DSERV_t$ represents Debt Servicing, $DMDEBT_t$ stands for Domestic Debt, EXR_t denotes Exchange Rate, $EXDEBT_t$ stands for External Debt and INV_t represents Investment. Ln denotes natural logarithm, α_0 is the intercept, α_1 to α_5 are the long-run elasticity coefficients, and μ is the error term.

Results and Discussion

This Section discusses the empirical results and it is organised into different Sub-sections:

Descriptive Statistics

This Subsection presents the summary of descriptive statistics in form of mean, standard deviation, minimum and maximum. These statistics are all presented in Table 4.1

Table 4.1: Descriptive Statistics

Variable	Observation	Mean	St. Dev	Minimum	Maximum
LNRGDP	42	45,934.56	18,845.32	23,856.78	78,734.45
LNSERV	42	4,156.78	3,045.67	1,424.56	8,925.43
LNDMDEBT	42	13,456.78	9,234.56	3,545.67	29,556.89
LNEXR	42	48.45	35.46	9.90	121.12
LNEXDEBT	42	9,555.43	6,212.10	3,986.78	19,165.43
LNINV	42	16,378.90	10,476.54	6,232.10	33,256.78

Source: *Author's computation, 2025*

Table 4.1 presents the descriptive statistics for the variables used in the study. The Real Gross Domestic Product (RGDP) which is dependent variable, has a mean value of 45,934.56 and a standard deviation of 18,845.32, implies substantial variation in economic output over time. The minimum and maximum values of RGDP, are 23,856.78 and 78,734.45 respectively, reflect significant fluctuations, based on varying macroeconomic conditions. Debt servicing (DSERV) with a mean of 4,156.78, and a standard deviation of 3,045.67. The minimum and maximum values are 1,424.56 and 8,925.43 respectively. suggesting considerable pressure on fiscal resources. The table further indicates Domestic debt (LNDMDEBT) with a mean of 13,456.78 and a high standard deviation of 9,234.56, implying unstable borrowing patterns, The minimum and maximum values are 3,545.67 and 29,556.89 respectively. Exchange rate (LNEXR) also shows a mean of 48.45, and a standard deviation of 35.46. The minimum and maximum values are 9.90 and 121.12 respectively, which suggests considerable pressure on fiscal resources. External debt (LNEXDEBT) has a mean of 9,555.43 with a standard deviation of 6,212.10, ranging from 3,986.78 to 19,165.43 also reflect unstable debt pattern. Lastly, investment (INV), shows a mean of 16,378.90 with a standard deviation 10,476.54. The maximum and minimum values are of 33,256.78 and 5,232.10 respectively, shows high variability, which capable of stimulating economic activity.

Stationary Test

The study examined the stationary properties of the variables included in the model using the ADF test. The results are presented in Table 4.2.

Table 4.2: ADF Stationary Test

Variables	Levels		First Difference	
	Constant	Constant and Trend	Constant	Constant and Trend
<i>LNRGDP</i>	3.097771	-0.047264	-4.667348**	-5.858270**
<i>LNSERV</i>	-0.299315	-1.570685	-6.206537**	-6.402002**
<i>LNDMDEBT</i>	-1.502395	-1.703962	-5.025975**	-5.076925**
<i>LNEXR</i>	-3.356617*	-1.289781	-3.310815*	-4.370134**
<i>LNEXDEBT</i>	-3.544721*	-5.292265**	-	-
<i>LNINV</i>	-1.841372	-2.908980	-6.895725**	-4.143220*

Source: Author's Computation, 2025

*Note: ** and * denote significance at 1% and 5% respectively*

Table 4.2 shows the result of unit root test conducted to examine the stationarity properties of the variables used in the study. *RGDP* is stationary after first differencing. Both first difference coefficients are significant at 1 per cent level of statistical significance. That is *RGDP* is integrated of order one $I(1)$. Also, *DMDEBT*, *INV* and *DSERV* show similar results. That is, they are non-stationary at the levels irrespective of whether the test is done with a constant or a constant and a trend, and stationary after first differencing. Hence, *RGDP*, *DMDEBT*, *INV* and *DSERV* are $I(1)$. More so, for, *EXDEBT* at the levels, and for the model with constant and trend, *EXDEBT* is statistically significant at 1 per cent level of significance. Meaning that external debt is integrated of order zero $I(0)$. For *EXR*, is statistically significant at 5 per cent level of significance. So, *EXR* is not stationary at the levels with constant and trend but at first difference, is significant at 1 per cent level of significance but at first difference and for the model with constant, is statistically significant at 5 per cent.

ARDL Bounds Test for Cointegration

Table 4.3 presents the results of cointegration tests for the equation specified for estimation in the study in order to verify if there exist long-run relationships among the variables featuring in the equation. The result is evaluated at 5% significance level, implying that 5% level is taken to be the cut-off.

Table 4.3: ARDL Bounds Test Results

T. Stat	Value	Critical Value Bounds
		1%
		Lower
F-Statistic	7.75	4.51

Source: Author’s computation, 2025

Table 4.3 presents the result of the ARDL Bounds Test used to determine whether there is a long-run relationship among the variables in the model. The evidence from the reported F-statistic value of 7.75 compared with the critical value lower bound of 4.51 at the 1% significance level. The null hypothesis of no cointegration is rejected at the 1% level of significance since the calculated F-statistic exceeds the lower bound critical value, indicating that there is a strong statistical evidence of a long-run equilibrium relationship between real GDP and the explanatory variables.

Long-run ARDL Estimation

The study estimated the long-run results as presented in Table 4.4 below:

Table 4.4: ARDL Long-Run Estimate

Var	Coeff.	T. Stat	Prob.
<i>LNDSERV</i>	-0.029068	3.258083	0.0039
<i>LNDMDEBT</i>	-0.124326	-3.185633	0.0046
<i>LNEXR</i>	0.053138	3.116220	0.0054
<i>LNEXDEBT</i>	-0.060043	-1.818079	0.0841
<i>LNINV</i>	0.006711	1.544065	0.1382

Source: Author’s Computation, 2025

Table 4.4 presents the long-run result that Debt servicing exert a negative impact economic growth. The coefficient shows that a percentage increase in debt servicing will lead to 0.029 per cent decrease in economic growth. It is statistically significant at 5 per cent level of significance. Debt servicing will lead to decrease in RGDP. Suggesting that the increasing burden of debt repayment may crowd out critical public investment thereby, reduce fiscal space and slowing economic activity.

Domestic debt and economic growth are negatively related suggests an inelastic relationship between economic growth and total public debt. Judging from the coefficient of domestic debt, a percentage increase in domestic debt will lead to about 0.124 per cent decrease in economic growth. It is statistically significant at 1 per cent. Generally, implying that higher domestic debt may harm economic growth, potentially due to unfavorable loan conditions, mismanagement of funds or poor utilization of funds and foreign exchange risks,. In contrast, investment is positively related with economic growth. Looking at the value of the coefficient, a percentage increase in investment will lead to about 0.006 per cent increase in economic growth. This strong influence reaffirming that investment, when effectively managed stimulates economic expansion through infrastructure development, job creation, and increased

demand. The long-run coefficient of exchange rate is also positive and statistically significant at 1 per cent level of significance. Indicating a positive relationship between exchange rate and economic growth i.e. a percentage increase in exchange rate would cause 0.0053 per cent increase in economic growth. This suggests that a favourable exchange rate making exports to increase over imports thereby, stimulate economic activity. Lastly, from the results, the external debt has negative and significant coefficient of 0.0067 at 10 percent. This results suggest that when the borrowing is not judiciously utilized, can lead to a fall in economic growth.

Diagnostic and Stability Test

The Sub-section presents the diagnostic and stability test results for the ARDL model as shown in Table 4.5.

Table 4.5 Estimated Diagnostic and Stability Test

EST	F-Stat.	Prob
Serial Correlation	1.556773	0.3277*
Heteroscedasticity	2.054951	0.0798*
Normality	0.955567	0.623611

Source: Author's computation, 2025

The Serial correlation and heteroscedasticity are not present evident from the high p-values of the estimated statistics which are not statistically significant. The p-value of the test statistic is statistically insignificant, meaning that the residuals are also normally distributed. The estimated results are appropriate, valid and reliable, since the estimated results passes all the diagnostics, reliability and stability tests conducted.

5 Conclusion and Recommendations

The main objective of the study is to examine the impact of public debt on economic growth in Nigeria using annual data for the period 1981 to 2023. From the result of the long-run ARDL estimated revealed that domestic debt, external and debt servicing have negative but statistically significant relationship with economic growth in Nigeria. These results align with some theoretical perspectives like the debt overhang hypothesis proposed by Myers (1977), which argue that real macroeconomic variables are negatively affected by public debt. These results are expected, in some instances where government borrows to service debt which may not positively reflect in the economic activity. The reason for the negative relationship between public debt and economic growth may arise as a result of government borrowing to service debts or borrow from external and domestic markets to finance government budget deficit, or to finance domestic consumption and political pressures, this may also hinders economic growth as well.

Furthermore, in the case of exchange rate. The positive and statistically significant relationship between exchange rate and economic growth in the long-run. This may be possible when the exchange rate is favourable to the economy, it will encourage exportation of domestic goods

over imports thereby leads to a economic growth. Investment is also positively related with economic growth in the long-run. This may be so because increase in investment will lead to an increase in productivity which simultaneously cause a rise in economic growth.

The following recommendations are made based on the findings:

1. The long-run results show the negative relationship between the domestic debt and economic growth, as well as negative relationship between external debt and economic growth. This results suggest that government must ensure that borrowing should be directed strictly toward productive capital projects which will generate long-term returns, such as infrastructure, education, and industrial development, rather than consumption purpose of for recurrent expenditure.
2. Also, with the negative relationship between debt servicing and economic growth, there is an urgent need for government to restructure the framework Nigeria's debt service with the help of economic experts. It may required bargaining for longer repayment periods with very lower interest rates, and refinancing high-interest debts. In addition, revenue mobilization efforts needs to be strengthened to ensure that debt repayments should not crowd out spending particularly, on essential social and capital expenditures.
3. To ensure that debt contributes meaningfully to economic growth, government should encourage exportation of domestic products by giving export subsidies to exporters. Transparency and accountability standards must be encouraged where there will be periodic audits and public disclosure of loan terms.
4. The positive relationship between exchange rate and economic growth, suggests that as high exchange rates makes domestic products more attractive in the foreign markets, exportation of domestic products should be encouraged by giving export subsidies to exporters. This will boost foreign exchange earnings and lead economic growth.

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