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IMPACT OF PUBLIC DEBT BURDEN ON ECONOMIC GROWTH IN NIGERIA, 1986 -2024

ABSTRACT

This study examines the impact of public debt burden on economic growth in Nigeria, with particular emphasis on three core debt indicators: public debt-to-GDP ratio, debt service-to-revenue ratio, and external debt-to-exports ratio. Covering the period 1986–2024, the study investigates whether public debt-to-GDP ratio, debt service-to-revenue ratio, and external debt-to-exports ratio significantly influence real GDP growth, while controlling for gross capital formation and inflation. Annual time-series data were analyzed using the Autoregressive Distributed Lag (ARDL) model, following confirmation of mixed order integration through the Augmented Dickey–Fuller test and the existence of a long-run relationship via the Bounds cointegration test (F-statistic = 5.5938, exceeding the upper bound critical value at 1%). The long-run results reveal that public debt-to-GDP ratio ($\beta = -0.108$, $p < 0.01$), debt service-to-revenue ratio ($\beta = -0.846$, $p < 0.05$), and external debt-to-exports ratio ($\beta = -0.115$, $p < 0.01$) exert significant negative effects on economic growth, while gross capital formation enhances growth ($\beta = 0.168$, $p < 0.01$) and inflation reduces it ($\beta = -0.574$, $p < 0.01$). The error correction term (–0.492, $p < 0.01$) indicates that approximately 49% of short-run disequilibrium adjusts annually toward long-run equilibrium. The findings support the Debt Overhang and Crowding-Out hypotheses, suggesting that Nigeria's debt challenge is driven more by servicing pressure and structural inefficiencies than by borrowing alone. The study concludes that public debt burden has had a predominantly adverse long-run impact on economic growth in Nigeria and recommends maintaining debt within sustainable thresholds, strengthening domestic revenue mobilization to reduce servicing pressure, and aligning external borrowing with export expansion and productive investment.

Keywords: *Public Debt Burden; Economic Growth; Debt Service; External Debt; Debt Sustainability.*
JEL Classification: *H63; F34; O47; E62; C22.*

1.0 Introduction

Public debt has become an important instrument of fiscal management as governments increasingly rely on borrowing to finance budget deficits, infrastructure, public services, and other development priorities. While borrowing can provide resources for productive investment and support economic activity, excessive debt accumulation can create repayment pressures, reduce fiscal space, and constrain long-term economic performance (Abotsi & Ampah, 2024; Bayhan & Yıldız, 2026).

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The growing level of sovereign debt across economies has therefore renewed interest in the relationship between debt and economic growth. The effect of public debt on growth remains unsettled, as moderate borrowing may support investment and capital formation, whereas excessive debt may generate debt overhang, crowding-out effects, and macroeconomic instability (Kamiguchi & Tamai, 2023; Heimberger, 2023; Shah et al., 2024). The issue is particularly important in developing economies, where limited domestic revenue and substantial infrastructure deficits create strong incentives for governments to borrow. Across Sub-Saharan Africa, public debt has increased considerably in recent years as countries have sought to finance development programmes and respond to economic shocks. However, rising debt has also been accompanied by growing debt-service obligations and restricted fiscal space (Kengdo, 2023; Oppong, Atchulo, & Oman, 2023). Evidence suggests that where borrowed resources are not efficiently allocated to productive activities, increasing debt obligations can weaken investment and constrain economic growth (Abotsi & Ampah, 2024; Mohammed, 2025). Consequently, the sustainability of public borrowing has become as important as the volume of debt accumulated. Nigeria provides an important setting for examining this issue because of the substantial expansion of public borrowing over the past decade. Following the Paris Club debt relief of 2005, Nigeria maintained a relatively moderate debt position for several years, but renewed fiscal deficits, declining oil revenues, infrastructure requirements, exchange-rate pressures, security expenditure, and economic shocks contributed to a substantial increase in public debt (Adedeji, Oyinlola, & Adeniyi, 2024; DMO, 2025). Nigeria's total public debt increased from approximately ₦12.6 trillion in 2015 to over ₦144 trillion by December 2025 (DMO, 2025). This increase has occurred alongside growing debt-servicing commitments and persistent concerns about the ability of government revenue to support both debt repayment and development expenditure.

The concern with Nigeria's debt position extends beyond the size of the debt stock. The public debt-to-GDP ratio provides an indication of the size of government obligations relative to economic output, while the debt service-to-revenue ratio captures the pressure placed on government revenue by debt repayment. Similarly, the external debt-to-exports ratio reflects the country's capacity to meet external obligations through foreign exchange earnings. These indicators provide a broader assessment of debt burden because a relatively large debt stock may not necessarily constitute an immediate threat if repayment capacity is strong, whereas a lower debt stock can become problematic when revenue and export earnings are inadequate (Amu, Kanu, Akuwudike, & Okere, 2025; Shah et al., 2024). Examining these dimensions therefore provides a more comprehensive assessment of the relationship between debt burden and economic growth. At the same time, Nigeria's economic growth has remained relatively modest despite the continued expansion of public borrowing. Real GDP growth improved to 3.40 percent in 2024 from 2.74 percent in 2023, but the economy continues to experience inflationary pressures, exchange-rate instability, infrastructure deficiencies, and fiscal constraints (WDI, 2024; CBN, 2025). The persistence of these challenges raises concerns about whether public borrowing is generating sufficient productive returns to support economic expansion. High debt-servicing obligations may reduce resources available for capital expenditure and public investment, while excessive borrowing can discourage private investment through crowding-out effects. These conditions provide a basis for reassessing the debt-growth relationship in Nigeria.

The theoretical literature provides competing explanations for the relationship between public debt and economic growth. The Keynesian perspective suggests that debt-financed expenditure can stimulate aggregate demand and increase productive capacity when borrowed resources are efficiently utilized. Conversely, the Debt Overhang Theory argues that excessive indebtedness can discourage investment because anticipated future debt obligations reduce expected returns and create uncertainty. The Crowding-Out hypothesis similarly suggests that heavy government

borrowing can place pressure on available financial resources and reduce private investment. Empirical studies have consequently reported mixed findings, with the direction and magnitude of the debt-growth relationship depending on the level of debt, debt composition, economic structure, and institutional conditions (San & Chin, 2023; Van Dinh, 2023; Ndoricimpa, 2025). Although previous studies have examined public debt and economic growth in Nigeria, considerable attention has been given to aggregate debt, domestic debt, or external debt individually. Comparatively less attention has been devoted to the broader burden associated with public debt, particularly when measured through debt-to-GDP, debt service-to-revenue, and external debt-to-exports ratios. Existing studies have also produced inconsistent findings regarding whether rising indebtedness supports or constrains economic growth (Etim & Ikpong, 2024; Onuoha, 2025; Yahaya, 2026). The recent expansion of Nigeria's debt obligations and the increasing pressure of debt servicing further make updated evidence necessary. On this premise, this study examines the impact of public debt burden on economic growth in Nigeria over the period 1986–2024. Specifically, it evaluates the influence of the public debt-to-GDP ratio, debt service-to-revenue ratio, and external debt-to-exports ratio on real GDP growth while controlling for gross capital formation and inflation. By focusing on these complementary measures of debt burden, the study seeks to provide a broader understanding of how the sustainability and repayment dimensions of public debt relate to Nigeria's economic growth performance.

2. Literature Review

2.1 Conceptual Review

Public Debt Burden

Public debt burden refers to the financial and economic pressure associated with accumulated government debt and the obligations arising from its repayment. The concept goes beyond the absolute size of public debt to consider the extent to which debt obligations affect fiscal capacity, investment, macroeconomic stability, and economic growth (Chala, 2026; Bayhan & Yıldız, 2026). Krugman (1988) and Sachs (1989) associate debt burden with a situation where accumulated obligations become sufficiently large to discourage investment and constrain future economic activity. The debt sustainability perspective further emphasizes a government's ability to meet its debt obligations without undermining macroeconomic stability and development objectives (IMF, 2023; World Bank, 2023). From this perspective, debt burden is better assessed using indicators that relate debt obligations to the country's economic capacity, government revenue, and foreign exchange earnings. Such measures include debt-to-GDP, debt service-to-revenue, and external debt-to-exports ratios.

Recent empirical literature similarly associates excessive debt burden with reduced fiscal flexibility, lower investment, and weaker economic performance. Heimberger (2023) argues that rising debt can constrain growth through increased repayment obligations, while Shah et al. (2024) and Ndoricimpa (2025) emphasize that the adverse consequences of debt become more pronounced when indebtedness exceeds sustainable levels. In Africa, Abotsi and Ampah (2024) and Oppong, Atchulo and Oman (2023) further show that institutional conditions can influence the extent to which debt becomes a constraint on growth. In Nigeria, the increasing importance of debt servicing has broadened the discussion from debt accumulation to repayment pressure. Yahaya (2026) and Ogonegbu and Kagwaini (2025) argue that rising debt service obligations can reduce resources available for productive expenditure and thereby constrain economic performance. Yusuf and Mohd (2024) similarly show that the effects of debt depend on its composition and servicing requirements. For this study, public debt burden is defined as the fiscal and economic

pressure created by accumulated government debt and its associated repayment obligations. It is measured using public debt-to-GDP ratio (DBDN), debt service-to-revenue ratio (DSRE), and external debt-to-exports ratio (EXTX). These indicators capture debt relative to economic output, pressure on government revenue, and external repayment capacity, respectively.

Economic Growth

Economic growth refers to a sustained increase in the productive capacity and output of an economy over time. Smith (1776) associated growth with specialization, division of labour, and productivity, while Ricardo (1817) emphasized capital accumulation and resource allocation. Solow (1956) later explained long-run growth through capital, labour, and technological progress. Modern growth theory has expanded this interpretation by emphasizing human capital, knowledge, innovation, and technological advancement as important sources of sustained growth (Romer, 1986; Lucas, 1988). The World Bank (2023) and IMF (2023) generally measure economic growth through changes in real GDP, which provides an indication of changes in aggregate economic activity after accounting for price changes. Empirical studies also demonstrate that economic growth is influenced by fiscal policy, investment, debt, inflation, institutional quality, and other macroeconomic conditions. For instance, Bayhan and Yıldız (2026) associate growth with effective public borrowing and productive investment, while Mohammed (2025) emphasizes the importance of governance and macroeconomic stability. For this study, economic growth refers to the sustained expansion of Nigeria's real economic output. It is operationalized using the real GDP growth rate (RGDP), which provides a suitable measure for assessing how changes in public debt burden are associated with changes in economic performance

2.2 Theoretical Review

Debt Overhang Theory

The Debt Overhang Theory explains how excessive indebtedness can discourage investment and constrain economic growth. Krugman (1988) argues that when a country's debt becomes sufficiently high, expectations of future repayment obligations reduce incentives for investment because a substantial portion of future income may be required to service existing debt. Sachs (1989) similarly argues that excessive debt can reduce the resources available for productive activities and weaken growth. The theory is particularly relevant to developing economies where high debt-service obligations can reduce public expenditure on infrastructure, education, health, and other productive sectors. The negative relationship may therefore operate through reduced investment, higher fiscal pressure, and weaker private-sector incentives. Empirical evidence from Nigeria and other developing economies supports this argument (Yahaya, 2026; San & Chin, 2023; Shah et al., 2024). The theory provides the main theoretical foundation for this study because it directly explains how increasing public debt burden and repayment obligations can constrain economic growth. It is particularly relevant to the study's focus on debt-to-GDP, debt service-to-revenue, and external debt-to-exports ratios.

Crowding-Out Hypothesis

The Crowding-Out Hypothesis explains the possibility that government borrowing can displace private investment. When government borrowing increases demand for available financial resources, it may raise the cost of borrowing and reduce private-sector investment. Consequently, excessive government borrowing can weaken capital accumulation and economic growth. The

hypothesis is relevant to public debt because increasing debt accumulation may place pressure on domestic financial markets and government finances. Higher debt-service obligations may also divert resources away from productive public investment. Evidence from Nigeria suggests that rising debt-service commitments can constrain productive expenditure and weaken growth (Ogonegbu & Kagwaini, 2025; Yusuf & Mohd, 2024). The theory therefore provides a complementary explanation for the expected negative relationship between public debt burden and economic growth, particularly where government borrowing becomes excessive and competes with productive private-sector activities.

Keynesian Theory of Public Debt

The Keynesian perspective provides an alternative explanation by viewing government borrowing as a potential instrument for promoting economic activity. Keynes (1936) argues that deficit-financed government expenditure can stimulate aggregate demand, particularly when an economy operates below its productive capacity. Borrowing can therefore support economic growth when it finances infrastructure, employment, and other productive expenditures. This perspective suggests that public debt is not inherently harmful. Its effect depends largely on how borrowed resources are utilized. Productive debt-financed investment can expand productive capacity and stimulate growth, whereas borrowing used for unproductive expenditure may increase debt obligations without generating sufficient economic returns. Evidence from Onuoha (2025) and Efanga (2025) indicates that debt can support growth when resources are effectively allocated. However, persistent reliance on borrowing may generate inflationary pressures, fiscal stress, and sustainability problems. Thus, the Keynesian perspective provides an important counterargument to the Debt Overhang Theory by recognizing circumstances under which public debt can contribute positively to economic growth.

2.3 Empirical Review

The empirical literature on public debt and economic growth provides mixed evidence. Yahaya (2026) examined Nigeria from 1986 to 2024 and found that external debt, domestic debt, and debt service payments significantly reduced economic growth. Similarly, Ejinkonye, Adiga and Mazeli (2025) found that external debt negatively affected Nigerian economic growth, although domestic debt had a positive effect. Yusuf and Mohd (2024) also reported that external debt could support growth while debt servicing reduced growth, indicating that the composition and servicing burden of debt matter. Evidence from other African economies also demonstrates varied outcomes. Chala (2026) found a nonlinear relationship between external debt and economic growth in Ethiopia, with debt supporting growth up to a certain level before becoming harmful. Yimer and Geda (2024) similarly found that public debt stimulated short-run growth but reduced long-run growth in Ethiopia. In Cameroon, Kengdo (2023) reported negative effects of both public debt and military expenditure on growth.

Other studies have identified threshold and nonlinear relationships. Shah et al. (2024) found that public debt becomes harmful to growth beyond approximately 51 percent of GDP across developing countries. Ndoricimpa (2025) identified a debt threshold of about 37 percent of GDP for South Africa, while Amu et al. (2025) reported harmful debt thresholds for Nigeria. These findings suggest that the consequences of public debt may depend on the level of indebtedness and the economic environment. Some studies, however, report positive effects. Bayhan and Yıldız (2026) found that public debt positively affected growth in Türkiye and PIIGS countries. Onuoha (2025) found positive effects of domestic debt and public spending on Nigerian economic growth, while Efanga (2025) reported positive effects of external debt in Nigeria, Benin Republic, and

Ghana. These findings suggest that borrowing can support growth when resources are directed toward productive activities.

The role of institutional and fiscal conditions has also received attention. Abotsi and Ampah (2024) found that public debt negatively affects growth across African countries, but stronger corruption control can reduce the adverse effect. Mohammed (2025) found that government effectiveness strengthens the growth outcomes associated with external borrowing, while Dawood et al. (2026) similarly reported that institutional quality and financial development can reduce the adverse effects of foreign debt. Overall, the empirical evidence remains inconclusive. While many studies report negative effects associated with excessive debt and debt servicing, others identify positive, nonlinear, or conditional relationships. More importantly, much of the Nigerian literature focuses on aggregate, domestic, or external debt rather than examining public debt burden through multiple sustainability indicators.

2.4 Gaps in the Literature

The reviewed literature reveals several gaps. Most Nigerian studies focus on aggregate public debt, domestic debt, external debt, or debt servicing independently (Etim & Ikpong, 2024; Ejinkonye et al., 2025; Yahaya, 2026). Limited attention has been given to a multidimensional measure of public debt burden incorporating debt-to-GDP, debt service-to-revenue, and external debt-to-exports ratios. Previous studies have produced conflicting findings. Some report negative effects of public debt on growth (Yahaya, 2026; San & Chin, 2023), while others identify positive or nonlinear effects (Bayhan & Yıldız, 2026; Chala, 2026; Ndoricimpa, 2025). This inconsistency indicates the need for further country-specific evidence. There is a methodological gap. Although Nigerian studies have applied OLS, VECM, NARDL, and other techniques, relatively limited attention has been given to the ARDL framework for jointly examining the short-run and long-run relationship between multiple public debt burden indicators and economic growth. Many previous studies use datasets ending before the most recent developments in Nigeria's debt accumulation and debt-servicing pressures. The present study addresses these gaps by examining Nigeria over 1986–2024, using public debt-to-GDP ratio, debt service-to-revenue ratio, and external debt-to-exports ratio as measures of public debt burden, while controlling for gross capital formation and inflation. The study therefore provides updated evidence on the relationship between the sustainability dimensions of public debt and economic growth in Nigeria.

3. Methodology

Theoretical Framework

This study is anchored on the Debt Overhang Theory, which provides a rigorous explanation of how excessive public debt can constrain economic growth, particularly in developing economies. The theory, originally articulated by Krugman (1988) and further developed by Sachs (1989), posits that when a country's debt stock becomes sufficiently large, expected future debt servicing obligations act as a disincentive to investment. Economic agents anticipate that a significant portion of future returns on investment will be used to repay existing debt, thereby reducing the attractiveness of new investment and ultimately slowing economic growth. The central proposition of the Debt Overhang Theory is that beyond a certain threshold, debt accumulation produces negative marginal returns to growth. At low levels, borrowing may support growth by financing productive investment; however, once debt exceeds the country's repayment capacity, it creates a "tax" on future output.

This relationship may be formally represented as follows:

$$g=f(D), \frac{\partial g}{\partial D}>0 \text{ for } D<D^{\square}, \text{and} \frac{\partial g}{\partial D}<0 \text{ for } D>D^{\square} \quad 3.1$$

where g denotes economic growth, D represents public debt, and $D^{\square}$ signifies the critical debt threshold beyond which debt accumulation becomes detrimental to economic growth.

In addition, the theory emphasizes the implicit taxation effect of high debt. As debt obligations rise, governments are more likely to increase taxes or reduce productive expenditure in order to meet repayment commitments. This expectation discourages both domestic and foreign investors, leading to reduced capital formation and slower economic expansion.

This relationship may be expressed as follows:

$$I=f(E(R)-T(D)) \quad 3.2$$

where Irepresents investment, $E(R)$denotes the expected return on investment, and $T(D)$captures the implicit tax burden associated with high levels of public debt. As the debt stock (D) increases, the implicit tax burden $T(D)$ also rises, thereby reducing expected investment returns and discouraging investment activities.

In the context of this study, the Debt Overhang Theory directly informs the choice of variables used to measure public debt burden. The debt-to-GDP ratio (DBDN) captures the overall size of debt relative to the economy and reflects the likelihood of entering a debt overhang situation. The debt service-to-revenue ratio (DSRE) represents the intensity of repayment obligations, indicating the extent to which government resources are constrained by debt servicing. Similarly, the external debt-to-exports ratio (EXTX) reflects the country's capacity to generate foreign exchange needed to meet external obligations, which is critical in assessing whether debt levels are sustainable. By anchoring the analysis on the Debt Overhang Theory, this study assumes that rising public debt in Nigeria may have transitioned from a growth-enhancing tool to a growth-constraining burden. The theory therefore, provides a clear analytical basis for examining whether increases in debt indicators exert a negative and statistically significant impact on economic growth, as captured by the specified empirical model.

Model Specification

This study adapts the empirical framework of Nwanna and Nkiruka (2019), who examined the relationship between deficit financing and economic growth using variables such as real gross domestic product, domestic debt, and external debt. However, the present study extends and refines this model by incorporating additional indicators that more comprehensively capture the multidimensional nature of public debt burden and macroeconomic conditions. Specifically, variables such as debt service-to-revenue ratio (DSRE) and external debt-to-exports ratio (EXTX) are introduced to reflect fiscal pressure and external vulnerability, while gross capital formation (GCF) and inflation rate (INF) are included as control variables to account for investment dynamics and macroeconomic stability.

Accordingly, the general functional form of the model is specified as:

$$RGDP=f(DBDN,DSRE,EXTX,GCF,INF) \quad 3.2$$

The econometric model is given as:

$$RGDP_t=\beta_0+\beta_1 DBDN_t+\beta_2 DSRE_t+\beta_3 EXTX_t+\beta_4 GCF_t+\beta_5 INF_t+\varepsilon_t \quad 3.3$$

Where: RGDP = Real Gross Domestic Product growth rate (%); DBDN = Public debt-to-GDP ratio (%); DSRE = Debt service-to-revenue ratio; EXTX = External debt-to-exports ratio; GCF = Gross capital formation (% of GDP); INF = Inflation rate (%); β_0 = Intercept (constant term); β_1–β_5 = Parameters measuring the responsiveness of RGDP to each explanatory variable, and ε_t = Error term capturing other factors affecting economic growth not included in the model
Based on apriori expectations, the expected parameter signs of the model are expressed as follows:

$$\beta_1<0,\beta_2<0,\beta_3<0,\beta_4>0,\beta_5<0$$

The general ARDL model for the study is specified as:

$$\begin{aligned} RGDP_t= \quad & \alpha_0+\sum_{i=1}^{p}\alpha_i RGDP_{t-i}+\sum_{j=0}^{q_1}\beta_j DBDN_{t-j}+\sum_{k=0}^{q_2}\gamma_k DSRE_{t-k} \\ & +\sum_{l=0}^{q_3}\delta_l EXTX_{t-l}+\sum_{m=0}^{q_4}\theta_m GCF_{t-m}+\sum_{n=0}^{q_5}\phi_n INF_{t-n}+\varepsilon_t \end{aligned} \quad 3.4$$

where $RGDP_t$is the dependent variable, while *DBDN*, *DSRE*, *EXTX*, *GCF*, and *INF*represent the explanatory variables, and $\varepsilon_t$is the stochastic error term. The lag structure allows the model to capture both immediate and delayed effects of the explanatory variables on economic growth.

To examine the long-run relationship among the variables, the ARDL model is re-parameterized into the Error Correction Model (ECM) form as follows:

$$\begin{aligned} \Delta RGDP_t= \quad & \alpha_0+\sum_{i=1}^{p}\alpha_i \Delta RGDP_{t-i}+\sum_{j=0}^{q_1}\beta_j \Delta DBDN_{t-j}+\sum_{k=0}^{q_2}\gamma_k \Delta DSRE_{t-k} \\ & +\sum_{l=0}^{q_3}\delta_l \Delta EXTX_{t-l}+\sum_{m=0}^{q_4}\theta_m \Delta GCF_{t-m}+\sum_{n=0}^{q_5}\phi_n \Delta INF_{t-n} \\ & +\lambda ECM_{t-1}+\varepsilon_t \end{aligned} \quad 3.5$$

where Δdenotes the first difference operator, and ECM_{t-1} is the error correction term derived from the long-run cointegrating relationship. The coefficient λmeasures the speed of adjustment back to long-run equilibrium after a short-run shock and is expected to be negative and statistically significant. The ARDL-ECM framework, therefore, enables the study to simultaneously capture both short-run dynamics and long-run equilibrium relationships between public debt burden and economic growth in Nigeria.

Diagnostic and Pre-Estimation Tests

Prior to model estimation, diagnostic and pre-estimation tests are conducted to ensure the validity and reliability of the ARDL model. First, the Augmented Dickey-Fuller (ADF) test is employed to determine the stationarity and order of integration of the variables. The test ensures that none of the variables is integrated of order two, I(2), which is required for the application of the ARDL approach (Dickey & Fuller, 1979; Pesaran et al., 2001). Second, the ARDL Bounds test is used to

establish the existence of a long-run relationship among the variables. The test compares the computed F-statistic with the critical bounds to determine whether cointegration exists. Third, the Variance Inflation Factor (VIF) is used to examine multicollinearity among the explanatory variables, with a VIF value above 10 indicating severe multicollinearity (Gujarati & Porter, 2009). The Akaike Information Criterion (AIC) is then employed to select the optimal lag length, with the specification having the lowest AIC value selected for estimation. Following estimation, the model is subjected to diagnostic tests, including the Jarque–Bera normality test, Breusch Pagan–Godfrey heteroskedasticity test, Breusch–Godfrey serial correlation test, and Ramsey RESET test. The CUSUM and CUSUMSQ tests are also applied to assess parameter stability. These tests ensure that the residuals satisfy the required assumptions and that the estimated model is appropriately specified and stable over the study period.

Data and Variable Measurement

This study employs annual secondary time-series data for Nigeria. The data cover the study period and are obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS), and World Bank World Development Indicators. Economic growth, the dependent variable, is measured by the annual real GDP growth rate (RGDP). Public debt burden is captured using three indicators: public debt-to-GDP ratio (DBDN), debt service-to-revenue ratio (DSRE), and external debt-to-exports ratio (EXTX). Gross capital formation as a percentage of GDP (GCF) is included as an investment variable, while the annual inflation rate (INF), measured using changes in the Consumer Price Index, captures macroeconomic conditions. The selection of these variables is guided by theoretical considerations and their relevance to examining the relationship between public debt burden and economic growth in Nigeria.

4. Results and Discussions

Table 1: Descriptive Statistics Results

	RGDP	DBDN	DSRE	EXTX	GCF	INF
Mean	4.085541	33.39961	57.01282	2.244885	31.04123	19.91490
Median	3.647187	24.84513	56.00000	1.634241	30.93000	13.00697
Maximum	15.32916	79.71329	110.0000	10.44244	53.19000	72.83550
Minimum	-2.035119	7.117050	22.00000	0.225974	14.90000	5.388008
Std. Dev.	3.766473	23.33805	20.23496	2.257191	11.14448	17.02926
Skewness	0.581433	0.580582	0.355424	2.012544	-0.023193	1.688170
Kurtosis	3.634691	1.964145	2.924361	7.144125	1.782125	4.717681
Jarque-Bera	2.852018	3.934607	0.830417	54.23454	2.413728	23.31891
Probability	0.240266	0.139833	0.660203	0.000000	0.299134	0.000009
Observations	39	39	39	39	39	39

Source: Researcher's computation using Eviews (2026)

The result in Table 4.1 shows that the average real GDP growth rate of 4.09% suggests that Nigeria experienced moderate long-term growth during 1986–2024. However, the relatively large standard deviation (3.77) and wide range between the minimum (–2.04%) and maximum (15.33%) values indicate pronounced growth volatility. This volatility reflects Nigeria's structural dependence on oil revenues, exposure to external shocks, exchange rate instability, and fiscal imbalances. The negative growth episode aligns with recessionary periods (notably 2016 and 2020), while the double-digit peak likely corresponds to post-reform or oil boom recoveries. The positive skewness (0.58) suggests that growth episodes above the mean were more pronounced than contractions, although such high-growth periods were not frequent enough to significantly

elevate the median (3.65%). The kurtosis (3.63) slightly exceeds the normal benchmark of 3, indicating mild leptokurtosis, suggesting occasional extreme growth outcomes. The Jarque–Bera statistic (p = 0.24) confirms that RGDP does not significantly deviate from normality, implying that growth shocks, though present, were not excessively erratic in statistical terms. Economically, the moderate mean growth combined with high volatility suggests that Nigeria's growth process has been unstable, potentially influenced by fiscal policy cycles and debt dynamics, justifying the investigation into debt burden effects.

The mean public debt-to-GDP ratio of 33.40% indicates that, on average, Nigeria's aggregate debt burden remained below the conventional 60% Maastricht threshold. However, this average masks substantial intertemporal variation, as evidenced by the large standard deviation (23.34) and wide range from 7.12% to 79.71%. The maximum value suggests periods of acute debt accumulation, likely reflecting pre-2005 Paris Club debt levels and the rapid post-2015 borrowing cycle. The positive skewness (0.58) indicates that high debt episodes were more pronounced than low-debt episodes. The kurtosis (1.96), being below 3, suggests a relatively flatter distribution (platykurtic), implying that extreme values were not excessively frequent despite the high maximum. The Jarque–Bera probability (0.14) confirms approximate normality. From an economic standpoint, the variability in DBDN reflects Nigeria's alternating phases of debt relief, consolidation, and renewed borrowing. The relatively moderate mean debt-to-GDP ratio contrasts with high debt service burdens (discussed below), suggesting that Nigeria's debt sustainability problem may be more liquidity-driven (revenue weakness) than purely solvency-driven. This distinction is crucial for interpreting subsequent ARDL results.

The mean debt service-to-revenue ratio of 57.01% is economically alarming. On average, over half of government revenue was devoted to servicing debt obligations. This suggests a chronic fiscal constraint and significant crowding-out of developmental expenditures such as infrastructure, health, and education. More critically, the maximum value of 110% indicates that in some years, debt servicing exceeded total government revenue, implying that the government relied on additional borrowing or alternative financing sources to meet obligations. This is a strong indicator of fiscal distress and supports the relevance of the debt overhang and fiscal crowding-out theories. The standard deviation (20.23) confirms substantial volatility in servicing burden, likely reflecting fluctuations in oil revenue, exchange rate movements (affecting external debt servicing), and changes in interest obligations. The distribution is relatively symmetric (skewness = 0.36), and the Jarque–Bera probability (0.66) indicates normality. Economically, DSRE appears to be a more binding constraint on growth than the stock of debt itself. This suggests that Nigeria's debt challenge may stem less from the size of debt relative to GDP and more from weak revenue mobilization and high servicing costs. This variable is therefore central to testing your second hypothesis (H_{02}). The external debt-to-exports ratio has a mean of 2.24, implying that, on average, Nigeria's external debt stock was more than twice its export earnings. Given Nigeria's heavy reliance on oil exports, this ratio reflects vulnerability to external shocks and foreign exchange constraints. The maximum value (10.44) indicates periods where external debt obligations were more than ten times export earnings, suggesting an acute external imbalance. The high standard deviation (2.26), strong positive skewness (2.01), and very high kurtosis (7.14) indicate a highly right-skewed and leptokurtic distribution, characterized by extreme spikes. The Jarque–Bera statistic (p = 0.000) confirms significant deviation from normality. These distributional characteristics reflect episodes of severe external vulnerability, likely during oil price collapses or periods of exchange rate depreciation. From a macroeconomic perspective, such volatility in EXTX signals heightened external debt sustainability risks, balance-of-payments pressures, and possible exchange rate pass-through effects on growth.

Gross capital formation averages 31.04% of GDP, suggesting relatively strong investment activity over the period. However, the wide range (14.90% to 53.19%) and standard deviation (11.14) indicate substantial variability in investment intensity. The near-zero skewness (–0.02) implies a symmetric distribution, while the Jarque–Bera statistic (p = 0.30) confirms normality. The relatively low kurtosis (1.78) suggests fewer extreme investment fluctuations compared to debt indicators. Economically, GCF represents the productive channel through which debt could positively influence growth, if borrowed funds are invested efficiently. Its inclusion allows you to disentangle whether debt impacts growth directly or indirectly via investment. The mean inflation rate of 19.91% indicates a persistently high-inflation environment over the study period. Such a high average suggests structural macroeconomic instability, weak monetary transmission, and fiscal dominance. The maximum inflation rate (72.84%) reflects hyperinflationary pressures during adjustment periods, while the high standard deviation (17.03) confirms substantial volatility. The strong positive skewness (1.69) and leptokurtic kurtosis (4.72) indicate frequent inflation spikes. The Jarque–Bera probability (0.000009) confirms non-normality. Economically, persistent inflation can erode purchasing power, distort investment decisions, increase uncertainty, and interact with debt dynamics by raising nominal interest rates. It also affects real debt servicing costs and exchange rate pressures.

Table 2: ADF Unit Root Test Results

Variables	At Level		At First Difference		Order of integration
	T – statistics	P-value	T – statistics	P-value	
RGDP	-4.1191	0.0026	-	-	I(0)
DBDN	-1.9299	0.3155	-4.2843	0.0017	I(1)
DSRE	-4.6458	0.0035	-	-	I(0)
EXTX	-2.0440	0.2676	-6.2976	0.0000	I(1)
GCF	-0.9785	0.7508	-4.9588	0.0003	I(1)
INF	-3.5492	0.0120	-	-	I(0)

Source: Researcher's computation using Eviews (2026)

The results in Table 2 reveal a mixed order of integration. Real GDP growth (RGDP) is stationary at level with a t-statistic of –4.1191 (p = 0.0026), indicating mean-reverting behaviour consistent with the theoretical expectation that growth rates are typically I(0). Similarly, the debt service-to-revenue ratio (DSRE) is stationary at level (t = –4.6458; p = 0.0035), suggesting that although Nigeria has experienced episodes of fiscal stress, the servicing burden fluctuates around a stable long-run mean. Inflation (INF) is also stationary at level (t = –3.5492; p = 0.0120), implying that price movements, despite volatility, do not follow a permanent stochastic trend but tend to revert over time, likely reflecting periodic monetary adjustments.

In contrast, the public debt-to-GDP ratio (DBDN), external debt-to-exports ratio (EXTX), and gross capital formation (GCF) are non-stationary at level but become stationary after first differencing, indicating that they are integrated of order one, I(1). Specifically, DBDN (p = 0.3155 at level; p = 0.0017 at first difference), EXTX (p = 0.2676 at level; p = 0.0000 at first difference), and GCF (p = 0.7508 at level; p = 0.0003 at first difference) exhibit persistent stochastic trends, implying that shocks to debt accumulation, external vulnerability, and investment have lasting effects on their levels. Importantly, none of the variables is integrated of order two, I(2), thereby satisfying the key precondition for the application of the ARDL bounds testing approach. The combination of I(0) and I(1) variables provides strong econometric justification for proceeding to test for long-run cointegration between public debt burden and economic growth in Nigeria.

Table 3: Variance Inflation Factor Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
DBDN	0.002225	11.31508	3.647663
DSRE	0.000835	9.411014	1.028814
EXTX	0.115008	3.554334	1.763801
GCF	0.011398	38.18974	4.261146
INF	0.001687	3.539172	1.472442
C	6.059280	18.71916	NA

Source: Researcher's computation using Eviews (2026)

In Table 4.3, Emphasis is placed on the centered VIF, as it provides the appropriate measure in models that include a constant term. The centered VIF values for DBDN (3.65), DSRE (1.03), EXTX (1.76), GCF (4.26), and INF (1.47) are all well below the conventional threshold of 10 and comfortably within the more conservative benchmark of 5. This indicates the absence of serious multicollinearity among the regressors. Although the uncentered VIF values for DBDN (11.32) and GCF (38.19) appear high, these are not economically meaningful in this context and are typically inflated due to correlation with the intercept term. Econometrically, the results suggest that the explanatory variables do not exhibit harmful linear dependence, and the estimated ARDL coefficients are unlikely to suffer from inflated standard errors or instability arising from multicollinearity. Consequently, the model specification is considered statistically reliable for inference and hypothesis testing.

Table 4: F-Bound Test Results

Test Statistic	Value	Signif.	*Null Hypothesis: No levels relationship* I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.593829	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Researcher's computation using Eviews (2026)

As shown in Table 4, the computed F-statistic of 5.5938 exceeds the upper bound critical values at all conventional significance levels, including the 1% level where the upper bound is 4.15. Since the F-statistic is greater than the I(1) critical value, the null hypothesis of no levels relationship is rejected. This provides strong evidence of the existence of a stable long-run equilibrium relationship between real GDP growth and the explanatory variables (public debt-to-GDP ratio, debt service-to-revenue ratio, external debt-to-exports ratio, gross capital formation, and inflation). Econometrically, this confirms that despite differences in integration order (I(0) and I(1)), the variables move together in the long run. From an economic perspective, the result implies that public debt burden and associated macroeconomic factors have a long-term equilibrium linkage with Nigeria's economic growth, thereby justifying the estimation of both long-run coefficients and short-run error correction dynamics within the ARDL framework.

Table 5: ARDL Estimation Results

Long-run Estimation					
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	***Remark***
DBDN	-0.108252	0.019396	-5.581151	0.0000	*Significant*
DSRE	-0.846112	0.345102	-2.451774	0.0212	*Significant*
EXTX	-0.114702	0.015068	-7.612291	0.0000	*Significant*
GCF	0.168164	0.01944	8.650412	0.0000	*Significant*
INF	-0.574181	0.171065	-3.356510	0.0057	*Significant*
C	7.775802	3.839607	2.025156	0.0657	*Significant*
Short-run Estimation					
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	***Remark***
CointEq(-1)*	-0.492345	0.074384	-6.618990	0.0000	*Significant*
RGDP(-1)	-0.425161	0.264581	-1.606926	0.1340	*Not Significant*
RGDP(-2)	0.236464	0.196106	1.205797	0.2511	*Not Significant*
RGDP(-3)	-0.189112	0.219495	-0.861578	0.4058	*Not Significant*
DBDN	-0.007537	0.144004	-0.052337	0.9591	*Not Significant*
DBDN(-1)	0.188081	0.205741	0.914166	0.3786	*Not Significant*
DBDN(-2)	0.457547	0.262412	1.743619	0.1068	*Not Significant*
DBDN(-3)	-0.488941	0.216530	-2.258075	0.0434	*Significant*
DSRE	-0.266397	0.123979	-2.148723	0.0528	*Not Significant*
DSRE(-1)	0.168635	0.175043	0.963396	0.3544	*Not Significant*
DSRE(-2)	-0.135595	0.198845	-0.681913	0.5082	*Not Significant*
DSRE(-3)	0.232190	0.147231	1.577049	0.1408	*Not Significant*
EXTX	3.303267	1.133082	2.915293	0.0130	*Significant*
EXTX(-1)	0.706714	0.947944	0.745523	0.4703	*Not Significant*
EXTX(-2)	-0.702410	0.594301	-1.181908	0.2601	*Not Significant*
EXTX(-3)	-3.149533	1.231948	-2.556548	0.0252	*Significant*
GCF	0.251706	0.219543	1.146499	0.2739	*Not Significant*
GCF(-1)	0.358939	0.262564	1.367053	0.1967	*Not Significant*
GCF(-2)	0.609744	0.258328	2.360351	0.0360	*Significant*
GCF(-3)	0.232599	0.233967	0.994150	0.3398	*Not Significant*
INF	-0.492345	0.126083	-3.904920	0.0021	*Significant*
INF(-1)	-0.132232	0.132190	-1.000321	0.3369	*Not Significant*
INF(-2)	0.010879	0.075732	0.143651	0.8882	*Not Significant*
INF(-3)	-0.177414	0.098433	-1.802378	0.0966	*Not Significant*
R-squared	0.864682				
Adjusted R-squared	0.736882				
F-statistic	2.600120				
Prob(F-statistic)	0.044331				
Durbin-Watson stat	2.114634				

Source: Researcher's computation using Eviews (2026)

The results presented in Table 5 revealed that in the long run, the public debt-to-GDP ratio (DBDN) exerts a statistically significant negative influence on economic growth, with a coefficient of –0.108 ($p < 0.01$). This implies that a one-percentage-point increase in the debt-to-GDP ratio reduces real GDP growth by approximately 0.11%, confirming a priori theoretical expectations. Economically, this adverse effect reflects the resource misallocation and fiscal rigidity that accompany sustained debt accumulation in Nigeria, where borrowed funds have frequently been directed toward recurrent expenditure rather than growth-enhancing capital projects. The finding strongly corroborates Yahaya (2026), who documented that aggregate public debt constrains Nigeria's macroeconomic performance, and aligns with Amu et al. (2025), who identified a debt threshold beyond which borrowing becomes growth-retarding. It is also consistent with Ogonegbu and Kagwaini's (2025) observation that rising debt obligations progressively impair long-term output dynamics. Theoretically, this result validates the Debt Overhang Theory, as high debt

stocks raise future tax expectations and discourage private investment, while simultaneously supporting the Crowding-Out Hypothesis by demonstrating how sovereign borrowing displaces productive economic activity. Conversely, it challenges the Keynesian premise that deficit financing inherently stimulates growth, suggesting that Nigeria has surpassed the optimal debt capacity where fiscal multipliers turn negative.

The debt service-to-revenue ratio (DSRE) exhibits a robust negative long-run relationship with economic growth, with a coefficient of –0.846 ($p = 0.021$), indicating that a one-percentage-point rise in the servicing burden depresses real GDP growth by roughly 0.85%. This magnitude underscores that liquidity constraints, rather than mere debt stock, constitute the primary fiscal choke point in Nigeria's growth trajectory. The economic rationale lies in the severe fiscal space contraction caused by high repayment obligations, which forces the government to scale back capital budgeting, delay infrastructure projects, and prioritize debt amortization over developmental spending. This outcome strongly echoes Yahaya (2026), who found that debt service payments consistently undermine economic performance, and aligns with Ogonegbu and Kagwaini (2025) and Yusuf and Mohd (2023), both of whom identified servicing costs as a direct conduit for crowding out productive public investment. Theoretically, the result provides compelling empirical validation of the Crowding-Out Hypothesis, demonstrating how fiscal resources are systematically diverted from growth-generating expenditures to interest and principal repayments. It also reinforces the Debt Overhang proposition by highlighting how unsustainable servicing trajectories erode investor confidence and stifle private sector participation, thereby contradicting the Keynesian view that manageable debt servicing can sustain expansionary fiscal stances.

External debt-to-exports ratio (EXTX) significantly impedes long-run economic growth, with a coefficient of –0.115 ($p < 0.01$), implying that a one-percentage-point increase in external debt relative to export earnings reduces real GDP growth by approximately 0.12%. This negative relationship reflects Nigeria's structural vulnerability to external shocks, where high foreign currency obligations relative to a narrow, oil-dependent export base generate persistent balance-of-payments pressures, foreign exchange shortages, and exchange rate depreciation. These dynamics elevate the real cost of external debt servicing and disrupt import-dependent production chains, ultimately constraining macroeconomic stability. The finding is consistent with Vallejo-Mata et al. (2026), who demonstrated that external debt uniformly suppresses growth in emerging economies absent strong investment absorption, and aligns with Dawood et al. (2026) and Chala (2026), who documented that external borrowing imposes long-term growth constraints when export competitiveness remains weak. Theoretically, this result corroborates the Debt Overhang Theory in its external dimension, as high external debt-to-export ratios signal sovereign illiquidity and deter foreign direct investment. It also supports the Neoclassical perspective that external debt distorts resource allocation and raises risk premiums, thereby undermining the Keynesian assertion that foreign borrowing can seamlessly finance growth without external sector trade-offs.

Gross capital formation (GCF) demonstrates a statistically significant positive effect on economic growth, with a coefficient of 0.168 ($p < 0.01$), indicating that a one-percentage-point increase in investment as a share of GDP boosts real GDP growth by approximately 0.17% in the long run. This positive relationship confirms that capital accumulation remains the primary engine of productive capacity expansion in Nigeria, as investment in infrastructure, industrial capacity, and public works directly enhances labor productivity and aggregate supply. The result strongly aligns with Vallejo-Mata et al. (2026), who found that investment levels above a critical threshold can neutralize the adverse effects of external debt, and is consistent with Onuoha (2025), who established that productive public expenditure mediates the debt–growth nexus positively. It also

resonates with Etim and Ikpong (2024), who emphasized that debt-financed capital formation yields growth dividends when effectively channeled. Theoretically, this finding reinforces the Keynesian proposition that investment is the fundamental driver of long-run economic expansion and validates the Neoclassical growth framework, which posits that physical capital accumulation directly augments output. Notably, it suggests that the negative debt–growth relationship observed earlier is not inherent to borrowing per se, but rather to the misallocation of funds; when debt translates into sustained capital formation, it fulfills the Keynesian transmission mechanism for growth.

The inflation rate (INF) exerts a statistically significant negative influence on long-run economic growth, with a coefficient of –0.574 ($p = 0.006$), meaning that a one-percentage-point increase in inflation reduces real GDP growth by approximately 0.57%. This substantial adverse effect underscores how persistent price instability erodes household purchasing power, distorts relative price signals, increases macroeconomic uncertainty, and raises nominal interest rates, thereby discouraging both domestic and foreign investment. In Nigeria's context, inflation is often monetarily and fiscally driven, where deficit financing and exchange rate pass-through amplify cost-push pressures that directly interact with debt sustainability by increasing the nominal burden of repayment. The finding strongly corroborates Yahaya (2026), who identified inflation as a consistent growth deterrent, and aligns with Mohammed (2025) and Shah et al. (2024), both of whom demonstrated that inflation intensifies the negative debt–growth nexus, particularly in emerging economies. Theoretically, this result supports the Neoclassical view that monetary instability reduces allocative efficiency and capital formation, while simultaneously reinforcing the Crowding-Out Hypothesis, as inflationary environments force monetary tightening, raising the cost of credit and displacing private investment. It directly contradicts the Keynesian tolerance for moderate inflation during expansionary phases, indicating that Nigeria's inflationary episodes have been predominantly destabilizing rather than growth-accommodating.

The coefficient of the error correction term is –0.492 ($p < 0.01$), negative and highly statistically significant, confirming the existence of a stable short-run adjustment mechanism toward long-run equilibrium. The negative sign conforms to theoretical expectation and validates the earlier bounds test result of cointegration. Economically, this implies that approximately 49.2% of any short-run disequilibrium between economic growth and its determinants is corrected within one year, indicating a moderate speed of adjustment. In practical terms, shocks arising from debt accumulation, servicing pressures, or macroeconomic instability are not permanent; nearly half of the deviation from equilibrium is eliminated annually. Theoretically, this supports the Keynesian dynamic adjustment mechanism and reinforces the neoclassical convergence proposition that economies tend to revert to their steady-state growth path after short-run disturbances. In the short run, the contemporaneous coefficient of DBDN is negative (–0.0075) but statistically insignificant ($p = 0.959$), suggesting that immediate changes in the debt stock do not exert a direct growth effect. However, the third lag of DBDN is negative and statistically significant (–0.489; $p = 0.043$), indicating that the adverse growth consequences of debt accumulation materialize with a temporal lag. Economically, this implies that while borrowing may initially appear neutral—possibly due to delayed fiscal transmission—its expansionary impact weakens over time as repayment expectations, fiscal rigidities, and investor concerns intensify. A one-percentage-point increase in debt-to-GDP three years earlier reduces current growth by roughly 0.49%, highlighting delayed debt overhang effects. This pattern is consistent with Ogonegbu and Kagwaini (2025), who found short-run neutrality but long-run constraints from rising debt, and aligns with Kengdo (2023), who documented lagged negative impacts of public debt. Theoretically, the delayed adverse effect strongly supports the Debt Overhang Theory, where expectations of future taxation and repayment

distort private investment decisions over time, while partially contradicting the Keynesian proposition of immediate fiscal stimulus.

The contemporaneous short-run coefficient of DSRE is negative (–0.266) and marginally insignificant at the 5% level (p = 0.053), while all lagged terms remain statistically insignificant. Although the statistical evidence is weak in the short run, the negative sign conforms to theoretical expectations. Economically, this suggests that rising debt servicing burdens begin to constrain growth immediately, but their strongest impact operates through long-run structural channels rather than short-run fluctuations. The magnitude implies that a one-percentage-point rise in servicing pressure reduces growth by approximately 0.27% in the current period, reflecting liquidity strain and fiscal crowding-out tendencies. This finding parallels Yusuf and Mohd (2023) and Yahaya (2026), who reported consistent negative effects of servicing costs, though with stronger long-run dominance. Theoretically, the result reinforces the Crowding-Out Hypothesis, as higher servicing obligations compress fiscal space, yet its limited short-run significance suggests temporary fiscal smoothing or borrowing rollover mechanisms that delay full adjustment.

Interestingly, the contemporaneous coefficient of EXTX is positive and statistically significant (3.303; p = 0.013), indicating that in the short run, increases in external debt relative to exports are associated with higher growth. However, the third lag is negative and significant (–3.150; p = 0.025), revealing a reversal effect over time. Economically, this suggests that external borrowing may initially stimulate growth through infrastructure financing, capital imports, and aggregate demand expansion, but as repayment obligations accumulate and foreign exchange pressures intensify, the long-term growth impact becomes contractionary. The magnitude is substantial: a one-unit increase in EXTX raises growth by about 3.3% contemporaneously but reduces it by roughly 3.15% after three years. This dynamic pattern aligns closely with Ogonegbu and Kagwaini (2025) and Yimer and Geda (2024), who documented short-run growth stimulus but long-run constraints from external debt. Theoretically, the result simultaneously supports the Keynesian view in the short run, where debt-financed spending boosts demand, and the Debt Overhang framework in the longer horizon, where repayment burdens suppress investment and growth.

The contemporaneous coefficient of GCF is positive but statistically insignificant, while the second lag is positive and significant (0.610; p = 0.036). This indicates that investment exerts its growth-enhancing effects with a lag rather than immediately. Economically, this is intuitive: capital projects require gestation periods before translating into productive output. A one-percentage-point increase in gross capital formation two years earlier raises current growth by approximately 0.61%, underscoring the importance of sustained investment planning. This finding aligns with Vallejo-Mata et al. (2026), who emphasized the mitigating role of investment in offsetting debt's adverse effects, and Onuoha (2025), who found that productive public expenditure mediates debt-growth dynamics positively. Theoretically, this strongly supports both Keynesian investment multipliers and the Neoclassical growth model, which identifies capital accumulation as a core driver of output expansion.

Inflation exerts a contemporaneous negative and statistically significant effect on growth (–0.492; p = 0.002), while lagged effects are largely insignificant. This implies that price instability immediately undermines economic performance, reducing growth by roughly 0.49% for every one-percentage-point increase in inflation. Economically, inflation erodes purchasing power, increases production costs, and creates macroeconomic uncertainty, discouraging private investment and consumption in the current period. The finding is consistent with Yahaya (2026), Mohammed (2025), and Shah et al. (2024), all of whom documented inflation as a growth deterrent that exacerbates debt vulnerabilities. Theoretically, the result supports the Neoclassical

perspective that macroeconomic instability reduces allocative efficiency and undermines steady-state growth, while reinforcing the Crowding-Out Hypothesis insofar as inflation often prompts monetary tightening, raising interest rates and compressing private sector credit access.

Table 4.7: Summary of Diagnostic Test Results

Diagnostic Test	Test Statistic	Value	Prob.	Decision
Jarque-Bera (Normality Test)	JB	0.035174	0.9826	Residuals are normally distributed
Breusch-Pagan-Godfrey (Heteroskedasticity Test)	F-statistic	0.881501	0.6185	No heteroskedasticity
	Obs*R^2	22.61483	0.4834	Homoskedasticity confirmed
Breusch-Godfrey LM (Serial Correlation Test)	F-statistic	0.326399	0.7245	No serial correlation
	Obs*R^2	0.941556	0.6245	Residuals are independent
Ramsey RESET Test (Model Specification)	t-statistic	0.441662	0.6673	Model is correctly specified
	F-statistic	0.195066	0.6673	No omitted variable bias

Source: Researcher's computation using Eviews (2026)

The Jarque-Bera test result (0.035; p = 0.9826) confirms that the residuals are normally distributed, satisfying the classical assumption required for valid hypothesis testing and confidence intervals. The Breusch-Pagan-Godfrey heteroskedasticity test (F = 0.8815; p = 0.6185; ObsR^2 = 22.6148; p = 0.4834) indicates the absence of heteroskedasticity, implying that error variance is constant across observations and OLS/ARDL standard errors are reliable. Furthermore, the Breusch-Godfrey LM test (F = 0.3264; p = 0.7245; ObsR^2 = 0.9416; p = 0.6245) reveals no serial correlation, confirming that residuals are independently distributed and that the lag structure adequately captures dynamic dependencies. The Ramsey RESET test (t = 0.4417; p = 0.6673; F = 0.1951; p = 0.6673) confirms that the model is correctly specified with no evidence of omitted variable bias or functional form misspecification.

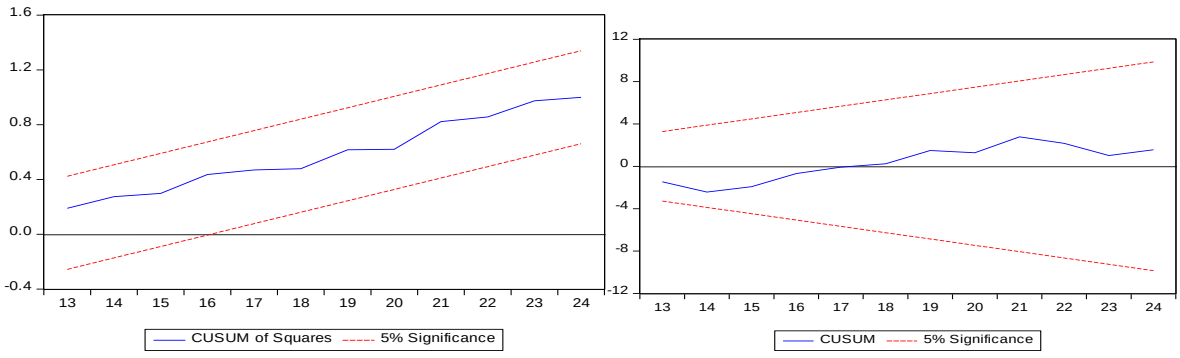


Figure 1: CUSUM Results

Source: Researcher's computation using Eviews (2026)

In figure 1, the CUSUM and CUSUM of Squares plots (not tabulated) fall within the 5% critical bounds, indicating that the estimated parameters are stable over the sample period and not subject to structural breaks.

5. Conclusion and Policy Recommendations

This study examined the relationship between public debt burden and economic growth in Nigeria over the period 1986–2024, focusing on public debt-to-GDP, debt service-to-revenue, and external debt-to-exports. Using the ARDL framework, the findings reveal a clear distinction between short-run and long-run effects. In the long run, all three debt burden indicators exert significant negative effects on economic growth, indicating that rising debt accumulation, servicing obligations, and external debt pressures constrain Nigeria's growth performance. In contrast, gross capital formation supports growth, while inflation undermines economic performance. The short-run results show that external debt may provide temporary expansionary effects, but these benefits do not persist over time. The findings suggest that Nigeria's debt challenge is not simply the size of public debt, but the sustainability and management of debt obligations. The significant negative effect of debt servicing indicates that weak domestic revenue generation increases fiscal pressure and limits resources available for productive expenditure. The findings therefore provide strong support for the Debt Overhang and Crowding-Out theories, while offering limited short-run support for the Keynesian argument that borrowing can stimulate economic activity.

Policy Recommendations

First, the Nigerian government should strengthen public debt management by ensuring that new borrowing remains within sustainable limits and is directed primarily toward productive investments. Borrowed funds should be concentrated on infrastructure, human capital, and other high-return projects capable of generating sufficient economic returns to support future debt repayment.

Second, government should reduce the debt service-to-revenue burden through stronger domestic revenue mobilization. This requires broadening the tax base, improving tax administration, reducing revenue leakages, and diversifying government revenue beyond oil. Debt restructuring and refinancing at more favourable terms should also be pursued where necessary to reduce repayment pressure and create fiscal space for productive expenditure.

Nigeria should adopt a more cautious approach to external borrowing by strengthening export capacity and diversifying foreign exchange earnings. External loans should preferably be obtained on concessional terms and directed toward projects that improve productive capacity and export performance. At the same time, maintaining macroeconomic stability, particularly through effective inflation management, will strengthen the growth benefits of productive investment and improve the sustainability of public debt.

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