JETMASE
Journal of Emerging Trends in Management Sciences and Entrepreneurship
Volume 8(4), Pages 11-27 Oct/Dec Edidtion, 2026
ISSN: 2384-762X
https://www.jetmase.com

Empirical Evaluation of the Public Debt Structure–GDP Growth Nexus in Nigeria

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ABSTRACT: This study examined the effect of public debt structure on economic growth in Nigeria over the period 1990–2024. Specifically, it assessed the effects of domestic debt stock, external debt stock, total public debt-to-GDP ratio, and debt service payments on gross domestic product growth rate. The study adopted an ex-post facto research design and used annual secondary data obtained from relevant publications of the Central Bank of Nigeria, the Debt Management Office, and the World Development Indicators. The data were analysed using the Autoregressive Distributed Lag (ARDL) technique. The unit root results revealed a mixture of I(0) and I(1) variables, supporting the suitability of the ARDL approach. The bounds test confirmed the existence of a long-run relationship between public debt structure and economic growth. The results showed that domestic debt stock and debt service payments had significant negative effects on economic growth in the long run, while external debt stock had a significant positive effect. The total public debt-to-GDP ratio had a significant negative short-run effect but not statistically significant long-run effect. The error-correction term was negative and statistically significant, indicating adjustment towards long-run equilibrium. The study concludes that the effect of public debt on economic growth depends on its composition and management. It recommends prudent domestic borrowing, improved debt servicing capacity, productive utilisation of external loans, and stronger public debt management to promote economic growth in Nigeria

Keywords: Public debt, external debt, domestic debt, debt service, economic growth, ARDL, GDP growth rate.

INTRODUCTION

Public debt is an important fiscal instrument through which governments mobilize resources to finance public expenditure and promote economic development. It comprises domestic debt, obtained from local financial markets, and external debt, contracted from foreign creditors and international financial institutions (Sumba et al., 2024). For developing economies, public borrowing provides an avenue for financing

infrastructure, human capital development and other productive investments that may exceed available government revenue. When effectively managed, these investments can expand productive capacity and stimulate economic growth. However, excessive borrowing or inefficient utilisation of borrowed funds can increase debt-servicing obligations, constrain fiscal space and weaken growth prospects (Akinola & Adeoye, 2025).

Economic growth, measured by the growth rate of real gross domestic product (GDP), is an important indicator of an economy's productive performance. Sustained growth supports employment generation, income improvement and broader economic development. Nevertheless, the extent to which public borrowing contributes to growth depends on how the funds are utilized, the cost of borrowing and the economy's capacity to meet its repayment obligations. Domestic debt can provide resources for public investment, but substantial government borrowing from local financial markets may crowd out private investment by increasing borrowing costs and limiting credit availability (Obaro et al., 2026). External debt can provide additional capital for development projects, particularly those requiring imported equipment and technology, but its benefits depend on the returns generated by the financed projects and the terms of repayment. These differences make the composition of public debt an important consideration in evaluating its implications for economic growth (Alenoghena et al., 2025).

In Nigeria, public debt has become an important component of fiscal financing amid persistent budget deficits, substantial development needs and fluctuations in oil revenue. Although borrowing can help address infrastructure gaps and support productive activities, increasing debt obligations raise concerns about the resources available for growth-enhancing expenditure. Where debt servicing absorbs a substantial share of government revenue, the capacity to finance capital projects may be restricted. Similarly, borrowing that does not generate sufficient economic returns can increase fiscal pressure without producing corresponding improvements in output. Consequently, the effect of public debt on Nigeria's economic growth cannot be determined solely by the amount borrowed; the composition and productive use of debt must also be considered (Nyong et al., 2025).

Empirical evidence on the public debt–growth relationship remains varied. Some studies identify public borrowing as a means of stimulating economic activity when it finances productive investment, while others emphasise its potential to constrain growth through debt servicing, reduced private investment and inefficient public expenditure. Evidence from Nigeria also suggests that the growth implications of public debt depend on the debt component examined and the analytical approach adopted (Omotosho et al., 2016; Nzeh, 2020; Nyong et al., 2025). Differences in existing findings reinforce the need for further investigation into the respective effects of domestic and external debt on economic growth, particularly within Nigeria's changing fiscal environment.

Despite the attention given to public debt and economic growth, further empirical assessment is warranted to clarify how the structure of public debt affects growth in Nigeria over the short and long run. Examining domestic and external debt within a common analytical framework can provide evidence on whether their growth implications differ and how changes in these debt components relate to changes in economic output over time. This distinction is important for public debt management because borrowing decisions should consider not only the availability of funds but also their potential contribution to

productive capacity and sustained economic expansion.

The problem addressed by this study is the need for clearer empirical evidence on how the structure of public debt affects economic growth in Nigeria, particularly the respective short-run and long-run implications of domestic and external borrowing. Although previous studies have examined public debt and economic growth, further investigation is necessary to establish how these debt components relate to GDP growth within a common empirical framework. Addressing this issue can provide useful evidence for evaluating borrowing decisions and formulating debt-management policies that support economic expansion.

Against this background, this study examined the effect of public debt structure on economic growth in Nigeria, measured by the GDP growth rate. Specifically, the study seeks to:

i. examine the effect of domestic debt stock on the GDP growth rate in Nigeria;
ii. determine the effect of external debt stock on the GDP growth rate in Nigeria;
iii. assess the effect of total public debt-to-GDP ratio on the GDP growth rate in Nigeria; and
iv. evaluate the effect of debt service payments on the GDP growth rate in Nigeria.

LITERATURE REVIEW

Public Debt Structure

Public debt structure refers to the composition of government borrowing, particularly domestic and external debt (Adeyemi-Tijani, 2024). Domestic debt is obtained from local creditors, while external debt is sourced from foreign creditors and international institutions (Ene & Ogundipe, 2023). These debt components may affect economic growth differently. Domestic borrowing can finance productive investment but may crowd out private-sector credit, whereas external borrowing can supplement domestic resources but exposes the economy to exchange-rate risks and foreign debt-servicing obligations (Buzugbe et al., 2025; Ogundipe & Lawal, 2024). Therefore, the implications of public debt structure for Nigeria's economic growth depend on the composition of borrowing, the productive use of borrowed funds and the government's repayment capacity (Ogiriki & Owota, 2024; World Bank, 2024).

External Debt

External debt refers to government borrowing from non-resident creditors, including multilateral institutions, foreign governments and international capital markets (IMF, 2023; DMO, 2023). It provides financing for infrastructure and other development needs, particularly in economies with limited domestic resources. In Nigeria, external borrowing can promote economic growth by supporting productive investment and expanding economic capacity. However, high debt-servicing costs, exchange-rate fluctuations and inefficient use of borrowed funds may constrain its contribution to growth (Aiyedogbon, 2024; Buzugbe et al., 2025). Therefore, the effect of external debt on Nigeria's economic growth depends partly on the productive allocation of borrowed funds and the government's capacity to meet repayment obligations.

H_{01}: External debt stock has no significant effect on the GDP growth rate in Nigeria.

Domestic Debt

Domestic debt refers to government borrowing from creditors within the domestic economy, typically through treasury bills and government bonds (Mojekwu, 2023; IMF, 2024). It provides funds for public expenditure and development projects but may constrain economic growth when excessive borrowing raises interest rates and reduces credit available to the private sector (Okoye & Eze, 2022). In Nigeria, the rising domestic debt stock reflects persistent fiscal deficits and

increased reliance on local financing (Oyamendan et al., 2025). Although domestic borrowing can support productive investment and financial market development, its contribution to economic growth depends on the efficient use of borrowed funds and the cost of debt servicing. Consequently, increasing domestic debt may support economic expansion or weaken it by crowding out private investment and limiting government resources for productive expenditure.

H_{02}: Domestic debt stock has no significant effect on the GDP growth rate in Nigeria.

Total Debt-to-GDP Ratio

Total public debt-to-GDP ratio measures public debt relative to the total value of goods and services produced within an economy, providing an indication of the scale of government borrowing relative to economic output (Amegashie, 2023; Mohamed & Abdulle, 2023). In Nigeria, the ratio has increased amid persistent fiscal deficits and rising borrowing requirements. Although public debt relative to GDP can indicate the economy's capacity to support its debt obligations, its implications for economic growth also depend on the productive use of borrowed funds and the cost of debt servicing (Adedoyin et al., 2021; Lawal et al., 2022). A rising ratio may constrain growth when debt obligations limit public investment, while borrowing directed towards productive activities may support economic expansion (Obaro et al., 2026).

H_{03}: Total debt-to-GDP ratio has no significant effect on the GDP growth rate in Nigeria.

Debt Service Payments

Debt service payments comprise the principal repayments and interest costs incurred by government on outstanding debt within a specified period (Nduka et al., 2024). In Nigeria, rising debt service obligations have been associated with reduced fiscal space for infrastructure and other productive public expenditure (Adedoyin et al., 2021; Nwoye et al., 2023). When a substantial proportion of government revenue is committed to debt repayment, fewer resources may be available for investment that supports economic growth. Therefore, the effect of debt service payments on economic growth depends on the scale of repayment obligations and the resources remaining for productive expenditure.

H_{04}: Debt service payments have no significant effect on the GDP growth rate in Nigeria.

Gross Domestic Product Growth Rate

The GDP growth rate measures the percentage change in a country's output of goods and services over a given period and serves as an indicator of economic performance (Umoh, 2025). Nigeria's growth has been influenced by oil dependence, fluctuations in global oil prices and structural economic challenges, resulting in periods of expansion and recession (Adedoyin et al., 2021; Kose et al., 2022). GDP growth is particularly relevant to public debt because borrowing can support economic expansion when allocated to productive investments, while excessive debt-servicing obligations may constrain public investment and weaken growth. Consequently, examining the effects of domestic and external debt stocks, alongside their respective ratios to GDP, provides insight into how public debt structure influences Nigeria's economic growth.

Theoretical Review

Debt Overhang Theory

Debt Overhang Theory, popularised by Krugman (1988) and Sachs (1989), explains how excessive public debt can constrain economic growth. The theory argues that when debt obligations become large relative to a country's repayment capacity, anticipated debt-servicing costs discourage private investment and limit the resources available for productive public expenditure (Cohen, 1993; Pattillo et al., 2002). In Nigeria, rising domestic and

external debt may therefore weaken economic growth when repayment obligations absorb resources that could otherwise support capital formation. However, borrowing directed towards productive investment may enhance output and economic expansion. The theory is relevant to this study because it explains how the volume and composition of public debt may influence Nigeria's GDP growth rate.

Crowding-Out Theory

Crowding-Out Theory explains how government borrowing can reduce private-sector investment by increasing borrowing costs and absorbing funds available for private credit (Bai, 2024; Pinardon-Touati, 2024). When government relies heavily on domestic borrowing, financial institutions may allocate more resources to government securities, limiting lending to businesses and potentially slowing capital formation. This effect may constrain economic growth, particularly in developing economies with limited domestic savings and shallow financial markets. However, government borrowing that finances productive infrastructure may complement private investment by improving the business environment. The theory provides a basis for examining how domestic debt, in particular, may affect Nigeria's GDP growth rate.

Empirical Review

Odoom et al. (2025) examined the relationship between public debt and macroeconomic indicators in Ghana using monthly data from 2000 to 2022 and wavelet analytical techniques. The findings revealed a persistent negative association between public debt and GDP growth in the short and long run, although the effect weakened during medium-term cycles. Causality tests also indicated bidirectional causality between public debt and economic growth.

Azebi (2025) investigated the effect of external debt on Nigeria's economic growth using an ex post facto research design and secondary data from the CBN Statistical Bulletin covering 1991–2022. The ARDL bounds test confirmed a long-run relationship among the variables, with an F-statistic of 6.596 exceeding the upper critical bound of 4.35. The findings showed that domestic debt had a significant positive long-run effect on GDP, while the model explained 66.87% of GDP variation.

Ejinkonye et al. (2025) examined the effect of public debt on Nigeria's economic growth using CBN data from 1981 to 2023. Adopting an ex post facto design, multiple regression and neoclassical debt theory, the study found that domestic debt had a positive and significant effect on GDP, whereas external debt had a negative but significant effect.

Ekong et al. (2025) investigated the nonlinear effect of public debt on Nigeria's economic growth using ARDL and threshold regression techniques with data covering 1981–2022. The study identified debt-to-GDP and debt-to-revenue thresholds of 26.85% and 22.86%, respectively, finding that public debt enhanced growth below these levels but had a negative and significant effect above them.

Ogonebu and Kaigwini (2025) examined the effect of external debt on Nigeria's economic growth from 2010 to 2022 using quarterly time-series data, an ARDL model and debt overhang theory. The findings indicated that external borrowing could support growth through infrastructure and development financing, but rising debt-servicing costs constrained fiscal resources and public investment, potentially undermining long-term growth.

Ewubare (2025) investigated the effects of exchange rates, foreign direct investment, official development assistance and external debt on Nigeria's GDP per capita from 1987 to

2022 using several statistical techniques, including ARDL. The findings showed that these variables had no significant collective effect on GDP per capita growth in the long run. In the short run, foreign direct investment and external debt had positive effects, while exchange rates and official development assistance had negative effects.

Wachukwu and Esian (2024) examined public debt and economic development in Nigeria using annual time-series data from 1981 to 2022. Economic development was measured by real GDP per capita, while domestic debt, external debt and exchange rates served as explanatory variables. Using the Toda–Yamamoto causality test, the study found that neither domestic nor external debt had a statistically significant relationship with real GDP per capita.

Oyeoka et al. (2024) investigated the effect of public external debt on Nigeria's economic development between 1981 and 2023 using CBN data, Johansen cointegration and multiple regression. The results established a long-run relationship among the variables. Total external debt had a negative and significant effect on economic development, multilateral debt had a positive and significant effect, while bilateral debt had a positive but insignificant effect.

Elkhafi (2024) examined the effect of external debt on economic growth in emerging economies from 1990 to 2022, considering globalization, using a fixed-effects panel model. The findings revealed a nonlinear relationship: external debt initially stimulated growth, but further accumulation produced diminishing returns and adverse effects. The study emphasized prudent debt management in economies exposed to external shocks.

Srihadiastuti and Ekananda (2024) investigated the effects of political corruption and public debt on economic development across 43 democratic developing countries from 2002 to 2021. Using World Bank and IMF data and the pooled mean group ARDL method, the study found that corruption could generate temporary benefits but ultimately hindered long-term economic development.

Muhammad et al. (2024) examined the effect of external debt on economic growth and capital formation in Nigeria using ARDL and time-series data from 1980 to 2013. The findings indicated that external debt had a negative and statistically significant effect on capital formation. Interest rates were statistically significant but weak, while savings exhibited bidirectional causality among the variables. The remaining variables showed unidirectional causal relationships.

METHODOLOGY

The study adopted an ex post facto and longitudinal research design. The ex post facto design was appropriate because the study relied on historical secondary data without manipulating the variables (Silva, 2022), while the longitudinal design enabled the examination of changes in public debt structure and economic growth in Nigeria over time. The study covered annual time-series data from 1990 to 2024, using the entire set of relevant observations within the period; hence, no sampling was undertaken. Quantitative secondary data were obtained from the Central Bank of Nigeria Statistical Bulletin (2024), the Debt Management Office of Nigeria (2024) and the World Development Indicators (2024). Economic growth, measured by the GDP growth rate, served as the dependent variable, while external debt stock, domestic debt stock, total public debt-to-GDP ratio and debt service payments constituted the explanatory variables. To examine the effect of public debt structure on economic growth in Nigeria, the study adapted the model specification of

Yahaya (2026). Accordingly, the functional and econometric forms of the model are presented as follows:

The functional relationship is expressed as:

$$GDPG_t=f(EXTD_t,DDST_t,TPDG_t,DSPT_t)$$

The econometric model is specified as:

$$GDPG_t = \beta_0 + \beta_1 EXTD_t + \beta_2 DDST_t + \beta_3 TPDG_t + \beta_4 DSPT_t + \mu_t$$

Where:

$GDPG_t$ = GDP growth rate in period t
$EXTD_t$ = External debt stock
$DDST_t$ = Domestic debt stock
$TPDG_t$ = Total public debt-to-GDP ratio
$DSPT_t$ = Debt service payments
β_0= Constant term
β_1 to β_2= Coefficients of the explanatory variables
μ_t = Error term

Operationalization of Variables

Table 1: Measurement and A Priori Expectations of Study Variables

Variable	Type	Measurement	A Priori Expectation
GDPG (GDP Growth Rate)	Dependent	Annual percentage growth rate of GDP (Oyamendan et al., 2025).	—
EXTD (External Debt Stock)	Independent	Total outstanding external debt, measured in monetary value (Saka, 2024).	(+/−)
DDST (Domestic Debt Stock)	Independent	Total outstanding domestic debt, measured in monetary value (Saka, 2024).	(+/−)
TPDG (Total Public Debt-to-GDP Ratio)	Independent	Total public debt divided by GDP, expressed as a percentage (Ibanez et al., 2024).	(−/+)
DSPT (Debt Service Payments)	Independent	Debt service payments as a percentage of GDP (Nwoye et al., 2023).	(−)

Source: Researcher's Compilation (2026).

RESULTS AND DISCUSSION

Descriptive Statistics

This section presents the descriptive statistics of the variables used in the study over the period 1990–2024. The analysis examines the mean, median, maximum, minimum and standard deviation of the GDP growth rate, the dependent variable, and the explanatory variables: external debt stock, domestic debt stock, total public debt-to-GDP ratio and debt service payments. These statistics summarise the distribution, central tendency and variability of the data before further econometric analysis.

Table 2: Descriptive Statistics for Public Debt Structure

	Mean	Maximum	Minimum	Std. Dev.	Jarque-Bera	Probability	Observations
DDST	51.77867	341.2073	0.387900	76.92479	74.56100	0.000000	35
DSPT	0.007746	0.024200	0.001100	0.005258	7.959907	0.018687	35
TPGD	61.97905	349.5701	1.765200	81.97978	42.66931	0.000000	35
EXTD	0.150909	0.360400	0.017800	0.107417	3.698172	0.157381	35
GDPR	4.241143	15.33000	-2.04	3.848161	2.038417	0.360880	35

Researcher's Computation (2026)

Table 2 presents the descriptive statistics for public debt structure and economic growth in Nigeria over the 35 annual observations covering 1990–2024. Domestic debt stock (DDST) recorded a mean of 51.78, a maximum of 341.21 and a minimum of 0.39, with a standard deviation of 76.92, indicating substantial variation in domestic debt over the period. Total public debt-to-GDP ratio (TPDG) had a mean of 61.98, ranging from 1.77 to 349.57, with a standard deviation of 81.98, also reflecting considerable variability. External debt stock (EXTD) recorded a mean of 0.151, a maximum of 0.360 and a minimum of 0.018, with a standard deviation of 0.107. Debt service payments (DSPT) had a mean of 0.0077, a maximum of 0.0242 and a minimum of 0.0011, with a standard deviation of 0.0053. These results indicate that the public debt indicators varied over the study period. Meanwhile, GDP growth (GDPR) averaged 4.24%, with a maximum of 15.33% and a minimum of −2.04%. Its standard deviation of 3.85 indicates fluctuations in economic growth, including a period of contraction.

The Jarque–Bera normality test shows that domestic debt stock, debt service payments and the total public debt-to-GDP ratio were not normally distributed at the 5% significance level, as their probabilities were below 0.05. In contrast, external debt stock and GDP growth did not significantly depart from normality, given their probabilities of 0.1574 and 0.3609, respectively, which exceed 0.05. Overall, the descriptive statistics reveal considerable variation in public debt indicators and economic growth in Nigeria during the period. These findings provide an initial summary of the data before the subsequent econometric analysis.

Table 3: Correlation Analysis: Spearman rank-order

Sample: 1990 2023
Included observations: 34
Balanced sample (listwise missing value deletion)

Correlation	GDPR	EXTD	DDST	DSPT	TPGD

GDPR	1.000000				
EXTD	-0.268755	1.000000			
DDST	0.023071	0.573109	1.000000		
DSPT	-0.313063	0.559358	0.285256	1.000000	
TPGD	-0.141635	0.069824	0.258976	-0.046600	1.000000

Researcher's Computation (2026)

Table 3 presents the Spearman rank-order correlation coefficients among GDP growth and the public debt variables in Nigeria for the period 1990–2023, based on 34 observations. The results show that GDP growth (GDPR) has a weak negative correlation with external debt stock (EXTD), with a coefficient of −0.2688. Its correlation with domestic debt stock (DDST) is almost zero at 0.0231, while debt service payments (DSPT) have a moderate negative correlation with GDP growth, recording −0.3131. Similarly, the total public debt-to-GDP ratio (TPDG) has a weak negative correlation with GDP growth at −0.1416. These results suggest that external debt, debt service payments and the total public debt-to-GDP ratio tend to move inversely with GDP growth, although the associations are generally weak. Domestic debt stock shows virtually no monotonic association with GDP growth.

Among the explanatory variables, external debt stock has a moderate positive correlation with domestic debt stock (0.5731) and debt service payments (0.5594). Domestic debt stock has a weak positive correlation with debt service payments (0.2853) and the total public debt-to-GDP ratio (0.2590). The correlation between external debt stock and the total public debt-to-GDP ratio is very weak and positive (0.0698), while the correlation between debt service payments and the total public debt-to-GDP ratio is almost zero and negative (−0.0466).

Overall, the results indicate that the pairwise correlations among the explanatory variables are below 0.8, suggesting no evidence of severe multicollinearity based on this preliminary assessment. However, correlation coefficients alone do not establish statistical significance or causation. Further econometric analysis is therefore required to determine the effects of public debt structure on GDP growth in Nigeria.

Table 4: Multicollinearity Test for GDP Growth Rate

Variable	VIF	Tolerance (TOV)
GDPR(-1)	3.7521	0.2665
DDST	2.7483	0.3639
DSPT	4.7073	0.2124
TPDG	1.9284	0.5186
EXTD	4.7921	0.2087
Average	3.5856	0.3140

Note: VIF = Variance Inflation Factor; TOV = Tolerance.
Researcher's Computation (2026).

Table 4.3 presents the multicollinearity test for the GDP growth rate model. The results show an average Variance Inflation Factor (VIF) of 3.5856, which is below the commonly applied threshold of 5. The individual VIF values range from 1.9284 for TPDG to 4.7921 for EXTD.

Similarly, the tolerance values range from 0.2087 to 0.5186, all exceeding the minimum threshold of 0.10. These results indicate that multicollinearity among the explanatory variables is not severe enough to raise major concerns about the model. Therefore, the variables can be retained for further econometric analysis of the effects of public debt structure on economic growth in Nigeria.

Table 5: ADF Unit Root Test Results for Variables in the Study

Variable	Test Stage	ADF Test Statistic	Critical Value at 5%	p-value	Order of Integration	Decision
GDP Growth Rate (GDPR)	Level	-3.813401	-2.951125	0.0064	I(0)	Stationary
GDP Growth Rate (GDPR)	First Difference	-9.634435	-2.954021	0.0000	I(0)*	Stationary
External Debt (EXTD)	Level	-0.214281	-2.957110	0.9267	I(1)	Non-stationary
External Debt (EXTD)	First Difference	-3.820272	-2.957110	0.0066	I(1)	Stationary
Domestic Debt (DDST)	Level	-1.245049	-2.957110	0.6423	I(1)	Non-stationary
Domestic Debt (DDST)	First Difference	-10.24020	-2.957110	0.0000	I(1)	Stationary
Debt Service Payments (DSPT)	Level	-1.174816	-2.954021	0.6734	I(1)	Non-stationary
Debt Service Payments (DSPT)	First Difference	-4.866756	-2.957110	0.0004	I(1)	Stationary
Total Public Debt-to-GDP Ratio (TPDG)	Level	-4.813241	-2.954021	0.0005	I(0)	Stationary
Total Public Debt-to-GDP Ratio (TPDG)	First Difference	-8.592208	-2.957110	0.0000	I(0)*	Stationary

Source: Researcher's Computation (2026).

Note: The asterisk indicates that the first-difference test confirms stationarity but does not change a variable's integration order when it is already stationary at level.

The Augmented Dickey-Fuller (ADF) unit root test results show that GDP growth rate (GDPR) and the total public debt-to-GDP ratio (TPDG) are stationary at level, with p-values of 0.0064 and 0.0005, respectively. They are therefore integrated of order zero, I(0). In contrast, external debt (EXTD), domestic debt (DDST) and debt service payments (DSPT) are non-stationary at level but become stationary after first differencing. These variables are consequently integrated of order one, I(1). The results establish a mixture of I(0) and I(1) variables, supporting the use of the Autoregressive Distributed Lag (ARDL)

approach, provided that none of the variables is integrated of order two, I(2). The ARDL bounds test can then be used to determine whether a long-run relationship exists between public debt structure and economic growth in Nigeria.

Table 6: ARDL Model Selection Criteria for GDP Growth Rate

Model	LogL	AIC	BIC	HQ	Adjusted R^2	Specification
1	-86.364200	5.433188	5.702546	5.525047	0.152098	ARDL(1, 0, 0, 0, 0)

Source: Researcher's Computation (2026).

Table 6 presents the ARDL model selection results for GDP growth rate in Nigeria over the period 1990–2024, based on 34 observations. The selected specification is ARDL(1, 0, 0, 0, 0), indicating one lag of GDP growth rate and zero lags for each explanatory variable in the selected model.

The model records an Akaike Information Criterion (AIC) of 5.433188, a Schwarz Bayesian Criterion (BIC) of 5.702546 and a Hannan–Quinn Criterion (HQ) of 5.525047. These criteria are used to compare competing model specifications, with lower values generally indicating a preferred model among the alternatives considered. The adjusted R-squared of 0.152098 indicates that the model explains approximately 15.21% of the variation in GDP growth rate, after adjusting for the number of explanatory variables. The remaining variation is attributable to factors outside the model and random disturbances. The selected ARDL specification provides the basis for further analysis of the effects of public debt structure on economic growth in Nigeria. However, the adjusted R-squared and model selection criteria alone do not establish the statistical significance of the explanatory variables or the existence of a long-run relationship

Table 7: ARDL Bounds Test for GDP Growth Rate

ARDL Bounds Test
Sample: 1995 2024
Included observations: 30
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.973869	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Researcher's Computation (2026)

The ARDL bounds test examines whether a long-run relationship exists between GDP growth rate (GDPR) and the explanatory variables: external debt stock (EXTD), domestic debt stock (DDST), total public debt-to-GDP ratio (TPDG), and debt service payments (DSPT). The calculated F-statistic of 4.973869 exceeds both the lower and upper bounds at the 5% significance level (2.86 and 4.01, respectively). Therefore, the null hypothesis of no long-run relationship is rejected at 5%. This indicates evidence of a long-run relationship between public debt structure and economic growth in Nigeria.

Regression Analysis

This section provides a comprehensive empirical assessment of how public debt structure influences inflation using linear (ARDL) technique.

Table 8: ARDL Cointegrating And Long Run Form

Dependent Variable: GDPR
Selected Model: ARDL(1, 0, 0, 0, 0)
Sample: 1990 2024
Included observations: 34

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DDST)	-0.269291	0.091633	-2.938788	0.0076
D(DSPT)	-0.023019	0.014870	-1.548054	0.1359
D(TPGD)	-0.262208	0.095408	-2.748270	0.0117
D(EXTD)	0.269737	0.097215	2.774631	0.0111
CointEq(-1)	-0.640389	0.172298	-3.716751	0.0011

Cointeq = GDPR - (-0.2886*DDST -0.2177*DSPT +-0.0273*TPGD + 0.2893*EXTD + 0.2744)

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DDST	-0.288620	0.118050	-2.444899	0.0222
DSPT	-0.217718	0.101214	-2.151059	0.0418
TPGD	-0.027250	0.130824	-0.208292	0.8368
EXTD	0.289340	0.121853	2.374504	0.0259
C	0.274387	0.108263	2.534445	0.0182

Researcher's computation (2026)

The short-run results show that domestic debt stock (DDST) has a negative and statistically significant effect on GDP growth rate (GDPR), with a coefficient of −0.269291 and a p-value of 0.0076. This suggests that an increase in domestic debt stock is associated with a decline in economic growth in the short run. Debt service payments (DSPT) also have a negative coefficient of −0.023019, but the effect is statistically insignificant (p = 0.1359). Similarly, the total public debt-to-GDP ratio (TPGD) has a negative and statistically significant effect on GDP growth, with a coefficient of −0.262208 and a p-value of

0.0117. In contrast, external debt stock (EXTD) has a positive and statistically significant short-run effect, with a coefficient of 0.269737 (p = 0.0111).

The error-correction term, CointEq(-1), is negative (−0.640389) and statistically significant (p = 0.0011). This supports adjustment towards the long-run equilibrium. Its magnitude indicates that approximately 64.04% of the previous period's deviation from equilibrium is corrected within one period.

The long-run results indicate that domestic debt stock has a negative and statistically significant effect on GDP growth (coefficient = −0.288620; p = 0.0222). Debt service payments also have a negative and significant long-run effect (coefficient = −0.217718; p = 0.0418). These findings suggest that higher domestic debt stock and debt service payments are associated with lower economic growth over the long term. Conversely, external debt stock has a positive and statistically significant long-run effect on GDP growth, with a coefficient of 0.289340 and a p-value of 0.0259. This suggests that external borrowing may support economic growth, although the result does not establish causation. The total public debt-to-GDP ratio has a negative coefficient of −0.027250, but its effect is statistically insignificant (p = 0.8368). Therefore, the study finds no statistically significant evidence of a long-run effect of the total public debt-to-GDP ratio on economic growth.

Discussion of Results

The findings reveal that public debt structure has varying effects on economic growth in Nigeria, depending on the type of debt and the period considered. The short-run results show that domestic debt stock has a negative and statistically significant effect on GDP growth, suggesting that increased domestic borrowing may constrain economic activities in the short term. This may occur when government borrowing absorbs funds that could otherwise be available to private-sector investors, thereby increasing competition for domestic credit. The negative long-run effect of domestic debt stock further suggests that sustained reliance on domestic borrowing may pose challenges to economic growth. This finding highlights the importance of ensuring that domestic borrowing is directed towards productive expenditure capable of generating economic returns.

Debt service payments have a negative but statistically insignificant short-run effect on GDP growth. This implies that the immediate effect of debt servicing on economic growth is not sufficiently strong to establish a statistically significant effect within the study period. However, the negative and statistically significant long-run coefficient indicates that persistent debt service obligations may constrain growth over time. A substantial share of government revenue devoted to servicing debt may reduce the fiscal resources available for infrastructure, education, healthcare and other growth-enhancing expenditure. The result therefore suggests that the sustainability of public borrowing depends not only on the amount borrowed but also on the government's capacity to meet its repayment obligations without undermining productive spending.

The total public debt-to-GDP ratio has a negative and statistically significant short-run effect on GDP growth. This suggests that increases in the debt burden relative to the size of the economy may be associated with weaker economic growth in the short term. A rising debt burden may intensify fiscal pressure and increase concerns about the government's ability to manage its obligations. However, the long-run coefficient is negative but statistically insignificant. This means that the study does not provide sufficient evidence to conclude that the total public debt-to-GDP ratio has a

significant long-run effect on economic growth. The difference between the short-run and long-run results suggests that the immediate implications of the overall debt burden may not persist in the same form over the long term.

In contrast, external debt stock has a positive and statistically significant effect on GDP growth in both the short run and the long run. This finding suggests that external borrowing may support economic growth when the funds are used for productive investments and development projects. External loans can provide additional resources for infrastructure and other capital projects where domestic revenue and savings are insufficient. Nevertheless, the positive coefficient should not be interpreted to mean that all external borrowing promotes growth. The economic benefits depend on the terms of borrowing, the productivity of financed projects, exchange-rate developments and the government's ability to service the resulting obligations.

CONCLUSION

This study examined the effect of public debt structure on economic growth in Nigeria from 1990 to 2024. The findings reveal that domestic debt stock and debt service payments have significant negative long-run effects on GDP growth, while external debt stock has a significant positive effect. The total public debt-to-GDP ratio has a significant negative short-run effect but no statistically significant long-run effect. The significant error-correction term also confirms adjustment towards long-run equilibrium. The study concludes that the contribution of public debt to economic growth depends on its composition, utilisation and management. Based on these findings, the following recommendations are made:

i. The government should strengthen the management of domestic borrowing and direct borrowed funds towards productive projects that generate economic returns, while minimising excessive competition with the private sector for domestic credit.
ii. The government should improve debt servicing capacity through effective repayment planning, prudent borrowing and stronger revenue mobilisation to reduce the pressure of debt obligations on expenditure for growth-enhancing sectors.
iii. External borrowing should be prioritised for viable infrastructure and development projects with measurable economic benefits, while carefully managing exchange-rate risks and borrowing costs to sustain its positive contribution to economic growth.
iv. The government should adopt a comprehensive public debt management strategy that monitors the composition, cost and sustainability of debt, ensuring that borrowing decisions reflect the country's repayment capacity and the expected contribution of debt-financed expenditure to economic growth.

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