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Assessing the Impact of Public Debt Dynamics on Economic Expansion in Nigeria

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Abstract

This study examines the impact of public debt sustainability on the economic growth of Nigeria over a 39-year period, 1985 to 2024. The analysis focuses on three key sustainability indicators, the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio, with real GDP employed as a proxy for economic growth. Time-series data obtained from the Central Bank of Nigeria, the Debt Management Office, and international financial databases are estimated using the Autoregressive Distributed Lag (ARDL) model to identify both short-run and long-run effects. The findings indicate the presence of a long-run equilibrium relationship among the variables. The debt-to-GDP ratio has a positive and significant impact on economic growth in the short run, but its long-run impact is minimal. The interest–growth differential exerts a significant negative effect on growth in the short run, reflecting the strain of rising borrowing costs on economic performance. Similarly, the external debt-to-export ratio has a significant negative short-run impact, indicating vulnerability to external repayment pressure. The study concludes that debt sustainability is a crucial factor in determining Nigeria's economic performance and recommends that government manage public debt prudently, allocate borrowed resources productively, and pursue policies that sustain a favourable macroeconomic environment.

Keywords: *Public Debt; Debt-to-GDP Ratio; Interest–Growth Differential; External Debt-to-Export Ratio; Economic Growth.*

JEL Classification: *H63, O40, F34*

1.0 Introduction

The accumulation of public debt in Nigeria has evolved into a defining feature of its macroeconomic structure, reflecting persistent fiscal deficits and structural limitations in domestic revenue mobilisation. Empirical data from the Central Bank of Nigeria and global financial institutions show that Nigeria's debt profile has expanded continuously in recent decades, with borrowing increasingly deployed to finance infrastructure gaps, budget deficits, and macroeconomic stabilisation efforts (Kalu et al., 2024). This expansion has occurred despite the substantial debt relief the country received in 2005, when approximately 60% of its external debt, valued at about US$18 billion, was written off; yet subsequent fiscal behaviour resulted in renewed debt accumulation within a relatively short period (Ayoola & Segun-Olufemi, 2022).

Nigeria's debt dynamics exhibit both expansionary and contractionary implications for economic performance, contingent on the structure, utilisation, and servicing of borrowed funds. Evidence spanning 1990 to 2022 signifies the presence of a long-run equilibrium relationship between public debt components and economic development, with external debt exerting favourable effects under efficient utilisation, while debt servicing imposes a significant negative constraint on growth (Ayodele et al., 2025). Rising debt-servicing requirements consume a substantial share of government revenue, weakening the capacity to finance growth-enhancing expenditure (Adebayo et al., 2021). Public debt has also been found to exhibit an inverted U-shaped relationship with economic development, whereby moderate borrowing supports expansion while excessive

accumulation generates diminishing and ultimately contractionary returns (Fasoye & Olayiwola, 2024).

External debt is a particularly delicate component of Nigeria's debt structure, as it is exposed to exchange-rate fluctuations and repayment obligations denominated in foreign currency. External debt burdens have been shown to exert a substantial negative impact on economic growth when compounded by rising debt-servicing obligations (Odey et al., 2023), while newer bilateral borrowing arrangements have financed infrastructure development but simultaneously elevated long-term repayment burdens (Ahmed & Agbontaen, 2025).

Although the debt–growth nexus in Nigeria has attracted considerable empirical attention, most studies rely on aggregate debt indicators, with limited incorporation of sustainability-sensitive measures that capture the interaction between debt burden, repayment capacity, and macroeconomic performance. This study addresses this gap by examining the impact of public debt dynamics on economic expansion in Nigeria. The specific objectives are to: (i) evaluate the effect of the debt-to-GDP ratio on economic growth in Nigeria; (ii) examine the influence of the interest–growth differential on real GDP; and (iii) analyse the impact of the external debt-to-export ratio on economic expansion.

This paper offers policy-relevant information to fiscal authorities and debt managers by moving beyond aggregate debt analysis to incorporate sustainability indicators that more accurately capture Nigeria's debt position and growth prospects. It is hoped that the results will inform sound borrowing policy, improved debt-composition choices, and more efficient allocation of public spending, while also contributing to a deeper understanding of nonlinear debt–growth dynamics in a developing-economy context.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Public Debt

Public debt refers to the stock of government liabilities arising from borrowing undertaken to finance fiscal deficits, fund public spending, and bridge developmental funding shortfalls when domestic resources prove insufficient (Temuhale & Odom, 2022). It is rooted in deficit financing, through which governments mobilise domestic and external resources for infrastructure development, economic stabilisation, and capital formation under constrained fiscal conditions (Ughulu et al., 2023). In the Nigerian context, this mechanism reflects a structural response to chronic revenue shortfalls and rising expenditure demands, making public debt one of the defining features of macroeconomic policy. Public debt embodies a fiscal process in which borrowing interacts with investment, growth, and macroeconomic stability, such that its effectiveness depends on the efficient deployment of funds and the economy's capacity to generate returns sufficient to meet repayment obligations (Onyele et al., 2023). Nigeria's experience illustrates this duality, with debt functioning both as a financing instrument for development and a source of concern linked to inefficient utilisation, rising servicing costs, and constrained fiscal space (Okeke et al., 2022).

2.1.2 Debt Sustainability

Debt sustainability refers to a government's ability to meet current and future debt-service obligations in full, without resorting to exceptional financing, default, or undermining prospects for economic growth (Kidochukwu, 2015). Sustainability is not merely a question of the capacity to service debt, but also of whether, at a given level of accumulation, debt facilitates growth rather than creating instability and fiscal distress. Empirical calibration in Nigeria identifies sustainability as bounded within a threshold of about 30–40 per cent of GDP, beyond which debt-overhang effects emerge and constrain investment and economic performance (Anisiobi et al., 2023). Sustainability indicators, particularly debt-service ratios relative to revenue or export earnings, reflect the extent to which servicing requirements intrude on resources needed for development spending (Nya & Onyimadu, 2019). In Nigeria, continued debt growth alongside sluggish revenue growth has undermined these sustainability conditions, with rising servicing obligations consuming fiscal resources and limiting investment options (Aladejare & Musa, 2024).

2.2 Public Debt Sustainability and Economic Growth Dynamics

Public debt sustainability, in the context of growth, reflects an economy's ability to manage its debt trajectory in a manner compatible with steady output expansion and financial balance. Borrowing supports growth only when it does not exceed manageable levels relative to output and repayment capacity (Eddassi, 2020). The debt-to-GDP ratio therefore acts as a central fiscal indicator of the relative debt burden borne by the economy. Evidence from Nigeria suggests that this ratio exhibits nonlinear behaviour: early increases support growth through investment financing, but beyond an optimal threshold, debt overhang sets in and depresses economic performance (Ebi & Imoke, 2017).

The interest–growth differential further characterises debt burden by capturing the extent to which the cost of debt exceeds the economy's capacity to sustain it. When the cost of borrowing exceeds the growth rate, fiscal pressure intensifies and debt burdens compound, constraining public

investment and diminishing future growth prospects; sustainability is generally maintained when growth exceeds interest costs, allowing governments to meet obligations without extreme fiscal adjustment (Eddassi, 2020). In Nigeria, rising debt-servicing obligations have been found to exert a strong adverse effect on growth by diverting resources away from productive uses (Nwekwo et al., 2018).

The external debt-to-export ratio captures external vulnerability by relating debt-servicing capacity to foreign-exchange earnings. High ratios indicate reduced repayment ability and heightened exposure to exchange-rate volatility and macroeconomic instability; in Nigeria, this ratio has tended to move inversely with economic growth, reflecting strain on the external balance and reduced allocation of resources to domestic investment. Its implications therefore depend on export performance, with a strong export base enhancing sustainability and a weak one heightening vulnerability. Collectively, these indicators suggest that the debt–growth relationship is positive when borrowing is productive and remains within sustainable limits, but becomes destructive when rising debt costs, unfavourable interest–growth conditions, and external vulnerability combine a pattern broadly consistent with Nigeria's debt experience, where borrowing has, at various points, both supported and constrained growth.

2.3 Empirical Review

 Edeminam (2021) investigated the effect of public debt on Nigeria's economic growth between 1990 and 2019 using annual time-series data from the Central Bank of Nigeria. Employing unit root tests, Johansen cointegration, and a Vector Error Correction Model (VECM), the study found that public debt exerted a negative and statistically significant effect on long-run economic growth, while the short-run coefficient was negative but statistically insignificant, and no causal relationship was found between growth and debt. The study concluded that debt over-accumulation undermines economic performance and recommended revenue diversification and productive allocation of borrowed funds.

Odey, Owan, and Owan (2023) examined the effect of external debt burden on economic growth in Nigeria using the ARDL bounds-testing approach, with external debt stock and debt-service payments as proxies for debt burden and GDP as the growth measure. The results showed that external debt and debt servicing exerted a significant negative effect on growth that was consistent in the long run, with larger debt stock and servicing obligations associated with greater reductions in GDP growth. The study recommended reorganising debt-control policy, diversifying exports, and directing borrowed funds toward productive investment.

Uwakaeme (2024) evaluated the relationship between external debt and real economic growth in Nigeria between 1980 and 2022 using cointegration analysis, an Error Correction Model, and Granger causality tests, with external debt, external debt interest charges, and the nominal exchange rate as explanatory variables. The results showed that external debt and interest charges exerted a negative long-run effect on real GDP, with an ECM coefficient of −0.154 reflecting a slow speed of adjustment to equilibrium. The study concluded that a rising external debt burden undermines growth performance and recommended responsible debt management alongside sound exchange-rate practices.

Yusuf, Abolarin, Ibrahim, and Oyegoke (2025) examined the impact of external debt and institutional quality on economic growth in Nigeria using a Vector Error Correction Model and nonlinear threshold modelling. The results indicated a positive and significant effect of external debt on growth in both the short and long run, with a critical threshold identified beyond which the effect turns negative. Institutional-quality indicators contributed significantly to growth outcomes, underscoring the importance of governance to debt effectiveness; the study recommended stronger institutional structures and reduced dependence on high levels of external borrowing.

2.4 Research Gap

Existing empirical research on Nigeria has focused predominantly on aggregate public debt or external debt stock, without combining sustainability-sensitive indicators, the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio, within a single analytical model. Attention has largely centred on linear relationships, with limited consideration of the short-run and long-run dynamics through which debt-sustainability conditions transmit to growth. This study addresses this gap by applying an ARDL framework that jointly captures these time dynamics and sustainability indicators.

3.0 Methodology

3.1 Theoretical Framework

The study is anchored on the Debt Overhang Theory, developed in the late 1980s in the literature on sovereign debt crises, notably by Krugman (1988) and Sachs (1989), to explain the underperformance experienced by heavily indebted developing economies. The theory explains how excessive government debt constrains economic performance by distorting investment signals and macroeconomic expectations: when the stock of obligations exceeds an economy's repayment capacity, anticipated returns to investment decline because future output becomes implicitly committed to debt servicing. Investors,

expecting a substantial share of returns to be absorbed by taxation or debt repayment, are correspondingly discouraged from productive investment (Adeniyi et al., 2019).

This mechanism can be represented through an implicit taxation structure embedded in debt accumulation:

$$I = f(R - \delta D) \quad \ldots (1)$$

where I denotes investment, R reflects expected returns, D denotes the debt stock, and δ captures the effective burden imposed by anticipated servicing obligations. Rising debt increases δD, compressing net returns and discouraging capital formation a dynamic consistent with Nigeria's experience, where excessive debt accumulation has been associated with reduced output growth through crowding-out effects and diminished investment incentives (Edeminam, 2021).

A complementary representation emerges from the debt-dynamics identity:

$$\Delta D = (r - g)D + DEF \quad \ldots (2)$$

where r is the interest rate, g is the growth rate, and DEF is the fiscal deficit. When r exceeds g, debt grows faster than the economy, reinforcing overhang conditions and intensifying fiscal pressure; rising external debt-servicing obligations in Nigeria have been found to exert notable negative effects on growth, reflecting the diversion of resources from productive investment toward repayment (Nwekwo et al., 2018).

Threshold effects further support the theory's relevance: at low levels, debt supports growth, but beyond sustainable levels its effect turns negative. Nigeria's external debt has spurred growth under favourable institutional and macroeconomic conditions, but excessive accumulation has produced negative long-run consequences by placing repayment burdens on the economy and undermining investment capacity (Yusuf et al., 2025). This nonlinear interaction reflects the transition from productive borrowing to overhang-induced stagnation, and it is to this framework that the study's three sustainability indicators, the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio, correspond directly.

3.2 Model Specification

This study examines the impact of public debt sustainability on economic development in Nigeria from 1985 to 2024, focusing on how the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio influence economic expansion, measured by real GDP (LGDP). Given the potential presence of variables integrated at distinct orders I(0) or I(1). The study employs the Autoregressive Distributed Lag (ARDL) bounds-testing approach, which is fitting for small samples and mixed-order integration while permitting estimation of both short-run and long-run dynamics.

The general functional relationship is expressed as:

$$LGDP_t = f(LDGDP_t, LIGD_t, LEDX_t, \varepsilon_t) \quad \ldots (3)$$

where LGDPt is the log of real GDP at time t (dependent variable); LDGDPt is the log of the debt-to-GDP ratio; LIGDt is the log of the interest–growth differential; LEDXt is the log of the external debt-to-export ratio; and εt is the stochastic error term. The corresponding econometric model is:

$$LGDP_t = \alpha_0 + \alpha_1 LDGDP_t + \alpha_2 LIGD_t + \alpha_3 LEDX_t + \varepsilon_t \quad \ldots (4)$$

where the coefficients α1 to α3 measure the long-run impact of each debt-sustainability indicator on economic growth. The ARDL model, which captures both short-run and long-run relationships among the variables, is specified as:

$$\Delta LGDP_t = \alpha_0 + \Sigma_{i=1}^{p} \alpha_i \Delta LGDP_{t-i} + \Sigma_{j=0}^{q} \beta_j \Delta LDGDP_{t-j} + \Sigma_{k=0}^{r} \gamma_k \Delta LIGD_{t-k} + \Sigma_{l=0}^{s} \delta_l \Delta LEDX_{t-l} + \lambda(LGDP_{t-1} - \theta_1 LDGDP_{t-1} - \theta_2 LIGD_{t-1} - \theta_3 LEDX_{t-1}) + \mu_t \quad \ldots (5)$$

where Δ is the first-difference operator (short-run dynamics); p, q, r, s are optimal lag lengths selected using the Akaike Information Criterion (AIC); λ is the error-correction coefficient (expected negative and significant); θ1 to θ3 are long-run coefficients; and μt is the stochastic error term. The corresponding Error Correction Model (ECM), which captures short-run adjustment toward long-run equilibrium, is:

$$\Delta LGDP_t = \alpha_0 + \Sigma_{i=1}^{p-1} \alpha_i \Delta LGDP_{t-i} + \Sigma_{j=0}^{q-1} \beta_j \Delta X_{t-j} + \lambda ECT_{t-1} + \mu_t \quad \ldots (6)$$

where Xt−j = {LDGDP, LIGD, LEDX}, ECTt−1 is the error-correction term derived from the long-run relationship, and λ is the speed of adjustment (expected negative and significant).

Table 1: Expected Signs of Coefficients

Variable	Description	Expected Sign	Justification
LDGDP	Debt-to-GDP Ratio	$\beta_1 < 0$	A higher debt-to-GDP ratio suggests unsustainable debt levels, which can discourage investment and slow economic growth.

LIGD	Interest–Growth Differential	$\beta_2 < 0$	When interest rates exceed economic growth, debt burden increases, creating a debt overhang and reducing growth.
LEDX	External Debt-to-Export Ratio	$\beta_3 < 0$	A high ratio indicates vulnerability to external shocks and weak repayment capacity, negatively affecting growth.
LGDP	Real GDP (Dependent Variable)	N/A	Economic growth responds to the sustainability of public debt indicators.

Source: *Authors' compilation (2026).*

It is expected that the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio will exert negative effects on economic growth once they reach unsustainable levels: a high debt-to-GDP ratio signals excessive borrowing relative to output, which may discourage investment; an unfavourable interest–growth differential can create a debt overhang that constrains growth; and a high external debt-to-export ratio signifies vulnerability to external shocks and limited capacity to service external obligations.

3.3 Definition and Measurement of Variables

The study analyses the impact of public debt sustainability on economic expansion in Nigeria, using the debt-to-GDP ratio, the interest–growth differential, and the external debt-to-export ratio as independent variables, and real GDP as the dependent variable. Each variable is measured as follows.

Table 2: Definitions and Measurement of Variables

Variable	Measurement	Unit	Description
LDGDP	Log of Debt-to-GDP Ratio	%	Total public debt as a proportion of GDP, indicating debt sustainability relative to economic output.
LIGD	Log of Interest–Growth Differential	%	Difference between the interest rate on debt and the economic growth rate; positive values indicate potential debt overhang.
LEDX	Log of External Debt-to-Export Ratio	%	Ratio of external debt to total export earnings, indicating exposure to external shocks.
LGDP	Log of Real GDP	Billion Naira	Total economic output adjusted for inflation, representing economic growth.

Source: *Authors' compilation (2026).*

3.4 Sources of Data

The study relies on secondary data obtained from credible sources for the period 1985–2024: the Debt Management Office (DMO), Nigeria, which provides records on domestic and external debt stock, composition, and servicing obligations; the Central Bank of Nigeria (CBN), which supplies macroeconomic indicators including real GDP, inflation, and interest rates; the National Bureau of Statistics (NBS); and the World Bank and International Monetary Fund (IMF) databases, used for cross-validation of national data. The use of multiple sources enhances the robustness and reliability of the dataset for time-series analysis using the ARDL bounds-testing and Error Correction Model (ECM) techniques.

3.5 Estimation Technique

To ensure the accuracy and robustness of the model, the study employs the Autoregressive Distributed Lag (ARDL) bounds-testing approach, developed by Pesaran and Shin (1995) and extended by Pesaran, Shin, and Smith (2001), which is suited to time-series variables integrated at different orders I(0) or I(1) and to relatively small sample sizes. The ARDL technique is used to assess both short-run and long-run relationships between real GDP and the debt-sustainability indicators, complemented by an Error Correction Mechanism (ECM) that establishes the speed at which the economy returns to equilibrium following a shock. Diagnostic tests including unit root testing, cointegration analysis, residual normality, serial

correlation, and heteroskedasticity are conducted to validate the model and ensure the reliability of the results.

4.0 Results and Discussion

This section presents the analysis of data on the impact of public debt sustainability on economic expansion in Nigeria from 1985 to 2024. The Johansen cointegration test is used to examine long-run equilibrium relationships among the variables, while the Autoregressive Distributed Lag (ARDL) model estimates both long-run and short-run effects, with the error-correction mechanism capturing the speed of adjustment from short-run deviations toward long-run equilibrium.

4.1 Unit Root Test

Table 3: Unit Root Test Results

Variable	ADF at Level	5% Crit. Value	Remark	ADF at 1st Diff.	5% Crit. Value	Order
LDGDP	-1.348041	-2.938987	Non-Stationary	-4.261940	-2.941145	I(1)
LEDX	-1.949463	-2.941145	Non-Stationary	-4.729771	-2.609066	I(1)
LGDP	-0.718421	-2.941145	Non-Stationary	-4.111744	-2.609066	I(1)
LIGD	-4.243955	-2.938987	Stationary	-10.891600	-2.609066	I(0)

Note: *LDGDP = Log of Debt-to-GDP Ratio; LEDX = Log of External Debt-to-Export Ratio; LGDP = Log of Real GDP; LIGD = Log of Interest–Growth Differential.* ***Source:*** *Authors' computation (2026),*

Table 3 shows that LDGDP, LEDX, and LGDP are non-stationary at levels but become stationary after first differencing, indicating that they are integrated of order one, I(1). LIGD, however, is stationary at level, indicating integration of order zero, I(0). This mixed order of integration confirms the variables' suitability for analysis using the ARDL bounds-testing approach.

4.2 Cointegration Test

Table 4: Johansen Multivariate Cointegration Test Results

Null Hyp.	Trace Stat.	Crit. Value (5%)	Prob.	Null Hyp.	Max-Eigen Stat.	Crit. Value (5%)	Prob.
r = 0*	56.39388	47.85613	0.0064	r = 0*	37.59900	27.58434	0.0019
r ≤ 1	18.79488	29.79707	0.5077	r ≤ 1	13.72530	21.13162	0.3880
r ≤ 2	5.069585	15.49471	0.8014	r ≤ 2	4.475862	14.26460	0.8060
r ≤ 3	0.593723	3.841466	0.4410	r ≤ 3	0.593723	3.841466	0.4410

Source: *Authors' computation (2026),*

Table 4 presents the Johansen multivariate cointegration test results. Both the Trace and Maximum Eigenvalue statistics reject the null hypothesis of no cointegration (r = 0) at the 5% level, while the null hypotheses for r ≤ 1, r ≤ 2, and r ≤ 3 are not rejected. This confirms the presence of one cointegrating equation and a stable long-run equilibrium relationship among LDGDP, LEDX, LGDP, and LIGD, justifying the ARDL estimation of both long-run and short-run dynamics.

4.3 Normality and Diagnostic Tests

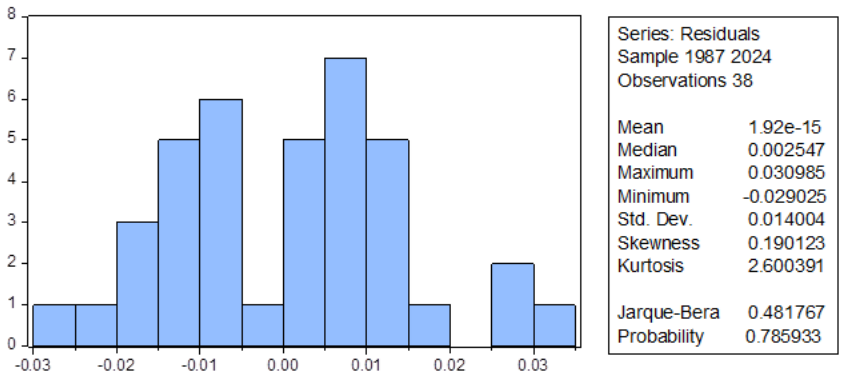

Figure 1: *Normality Test (Histogram of Residuals). Source: Author's computation (2026),*

The residuals of the estimated model are normally distributed, as the Jarque–Bera probability value of 0.79 (Figure 1) exceeds the 5% significance threshold.

Table 5: Diagnostic Tests

Test	Statistic	Value	Probability
Breusch–Godfrey Serial Correlation LM Test	F-statistic	1.0983	Prob. F(2,25) = 0.3490
	Obs*R-squared	3.0692	Prob. Chi-Sq(2) = 0.2155
Breusch–Pagan–Godfrey Heteroskedasticity Test	F-statistic	0.6857	Prob. F(10,27) = 0.7284
	Obs*R-squared	7.6959	Prob. Chi-Sq(10) = 0.6585
Ramsey RESET Test	t-statistic	1.0490	df = 26, Prob. = 0.3038
	F-statistic	1.1004	df = (1,26), Prob. = 0.3038

Source: *Authors' computation (2026),*

Table 5 reports further diagnostic tests. The Breusch–Godfrey LM test indicates no evidence of serial correlation in the model residuals; the Breusch–Pagan–Godfrey test confirms homoskedasticity; and the Ramsey RESET test shows no evidence of functional-form misspecification or omitted variables. Together, these results confirm that the estimated model satisfies the classical regression assumptions, and that the results regarding the impact of public debt sustainability on economic expansion in Nigeria are robust and dependable.

4.4 ARDL Bounds Test for Cointegration

Table 6: ARDL Bounds Test Result

Significance Level	F-statistic	I(0) Bound	I(1) Bound
10%		2.37	3.20
5%	40.529 (k = 3)	2.79	3.67
2.5%		3.15	4.08
1%		3.65	4.66

Note: *Null hypothesis — no levels relationship.* ***Source:*** *Authors' computation (2026),*

Table 6 presents the ARDL bounds test results. The computed F-statistic (40.53) exceeds the upper-bound critical values at the 10%, 5%, 2.5%, and 1% significance levels, leading to rejection of the null hypothesis of no long-run relationship. This confirms cointegration among LDGDP, LEDX, LIGD, and LGDP, and justifies estimation of both the long-run and short-run ARDL models.

4.5 ARDL Long-Run and Short-Run Estimates

Table 7: ARDL Long-Run Estimates (Levels Equation)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIGD	-4.009947	3.595806	-1.115173	0.2746
LEDX	-0.376868	0.226530	-1.663659	0.1077
LDGDP	0.451583	0.228036	1.980309	0.0579
C	19.681640	9.241485	2.129706	0.0425

Dependent variable: LGDP. Selected model: ARDL(1,2,2,2). ***Source:*** *Authors' computation (2026),*

Table 8: ARDL Short-Run Error Correction Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Δ (LIGD)	-0.049458	0.004565	-10.83417	0.0000
Δ (LIGD(-1))	0.007283	0.004628	1.573538	0.1272
Δ (LEDX)	-0.023240	0.006389	-3.637737	0.0011
Δ (LEDX(-1))	-0.028471	0.006282	-4.532064	0.0001
Δ (LDGDP)	0.046326	0.011092	4.176510	0.0003
Δ (LDGDP(-1))	0.047791	0.010068	4.746875	0.0001
ECT(-1)	-0.016175	0.001060	-15.25347	0.0000

R^2 = 0.8489; Adjusted R^2 = 0.8197; Durbin–Watson = 1.9869. ***Source:*** *Authors' computation (2026),*

Table 7 shows that the debt-to-GDP ratio (LDGDP) exerts a positive effect on economic growth in the long run (coefficient = 0.452, p = 0.058), suggesting that sustainable debt accumulation can support long-term performance, although the effect is only marginally significant. The interest–growth differential (LIGD) and the external debt-to-export ratio (LEDX) both carry negative but statistically insignificant long-run coefficients (−4.010, p = 0.275; −0.377, p = 0.108, respectively), indicating that their influence is more pronounced in the short run than in the long run. The intercept is positive and significant (19.682, p = 0.043), reflecting other underlying growth determinants not captured by the model.

Table 8 presents the short-run error correction estimates. The error correction term, ECT (-1), is negative and highly significant (−0.0162, p = 0.000), confirming the existence of a stable long-run relationship, with approximately 1.6% of deviations from equilibrium corrected within one period. In the short run, changes in the interest–growth differential exert a significant negative effect on growth (−0.0495, p = 0.000), as do changes in the external debt-to-export ratio and its lag (−0.0232, p = 0.001; −0.0285, p = 0.000). Conversely, changes in the debt-to-GDP ratio and its lag exert a significant positive effect on growth (0.0463, p = 0.0003; 0.0478, p = 0.0001), indicating that gradual, well-managed adjustments in debt relative to output can support short-run economic expansion.

4.6 Discussion of Findings

The results indicate that the debt-to-GDP ratio has no significant long-run effect on real GDP but exerts a significant positive short-run effect, implying that the debt-to-GDP ratio is more a short-run than a long-run driver of growth in Nigeria. This is broadly consistent with Temuhale and Odom (2022), who found that well-managed debt supports development, and with Anisiobi et al. (2023), who emphasised keeping debt within optimal limits to spur growth without generating fiscal instability.

Similarly, the interest–growth differential shows no significant long-run effect but a significant negative short-run effect, indicating that unfavourable interest–growth conditions raise borrowing costs relative to growth, constrain fiscal space, and discourage productive investment in the short run, without materially altering long-run GDP.

The external debt-to-export ratio exhibits a similar pattern: a statistically insignificant long-run coefficient alongside significant negative short-run effects, suggesting that while external borrowing can support development, excessive reliance on external debt relative to export earnings can impede short-term performance through repayment strain and exchange-rate vulnerability. This is consistent with Okogbue et al. (2015) and Ozoh et al. (2024), who emphasised that the quality and productive use of debt matter more than its total stock, underscoring the importance of strategic external debt management, including export-oriented project financing and concessional borrowing.

Overall, the findings show that public debt sustainability affects Nigeria's economic growth differently depending on the indicator considered: moderate, well-managed debt supports expansion, while unfavourable interest–growth conditions and excessive external debt relative to exports constrain it, particularly in the short run. This underscores the importance of prudent debt management, an optimal debt composition, and continuous monitoring of sustainability indicators for sustainable economic development in Nigeria.

5.0 Conclusion and Recommendations

The study concludes that public debt sustainability substantially shapes Nigeria's economic-growth outcomes. Excessive debt relative to GDP and unfavourable interest–growth differentials constrain growth, whereas efficiently managed external borrowing can stimulate the economy. The findings underscore that the composition,

management, and productivity of debt use are more critical than the total level of debt. Policymakers must therefore adopt approaches that balance borrowing with productive investment, monitor debt-service pressures, and maintain debt within sustainable thresholds to ensure that public debt contributes positively to long-term economic development.

In line with the study's objectives, the following recommendations are proposed:

1. **Monitoring the Debt-to-GDP Ratio:** Nigeria should ensure that total public debt remains within sustainable limits to prevent fiscal stress. Improving revenue mobilisation and reducing fiscal deficits are vital to restricting excessive borrowing and supporting growth-enhancing debt accumulation.
2. **Managing Interest–Growth Differentials:** Policymakers should closely monitor the relationship between interest rates and economic growth. Maintaining favourable interest–growth conditions through effective monetary and fiscal policy coordination will help mitigate the negative impact of debt on development.
3. **Optimising External Debt Utilisation:** External borrowing should be strategically allocated to productive sectors such as infrastructure, industrial development, and export-oriented projects. Ensuring that external debt contributes to economic output will enhance its growth-promoting effects while reducing vulnerability to fiscal imbalances.

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