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THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND DISAGGREGATED PUBLIC DEBT IN NIGERIA

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ABSTRACT: This study examined the disaggregated impact of public debt on economic growth in Nigeria, focusing on domestic debt, external debt, and debt servicing. Using the Autoregressive Distributed Lag (ARDL) bounds testing approach, the study analyzed annual time-series data from 2005 to 2024. The findings reveal that domestic debt has a positive and significant impact on economic growth, while external debt has a negative and significant effect. Debt servicing is found to have a positive and significant relationship with economic growth, suggesting that proper debt servicing enhances fiscal descipline. The findings imply that policymakers should prioritize productive domestic borrowing, efficient debt management, and fiscal discipline to promote economic growth in Nigeria. Accoringly, the study recommends sustainable domestic borrowing, cautious external borrowing, and debt restructuring to reduce debt servicing burdens.

Keywords: *Debt Servicing, Domestic Debt, Economic Growth, External Debt, Public Debt.*

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INTRODUCTION

The management of public debt is a critical aspect of any country's economic policy, particularly in developing economies like Nigeria. Public debt denotes the liabilities incurred by the government through borrowing, which can be domestic or external. The primary objective of such borrowing is to address budgetary shortfalls, finance essential infrastructure, and stimulate economic growth. However, the accumulation of public debt can have adverse effects on the economy if not managed effectively. Nigeria's public debt profile has been increasing over the years. By 2023, external debt stood at ₦38.2 trillion, while domestic debt was ₦53.2 trillion. This substantial debt burden raises concerns about the country's ability to service its debts and achieve sustainable economic growth.

The literature suggests that public debt can be a catalyst for economic growth if utilized judiciously, but it can also induce adverse effects if acquired and utilized ineffectively. The Nigerian economy has been characterized by sluggish growth, high unemployment, and poverty rates, despite the country's vast resources. The over-reliance on oil revenue and neglect of other viable sectors have contributed to the debt commitment and repayment problems. The poor management of debt has also been identified as a significant factor in the country's economic woes. Thus, this study examined the impact of public debt on economic growth in Nigeria, with a focus on the effectiveness of debt utilization and management. The findings of this study revealed that the country's public debt has a significant impact on its economic growth, and that effective debt management is crucial for sustainable economic development. The study's results have implications for policy decisions that promote optimal debt management and economic growth in Nigeria.

Statement of the Problem

Over the past two decades, Nigeria has experienced a substantial rise in public debt levels, raising concerns about the sustainability of such debt and its impact on economic growth. While existing studies have explored the relationship between public debt and economic growth in Nigeria, most of them treat public debt as a single, aggregate variable, without accounting for its different components such as

domestic and external debt, or the nature of the debt (e.g., concessional vs. commercial). This aggregation overlooks the fact that different types of debt can have varied implications for the economy. For instance, domestic debt may crowd out private investment through higher interest rates, while external debt exposes the economy to exchange rate and global market risks.

In addition, concessional loans may support growth more effectively than commercial borrowings with high repayment obligations. The failure to disaggregate public debt in empirical analyses limits the ability of policymakers to design effective debt management strategies tailored to Nigeria's specific needs. Therefore, there exists a significant gap in the literature regarding how different categories of public debt distinctly influence economic growth in Nigeria, warranting a more nuanced investigation into their individual and combined effects. This study therefore intends to fill the gap by examining the disaggregated impact of public debt on economic growth of Nigeria.

Research Objectives and Hypotheses

The primary objective of the study is to examine the disaggregated impact of public debt on economic growth of Nigeria. The specific objectives of the study are to: examine the influence of domestic debt on economic growth in Nigeria; assess the impact of external debt on economic growth in Nigeria; and explore the influence of debt servicing on economic growth in Nigeria. Accoridngly, the null hypotheses tested are that: there is no significant relationship between domestic debt and economic growth in Nigeria (H_{01}); there is no significant relationship between external debt and economic growth in Nigeria (H_{02}); and there is no significant relationship between debt servicing and economic growth in Nigeria (H_{03}).

Significance and Scope of the Study

This research contributes to a deeper understanding of the specific channels through which different forms of debt affect GDP, investment, inflation, and other macroeconomic variables. Disaggregating public debt into its components, this study provides understanding of how each type of debt influences economic growth. Such information is crucial for policymakers in designing effective debt management

strategies and allocating resources efficiently. This helps decipher the often generalized perception of debt as either wholly beneficial or wholly detrimental. The findings provide empirical evidence to support or challenge existing assumptions about public debt's role in economic development. This can guide the Central Bank of Nigeria, the Debt Management Office (DMO), and the Ministry of Finance in making informed decisions grounded in data, rather than ideology or political expediency. Although, there is extensive literature on public debt and economic growth, few studies have focused on the disaggregated effects in the Nigerian context.

This study focuses on examining the disaggregated effects of public debt on economic growth in Nigeria, with an emphasis on domestic debt, external debt and servicing of public debt. The study is limited to Nigeria, analysing data at the national level. It does not cover regional or sub-national debt structures such as those incurred by state or local governments. The study covers a period of 2005 to 2024, which allows for both long-term and short-term analysis of debt trends and their correlation with economic growth. The chosen period captures key economic phases in Nigeria, including debt relief periods, oil booms and busts, structural reforms, and recent fiscal challenges.

Research Methodology

This methodological framework is designed to ensure that the research objectives are addressed using reliable and appropriate quantitative tools. It presents the research design, population and sampling techniques, data collection methods, analytical techniques, and model specification. Special attention is paid to the nature of the data, the structure of the econometric model, and the justification for the selected variables. Given the disaggregated nature of the debt components—domestic and external—this chapter adopts a rigorous approach that captures the multidimensional relationship between debt and economic growth over the specified period.

The study adopts an ex-post facto research design, which is suitable for examining existing data and relationships among variables where the researcher has no control over the independent variables. This design is appropriate because the variables

under investigation—economic growth, domestic debt, external debt, and debt servicing—are historical macroeconomic indicators that have already occurred and are recorded in secondary data sources. The design allows for causal inference by employing econometric tools to test theoretical relationships and empirical validity. The population of the study comprises annual time-series data on Nigeria's macroeconomic and fiscal variables between 2005 and 2024. This includes economic growth indicators, components of public debt, and debt service figures as recorded by relevant national and international institutions. The study does not rely on human or organizational respondents but on documented economic indicators within the Nigerian economy.

Since the study is based on time-series data, the sample size is defined by the number of years from 2005 to 2024, resulting in 10 annual observations. A purposive sampling technique is used to focus specifically on this period due to its significance: it covers the post-structural adjustment era, the impact of the 2016 and 2020 economic recessions, post-COVID fiscal dynamics, and recent public debt restructuring policies under successive administrations. This period captures the shift in Nigeria's debt strategy, including increased reliance on external borrowing and domestic bond issuances. The study relies entirely on secondary data, which are quantitative, macroeconomic, and fiscal in nature. The data are sourced from reputable and authoritative institutions such as the Central Bank of Nigeria (CBN) Statistical Bulletin, the Debt Management Office (DMO), the National Bureau of Statistics (NBS), and international sources including the International Monetary Fund (IMF) and the World Bank Development Indicators (WDI). The data collected include Nigeria's real Gross Domestic Product (GDP) growth rate, domestic debt stock, external debt stock, and public debt service payments for each year from 2005 to 2024.

To investigate the long-run and short-run relationships among the variables, the study adopts the Autoregressive Distributed Lag (ARDL) bounds testing approach, which is suitable for small sample sizes and when variables are integrated at levels I(0) and first differences I(1), but not at second difference I(2). The ARDL model has the advantage of simultaneously estimating short-run and long-run dynamics and is

effective in dealing with endogeneity and omitted variable bias. Stationarity of the time-series data will be tested using the Augmented Dickey-Fuller (ADF) test, while the ARDL bounds test will confirm the existence of cointegration. Diagnostic tests including serial correlation, heteroskedasticity, and model stability (CUSUM and CUSUMSQ) are also conducted to validate the robustness of the model.

This study adapts a functional model based on empirical literature of Binuyo et al., 2024 and modifies it to fit the Nigerian context and the disaggregated structure of public debt. The model expresses economic growth as a function of domestic debt, external debt, and debt servicing:

$RGDPGR_t = \alpha 0 + \alpha_1 DDTt + \alpha_2 EDTt + \alpha_3 DSTt + \mu t$

Where:

$RGDPGR_t$ = Real Gross Domestic Product growth rate (proxy for economic growth)

DDT_t = Domestic Debt (in ₦ trillions)

EDT_t = External Debt (in USD billions or ₦ equivalent)

DST_t = Debt Servicing (in ₦ billions)

Mt = Error term

Table 1: Measurement of Variables

Variable	Description	Measurement / Proxy	Expected Sign
Economic Growth	Growth in the productive capacity of the economy	Annual % change in real GDP	Dependent Variable
Domestic Debt (DDT)	Public debt sourced locally	Nominal value in ₦ billions	Positive or Negative
External Debt (EDT)	Debt sourced from foreign creditors	USD or ₦ equivalent (billions)	Positive or Negative
Debt Servicing (DST)	Payments on debt obligations	₦ billions spent on servicing debt	Negative (expected)

Source: Author's Tabulation.

The expected signs are subject to empirical testing. Domestic debt may stimulate growth if used productively but can crowd out private investment. External debt can be growth-enhancing when concessional but may also create exchange rate vulnerabilities. Debt servicing is expected to have a negative effect due to its crowding-out implications on capital expenditure.

LITERATURE AND EMPIRICAL REVIEW

The rising use of public debt as a tool for financing government expenditure has generated intense scholarly interest, particularly in developing economies like Nigeria. Since 2005, Nigeria's public debt profile has grown rapidly, raising concerns over its impact on economic growth in the wake of fiscal imbalances, exchange rate pressures, and weak revenue performance. While public borrowing can stimulate growth when properly managed, its effectiveness depends on the structure, composition, and purpose of the debt. This section is a review of key concepts, theoretical foundations, and empirical studies to contextualize the relationship between disaggregated public debt and Nigeria's economic growth between 2005 and 2025. It also identifies gaps in existing studies to justify the current research. The literature presents divergent views on how domestic and external debts influence growth, necessitating a disaggregated analysis.

Conceptual Review

The conceptual review lays the groundwork for understanding how public debt, in its various forms, influences economic growth, particularly within a developing economy like Nigeria. In the current fiscal landscape (2005–2024), characterized by rising debt, macroeconomic shocks, and institutional reforms, it is especially important to clarify the mechanisms through which public borrowing affects output. This section provides rigorous conceptual definitions of public debt (disaggregated into domestic and external), explores the notion of economic growth, and outlines how these concepts interrelate, establishing a substantive foundation for the empirical investigations ahead.

A government incurs public debt when it borrows money to fund economic growth or to make up for shortfalls. There are two types of public debt: external and internal. That is in order to finance a country's domestic investment, the government may

incur debt by borrowing from the domestic or foreign markets (CBN, 2013). Public debt is all claims against the government held by the private sector of the economy, or by foreigners, whether interest-bearing or not, less any claims held by the government against the private sector and foreigners (Anyanwu, 1993). Public Debt may include, all the outstanding amount of loans borrowed and the bonds issued directly by the entirety of all government levels, and the loans guaranteed by it, as well as the loans and bonds borrowed or issued by all government parastatal (the government-owned agencies and corporations) operating in the commercial sector.

Public debt can also be referred to as the total obligations incurred by government through domestic and foreign borrowing, including instruments such as treasury bills, bonds, Sukuk, and credit arrangements with multilateral or bilateral partners (IMF, 2023). In Nigeria, total public debt surged from ₦12.6 trillion in 2015 to over ₦150 trillion by early 2025 (Debt Management Office, 2024). This rapid increase was driven by persistent fiscal deficits, infrastructural borrowing, and exchange rate depreciation. Sustainability is evaluated using the debt-to-GDP ratio and, critically for Nigeria, the debt service-to-revenue ratio. While Nigeria's debt-to-GDP remained below international benchmarks (approximately 40% after recent GDP rebasing in mid-2025), its debt service-to-revenue ratio reached unsustainable levels, exceeding 77%–90% (Verifa, 2024; DMO, 2024; IMF 2025). High servicing obligations severely limit fiscal space for developmental spending, amplifying the importance of debt quality over quantity.

Therefore, over the years public debt has remained a necessary tool for many countries, including Nigeria, to close the existing gap in the economy. Public debts therefore, are incurred to finance fiscal deficits created by expansive government expenditures if tax revenues and money creation cannot fill the fiscal gap. But excessive deficits and public debts can create fiscal imbalances in the economy in a number of ways: Excessive public debts can create burden for future generations; Government debts can crowd out private sector credit; Unsustainable debts can trigger disruptive movements in interest public debt rates and exchange rates as highly indebted countries become vulnerable to global market forces.

Public debt is, therefore, a crucial tool for countries to achieve their macroeconomic objectives through: funding essential infrastructure projects, stimulate growth during economic downturns, address social welfare issues, manage fiscal deficits, and capitalize on investment opportunities. However, excessive accumulation of debt is a critical factor in the debt-growth dynamics and underscores the relevance of a balanced debt management. Khudzari et al. (2022) identified three primary research clusters on public debt sustainability: fiscal sustainability and policy rules, empirical sustainability testing, and debt-growth dynamics.

Debt servicing, which refers to the repayment of principal and interest on public debt, has significant implications for economic growth, particularly in developing economies like Nigeria. As public debt levels rise, a substantial portion of government revenue is increasingly allocated to servicing this debt, thereby reducing the funds available for investment in critical sectors such as infrastructure, education, and healthcare (Audu, 2004). In principle, borrowing can stimulate economic growth when used to finance productive investments that enhance a country's productive capacity. However, when debt is not used efficiently or is directed toward recurrent expenditures rather than capital projects, the long-term benefits of such borrowing are undermined (Iyoha, 1999).

In developing countries, economic growth is not merely a function of market efficiency but also depends on deliberate fiscal and monetary policies, structural reforms, and public investment. Nigeria’s growth trajectory has been uneven, with periodic recessions in 2016 and 2020, primarily driven by oil price shocks, exchange rate volatility, insecurity, and policy uncertainty (NBS, 2024). Economic growth is defined as the sustained increase in the productive capacity of an economy, usually measured by the real Gross Domestic Product (GDP). Thus, economic growth, reflects the expansion in the output of goods and services and is often considered a primary indicator of economic performance and welfare improvement (Barro & Sala-i-Martin, 2004). Growth is driven by multiple factors, including capital formation, technological progress, labour productivity, policy stability, and public investment. In the case of Nigeria, a key feature of economic growth is its sensitivity to public investment and debt financing. When debt is used to fund productivity-enhancing

sectors such as transport, energy, education, and health, it can generate a positive multiplier effect, increase employment, and raise aggregate demand.

Conversely, if debt is used for recurrent expenditure, consumed through corruption, or not properly targeted, it may result in a debt overhang, weaken investor confidence, and ultimately reduce economic growth (Adedokun et al., 2024). In all of this, the role of governance, accountability, and fiscal transparency cannot be overstated. The World Bank (2024) stresses that fiscal reforms, debt transparency, and effective public investment management are prerequisites for turning debt into growth. Hence, Nigeria's mixed record in these areas implies that the growth impact of public debt is not automatic but conditional on how the funds are sourced, used, and monitored.

Theoretical Review

The theoretical framework of this study serves as the bedrock of any empirical research, offering the intellectual lens through which the relationships of the variables are examined and interpreted to provide valuable perspectives. The Classical Theory of Public Debt as established by classical economists perceives public debt as a transfer of financial obligations from the current generation to the future—imposing a "burden" that undermines long-term national savings and capital formation (Ricardo, 1817). The central claim is that government borrowing crowds out private investment by increasing interest rates and reducing funds available to the private sector. This theory holds that in an open economy like Nigeria, excessive domestic borrowing could distort capital markets, raise inflationary pressures, and compromise intergenerational equity. The classical theory aligns with recent criticisms of Nigeria's debt strategy, where domestic borrowing by the federal government is often blamed for rising lending rates, low credit to the private sector, and reduced investment productivity (Khalil & Junaidu, 2019). Although somewhat dated, the classical approach remains influential in policy debates—especially in contexts where fiscal discipline and debt sustainability are in question. Nigeria's persistent fiscal deficits and high debt service-to-revenue ratios echo the classical warning against unchecked borrowing.

Contrary to the classical school, Keynesian theory—rooted in the ideas of John Maynard Keynes—supports public borrowing as a legitimate tool for stimulating aggregate demand during economic downturns. According to Keynes (1936), when private sector activity is low, the government can step in by borrowing and spending on infrastructure, education, and social services, thereby injecting liquidity and reviving demand. From a Keynesian perspective, debt-financed public spending can have a multiplier effect on output, especially when directed toward productive investments. In Nigeria's context, borrowing to close infrastructure gaps, expand access to health and education, and create employment could catalyse medium- to long-term growth, provided that fiscal leakages are controlled. However, the assumptions of efficient public spending and institutional effectiveness are often not satisfied in developing countries. Empirical evidence in Nigeria suggests that a large share of borrowed funds is spent on recurrent expenditures or mismanaged through corruption, thereby neutralizing the expected Keynesian benefits (Mahmud, 2018).

The Debt Overhang Theory, developed by Krugman (1988) and Sachs (1989), posits that when a country's future debt service obligations are expected to exceed the returns from investment, both domestic and foreign investors may be discouraged from investing. Debt overhang theory implies that large borrowing leads to high debt, debt traps and slowing down of economic growth. According to the debt overhang hypothesis, if there exists the likelihood that in the future government debt will be larger than the country's repayment ability, expected debt service costs will discourage further domestic and foreign investment. Therefore, potential investors would be discouraged on the assumption that the more there is production, the more they will be taxed by government to service the public debt and thus they will be less willing to incur investment costs today for the sake of increasing future output (Gordon & Cosimo, 2018). According to Krugman (1988), mulated public debt act as a tax on future output as well as reduces the incentive for savings and investment. In particular, the theory argued that the requirement to service debt reduces funds available for investment purposes; hence, a binding liquidity constraint on debt would restrain investment and further retard growth. The theory holds that both the stock of public debt and its service affect growth by discouraging private investment or altering the composition of public spending. Debt service may discourage growth

by squeezing the public resources available for investment in structure and human capital (Coccia, 2017). The theory further suggests that public debt may have non-linear effects on growth, either through capital accumulation or productivity growth.

Thus, the theoretical discourse on public debt and economic growth reveals a dichotomy: while classical and debt overhang theories warn against the dangers of excessive borrowing, Keynesian theory endorses borrowing for investment-driven fiscal stimulus. The relevance of these theories to Nigeria is context-dependent. The country's mixed results from borrowing suggest that both the volume and efficiency of debt utilization matter. Furthermore, the presence of debt overhang characteristics and institutional weaknesses supports the view that Nigeria's debt strategy must be carefully designed to avoid long-term macroeconomic distress. This study therefore adopts a hybrid theoretical stance, acknowledging that public debt can be a useful tool for stimulating economic growth, but only under conditions of effective governance, transparent fiscal management, and well-targeted investment.

Influence of Domestic Debt on Economic Growth in Nigeria

Studies have yielded mixed results on the influence of domestic debt on economic growth in Nigeria. According to Ahamba et al. (2025), domestic debt stock was statistically insignificant in influencing economic growth. Similarly, Nwosu et al. (2024) found that domestic debt had no direct long-run impact on economic growth but exhibited some indirect short-run effects. In contrast, Ikwuo et al. (2024) found that domestic debt has a negative and significant effect on economic growth. Abdulmumin (2022) also found that domestic debt is a negative significant determinant of economic growth in Nigeria. However, Akanbi and Uwaleke (2023) found that domestic debt had a positive and statistically significant impact on economic growth during military regimes, while the impact during democratic regimes was negative or insignificant. Alagba and Idowu (2019) also found that domestic debts of the Federal government of Nigeria is positive and statistically significant to economic growth of Nigeria.

Impact of External Debt on Economic Growth in Nigeria

The impact of external debt on economic growth in Nigeria has also been explored in various studies. Binuyo et al. (2024) found that external debt stock had no significant

long-run impact on economic growth. In contrast, Ikwuo et al. (2024) and Abdulmumin (2022) found that external debt has a positive and significant effect on economic growth. However, Olasehinde and Afolabi (2023) argued that external debt had no significant long-term effect due to misallocation and weak institutional controls. Lucky and Godday (2017) found that external debt is negative and significant to economic growth in Nigeria, while Alagba and Idowu (2019) found that foreign debts was positive but non-significant.

Influence of Debt Servicing on Economic Growth in Nigeria

The influence of debt servicing on economic growth in Nigeria has also been examined. Ahamba et al. (2025) found that debt servicing had a significant and positive impact on economic growth in both the short and long run. However, Binuyo et al. (2024) found that debt service had a negative but statistically insignificant effect on economic growth. Ikwuo et al. (2024) and Alagba and Idowu (2019) found that debt servicing has a negative and significant effect on economic growth. Onyekachi-Onyele et al. (2024) also found that debt servicing costs negatively and significantly affected infrastructure financing in the short run.

Research Gap

The empirical literature on public debt and economic growth in Nigeria presents mixed findings, with outcomes heavily dependent on the type of debt, the method of financing, and the broader institutional environment. While some studies suggest that public debt especially domestic can support growth under appropriate conditions, others reveal neutral or negative effects, particularly for external debt. These findings underscore the necessity of nuanced, disaggregated, and up-to-date analyses, as this study intends to contribute by examining the differential effects of disaggregated public debt on economic growth in Nigeria between 2005 and 2024, with consideration for governance and fiscal quality.

DATA PRESENTATION, ANALYSES, AND DISCUSSION

Beginning with descriptive statistics followed by the presentation and discussion of the unit root (Augmented Dickey-Fuller) test, this section lays out the findings of the

study with tha aid of multicollinearity and heteroskedasticity tests of the study variables. The results of the Autoregressive Distributed Lag (ARDL) model presented strengthen the tests of hypotheses, and findings of the study.

Descriptive Statistics

The descriptive statistics presented offer insightful information about the key variables used in the study, particularly those related to domestic debt, external debt, debt servicing and real GDP growth rate.

Table 2: Summary of Descriptive Statistics

Variables	Mean	Std. Dev.	Maximum	Minimum	Skewness	Kurtosis
RGDPGR	5.5015	3.648406	15.33	-1.62	0.4721563	4.135514
DDT	6367.853	5445.423	20210	1016.974	0.9484532	3.077159
EDT	3383.942	3315.979	12710	438.89	1.382039	4.311407
DST	910.6452	889.5426	3340	155.4162	1.405702	4.014704

Source: The output produced by using the STATA 13 software.

The descriptive statistics summarize the behavior of the main variables in the dataset. The real GDP growth rate (RGDPGR) has an average value of 5.50% with a standard deviation of 3.65, indicating moderate variability over time. Its minimum and maximum values are –1.62% and 15.33%, respectively, suggesting that the economy experienced both contraction and strong expansion periods. The positive skewness (0.47) implies that the distribution of growth rates is slightly skewed to the right, while a kurtosis of 4.14 indicates a relatively peaked distribution compared to the normal distribution.

Domestic debt (DDT) has a mean of 6,367.85 with a standard deviation of 5,445.42, reflecting substantial dispersion and fluctuations over the observed period. The values range from 1,016.97 to 20,210, showing that domestic debt levels varied widely. Its positive skewness (0.95) indicates that higher values are more frequent, and a kurtosis of 3.08 suggests a distribution close to normal but slightly leptokurtic. External debt (EDT) averages 3,383.94 with a standard deviation of 3,315.98, also showing considerable variability. The minimum and maximum values are 438.89 and 12,710, respectively. The relatively high skewness (1.38) and kurtosis (4.31) reveal a

right-skewed distribution with heavier tails, implying that extremely high debt levels occurred occasionally.

Finally, debt servicing (DST) has an average of 910.65 and a standard deviation of 889.54, with values ranging from 155.42 to 3,340. The skewness (1.41) and kurtosis (4.01) indicate a right-skewed and leptokurtic distribution, meaning that while most observations are clustered at lower levels, there are some instances of very high debt servicing obligations. In general, all debt-related variables show positive skewness and leptokurtosis, suggesting that debt levels and servicing have occasionally reached unusually high peaks.

Table 3: Stationary Test/Unit Root Test (Augmented Dikey Fuller – ADF)

VARIABLE	LEVEL	1ST DIFF	REMARKS
LOG DOMESTIC DEBT	NON-STATIONARY	STATIONARY	I(1)
LOG EXTERNAL DEBT	NON-STATIONARY	STATIONARY	I(1)
LOG DEBT SERVICING	NON-STATIONARY	STATIONARY	I(1)
LOG Real GDP	NON-STATIONARY	STATIONARY	I(1)

Source: The output produced by using the STATA 13 software.

The results of the Augmented Dickey-Fuller (ADF) unit root test show that all the variables, log of domestic debt, log of external debt, log of debt servicing, and log of real GDP are non-stationary at their levels but become stationary after first differencing. This means that each series contains a unit root in its level form, indicating the presence of a stochastic trend or persistence over time. However, once the first difference is taken, the time series no longer exhibit a unit root, implying that their mean and variance stabilize over time. Therefore, all variables are said to be integrated of order one, denoted as I(1).

Diagnostic Test

The Johansen cointegration test results indicate the existence of long-run equilibrium relationships among the variables, log of real GDP (LOGRGDP), log of domestic debt (LOGDDT), log of external debt (LOEDT), and log of debt servicing (LOGDST). Based on the trace statistic and the 0.05 critical values, the test rejects the null hypothesis of no cointegration (None) and successively rejects the null

hypotheses up to "At most 3." This means that four variables share up to four cointegrating relationships, although the last one (At most 4) is not significant since its p-value (0.2649) is greater than 0.05.

Table 4: Johansen Co-integration

Hypothesized No. of CEfs)	Eiqenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.959314	226.4524	69.81889	0.0000
Atmost1*	0.798553	114.3870	47.85613	0.0000
Atmost2 *	0.663848	58.30900	29.79707	0.0000
Atmost 3*	0.417411	20.15229	15.49471	0.0092
Atmost4	0.034883	1.242715	3.841465	0.2649

Source: The output produced by using the STATA 13 software.

The presence of at least one cointegrating equation (as indicated by the significance at None*, At most 1*, At most 2*, and At most 3*) implies that despite each variable being non-stationary in levels, they move together in the long run. In other words, domestic debt, external debt, debt servicing, and real GDP are cointegrated, suggesting a stable long-term relationship among them. Economically, this finding means that changes in debt levels and servicing have long-term equilibrium effects on economic growth (real GDP), and deviations from this equilibrium are temporary, adjusting over time toward stability. This justifies the use of a Vector Error Correction Model (VECM) to capture both short-term dynamics and long-term relationships among the variables.

Table 5: Unrestricted Co-inteqration Rank Test f Maximum Eigen value)

Hypothesized No.of CE(s)	Eigenvalue	Max-Eiqen Statistic	CriticalValue (0.05)	Prob.**
None*	0.959314	112.0654	33.87687	0.0000
Atmost1*	0.798553	56.07804	27.58434	0.0000
Atmost2 *	0.663848	38.15670	21.13162	0.0001
Atmost 3*	0.417411	18.90958	14.26460	0.0086
Atmost4	0.034883	1.242715	3.841465	0.2649

Source: The output produced by using the STATA 13 software.

The Johansen Maximum Eigenvalue test results further confirm the presence of long-run cointegrating relationships among the variables, log of real GDP (LOGRGDP), log of domestic debt (LOGDDT), log of external debt (LOEDT), and log of debt servicing (LOGDST). The test compares the maximum eigenvalue statistics with their corresponding 0.05 critical values to determine the number of cointegrating equations (CEs). The results show that the null hypothesis of no cointegration (None) is rejected since the maximum eigenvalue statistic (112.07) exceeds the critical value (33.88) with a probability of 0.0000.

Similarly, the null hypotheses of at most 1, at most 2, and at most 3 cointegrating equations are also rejected because their test statistics (56.08, 38.16, and 18.91, respectively) all surpass the corresponding critical values and have p-values below 0.05. However, the hypothesis of at most 4 cointegrating equations is not rejected (p = 0.2649), indicating no additional cointegrating relationship beyond the third. In general, these results imply the existence of four variables linked by up to four cointegrating relationships, confirming a strong long-run association among real GDP, domestic debt, external debt, and debt servicing. This means that even though each variable may drift over time individually, they maintain a stable equilibrium relationship in the long run. Consequently, a Vector Error Correction Model (VECM) is appropriate to capture both the short-term adjustments and long-run equilibrium dynamics among these macroeconomic variables.

Table 6: VECM –Error Correction Model (Short Run Estimation)

Short Run Relationship				
Vector Error Correction Model				
Variables	**Coefficient**	**Se**	**T-Stata**	**Prob**
ECT(-1)	-0.946367	0.18497	-5.116383	0.0003
DfLOGRGDPf-1))	0.810645	0.2259	3.588601	0.0037
DfLOGRGDPf-2))	0.984988	0.26703	3.688718	0.0031

DfLOGRGDPf-3))	0.444811	0.22187	2.00487	0.0681
DfLOGRGDPf-4))	0.136008	0.19655	0.691987	0.5021
DfLOGDDTf-2))	-0.072794	0.1445	-0.503752	0.6236
DfLOGDDTf-3))	-0.208966	0.12267	-1.703544	0.1142
DfLOGDDTf-4))	-0.514725	0.15872	-3.24303	0.007
DfLOGDSTf-1))	-0.171966	0.1047	-1.642551	0.1264
DfLOGEDTf-1))	0.001982	0.05314	0.037303	0.9709
DfLOGEDTf-2))	0.007626	0.061	0.125016	0.9026
DfLOGEDTf-3))	-0.002005	0.05238	-0.038276	0.9701
DfLOGEDTf-4))	-0.138086	0.05326	-2.592911	0.0235
DfLOGDDTf-1))	-0.20618	0.15624	-1.319631	0.2116
DfLOGDSTf-2))	-0.023099	0.0904	-0.255518	0.8027
DfLOGDSTf-3))	0.078915	0.08043	0.981175	0.3459
DfLOGDSTf-4))	-0.012427	0.04656	-0.266918	0.7941
C	0.150039	0.03488	4.301071	0.001
R-squared	0.931424		N\mean dependent var	0.08327
Adjusted R-squared	0.805701		S.D. dependent var	0.050127
S.E. of reqression	0.022095		Akaike info criterion	-4.54305
Sum squared resid	0.005858		Schwarz criterion	-3.52096
Loq likelihood	102.5033		Hannan-Quinn criter.	-4.19022
F-statistic	7.408554		Durbin-Watson stat	1.85287
ProbfF-statistic)	0.000456			

Source: The output produced by using the STATA 13 software.

The Vector Error Correction Model (VECM) short-run estimation explains how real GDP responds to changes in domestic debt, external debt, and debt servicing in the short term while also showing how quickly the system adjusts toward long-run equilibrium. The error correction term (ECT(-1)) has a coefficient of –0.9464, which is negative and statistically significant at the 1% level (p = 0.0003). This indicates that about 94.6% of any deviation from the long-run equilibrium is corrected within one period, meaning the system adjusts very quickly back to equilibrium after short-term shocks.

In the short-run dynamics, the first and second lags of real GDP growth (ΔLOGRGDP(-1) and ΔLOGRGDP(-2)) are positive and highly significant (p = 0.0037 and p = 0.0031, respectively**), suggesting that previous increases in real GDP have a strong positive influence on current growth. This reflects growth persistence, where past economic performance contributes positively to current output. The third lag of GDP growth is marginally significant (p = 0.0681), while the fourth lag is insignificant, indicating that the effect of past growth diminishes over time.

Consequently, among the debt variables, domestic debt (ΔLOGDDT) at its fourth lag shows a negative and significant relationship with GDP (p = 0.007), implying that high domestic borrowing tends to reduce economic growth after some time. This could be due to the crowding-out effect, where government borrowing limits private sector investment or increases interest rates. Similarly, external debt (ΔLOGEDT) at its fourth lag is also negative and significant (p = 0.0235), indicating that excessive foreign borrowing may hinder short-run growth, possibly due to rising repayment obligations or debt overhang.

Other lags of domestic and external debt, as well as debt servicing, are mostly insignificant, suggesting weaker immediate effects on GDP. The model's diagnostic statistics, however, show a good fit: the R-squared value (0.9314) indicates that about 93% of variations in short-run GDP growth are explained by the model, while the adjusted R-squared (0.8057) confirms robustness after accounting for the number of predictors. The F-statistic (7.41) is significant (p = 0.000456), confirming the

overall reliability of the model. The Durbin-Watson statistic (1.85) suggests no serious autocorrelation among residuals, meaning the results are statistically sound.

In general, the VECM results reveal that while the variables share a strong long-run equilibrium relationship, in the short run, both domestic and external debt exert a negative influence on economic growth. However, the economy demonstrates a rapid adjustment toward equilibrium, and past growth plays a key role in sustaining current growth momentum. This implies that while borrowing can support long-term development, excessive debt accumulation may hurt short-term growth performance if not managed efficiently.

Table 7: Autoregressive Distributed Lag (ARDL) - Long Run Relationship

DEPENDENT Variable	**RGDPGR**		
Model	**Normalise Johansen equation**		
Independent Variable	**Coefficient**	**S/Error**	**T-Value**
Domestic Debt (DDT)	0.846045	0.04404	-19.211
External Debt (EDT)	-0.024701	0.01019	2.42404
Log Debt servicing (DST)	=0.088046	0.03452	2.55058

Source: The output produced by using the STATA 13 software.

The results of the normalized Johansen cointegration equation, where the real GDP growth rate is the dependent variable, reveal the long-run relationships between economic growth and the key debt variables, domestic debt (DDT), external debt (EDT), and debt servicing (DST). The coefficient of domestic debt (0.8460) is positive and highly significant, indicating that an increase in domestic debt is associated with higher real GDP growth in the long run. This suggests that, when effectively managed, domestic borrowing can promote economic growth by financing productive investments, such as infrastructure and development projects.

In contrast, the coefficient of external debt (–0.0247) is negative and statistically significant, implying that higher levels of external debt tend to reduce economic growth in the long term. This may be due to the burden of foreign debt repayments, exchange rate risks, or inefficiencies in the use of external funds, which can lead to

debt overhang effects, where future debt obligations discourage investment and slow down growth.

The coefficient for debt servicing (0.0880) is positive and significant, indicating that higher debt servicing is linked with an increase in economic growth. This could mean that the ability of a country to meet its debt obligations signals financial stability and credibility, which may attract investment and support growth. However, it could also reflect a situation where debt repayments are funded by revenue from productive borrowing.

Test of Hypotheses

Based on the estimated results derived from both the short run and long run coefficients of the major determinant variables/parameters for our hypothesis testing it could be inferred as follows.

There is no significant relationship between domestic debt and economic growth in Nigeria (H_{01})

The results show that domestic debt (DDT) has a positive and statistically significant coefficient of 0.8460 with a t-value of –19.211, which far exceeds the conventional critical value (in absolute terms). This indicates that domestic debt exerts a strong and significant positive impact on economic growth. Therefore, the null hypothesis that domestic debt has no significant effect on real GDP growth is rejected, suggesting that domestic borrowing contributes positively to economic expansion, possibly through the financing of productive investments.

There is no significant relationship between external debt and economic growth in Nigeria (H_{02})

External debt (EDT) has a negative coefficient (–0.0247) and a t-value of 2.424, which is statistically significant. This means the null hypothesis that external debt has no effect on economic growth is also rejected. The negative sign implies that increases in external debt tend to reduce real GDP growth in the long run, possibly due to heavy debt-servicing obligations, currency depreciation, or inefficient utilization of foreign loans that hinder productive capacity.

There is no significant relationship between debt servicing and economic growth in Nigeria (H_{03})

Debt servicing (DST) has a positive and significant coefficient (0.0880) with a t-value of 2.551, indicating that it has a favorable long-run impact on economic growth. This suggests that regular and effective debt servicing can enhance investor confidence, improve creditworthiness, and promote financial stability, which in turn supports economic growth.

Discussion of Findings

The findings from the normalized Johansen cointegration equation provide valuable insights into the long-run relationship between real GDP growth and the country's debt structure.

In terms of the relationship between Domestic Debt and Economic Growth, the results show that domestic debt (DDT) has a positive and highly significant impact on economic growth, as indicated by its coefficient of 0.8460 and a large t-value. This suggests that increases in domestic borrowing tend to stimulate long-run economic growth. The positive effect may be attributed to the fact that domestic debt, when efficiently managed, provides a reliable source of financing for productive investments such as infrastructure, education, and industrial development without exposing the country to external vulnerabilities. Moreover, borrowing domestically helps to deepen the local financial market and reduce dependence on external sources, which aligns with theoretical expectations that moderate domestic borrowing supports sustainable economic growth.

In the case of External Debt and Economic Growth too, external debt (EDT) has a negative and significant coefficient (–0.0247), implying that an increase in external borrowing slows down economic growth in the long run. This finding suggests that the economy may be facing a debt overhang problem, where large external debt burdens discourage investment and divert resources away from growth-promoting sectors due to high repayment obligations. In addition, external debt often exposes the economy to exchange rate fluctuations and external shocks, which can further weaken growth prospects. This result aligns with empirical evidence from

developing economies, where excessive foreign borrowing has been found to negatively affect growth due to inefficient utilization of borrowed funds and poor debt management practices.

Debt Servicing (DST) shows a positive and statistically significant coefficient (0.0880), indicating that proper servicing of debt obligations contributes to economic growth. This relationship suggests that honoring debt commitments enhances the country's creditworthiness and investor confidence, thereby attracting more investment and maintaining financial stability. It may also reflect that debt repayments are being supported by productive economic activities financed through earlier borrowing, which contributes to growth.

Conclusion and Recommendations

Domestic debt has a positive and significant impact on economic growth in Nigeria, indicating that borrowing from internal sources contributes meaningfully to the country's long-term economic performance. This suggests that when domestic debt is properly managed and directed toward productive investments such as infrastructure, industrial development, and social services, it can stimulate economic activities and enhance output growth. The positive relationship highlights the importance of strengthening domestic financial markets to support government borrowing without crowding out private investment, thereby promoting sustainable growth. Thus, external debt has a negative and significant relationship with economic growth in Nigeria, implying that an increase in foreign borrowing tends to slow down the economy. This negative effect may result from the heavy burden of debt servicing, inefficient utilization of borrowed funds, and exposure to exchange rate and external shocks.

The finding suggests that while external borrowing can provide temporary fiscal relief, excessive dependence on it can lead to debt overhang, where future growth is constrained by the need to service accumulated debt. In addition, debt servicing has a negative and significant impact on economic growth in Nigeria, indicating that high repayment obligations place pressure on government finances and divert resources away from productive sectors of the economy. This relationship suggests that as

more revenue is allocated to servicing existing debts, less is available for investment in development programs, thereby slowing economic progress.

Accordingly the following recommendations are made:

i. Based on the finding that domestic debt has a positive and significant impact on economic growth in Nigeria, it is recommended that the government should continue to utilize domestic borrowing as a tool for economic development, but in a sustainable and well-coordinated manner. Domestic debt should be directed toward productive sectors such as infrastructure, manufacturing, and agriculture, which have high potential for job creation and output expansion. In addition, the government should strengthen the domestic financial market to enhance transparency, efficiency, and investor confidence, ensuring that domestic borrowing does not crowd out private sector credit or lead to excessive interest rate increases.

The positive and significant relationship between domestic debt and economic growth implies that domestic borrowing can serve as an effective policy tool for stimulating Nigeria's economic development if properly managed. Policymakers should therefore focus on designing fiscal and monetary policies that encourage productive domestic borrowing while maintaining macroeconomic stability. This finding suggests that the government should strengthen the domestic debt market, improve investor confidence, and ensure that funds raised through domestic borrowing are allocated to growth-enhancing projects. In addition, effective coordination between the Ministry of Finance and the Central Bank is essential to prevent excessive borrowing that could lead to inflationary pressures and crowd out private investment.

ii. Given the negative and significant relationship between external debt and economic growth, the study recommends that Nigeria should adopt a cautious and strategic approach to external borrowing. External loans should be obtained only for projects with measurable economic returns capable of generating sufficient revenue to service the debt. The government should also improve debt management practices by enhancing accountability, ensuring proper monitoring of borrowed funds, and reducing the reliance on foreign loans to finance recurrent expenditure. Furthermore,

policies aimed at diversifying export earnings and boosting foreign reserves should be implemented to strengthen the country's capacity to repay external obligations without constraining growth.

The negative and significant effect of external debt on economic growth has important policy implications, emphasizing the need for prudence and selectivity in external borrowing. Policymakers should ensure that foreign loans are contracted under favorable terms and directed only toward economically viable projects capable of generating returns sufficient to service the debt. This finding underscores the importance of strengthening Nigeria's debt management frameworks to avoid unsustainable debt accumulation and the risks of debt overhang. Moreover, external borrowing policies should be aligned with long-term development plans, export diversification strategies, and foreign exchange management policies to minimize vulnerability to external shocks.

iii. Since debt servicing was found to have a negative and significant effect on economic growth, it is recommended that the government should restructure existing debt and improve fiscal discipline to reduce the debt servicing burden. Efforts should be made to negotiate better repayment terms, extend maturities, or refinance high-interest loans to free up fiscal space for productive investments. Moreover, the government should enhance domestic revenue generation through improved tax administration and broadened revenue sources to lessen dependence on borrowing. By prioritizing sustainable debt management and efficient allocation of resources, Nigeria can ensure that debt obligations do not hinder its long-term economic growth objectives.

The negative relationship between debt servicing and economic growth suggests that high debt servicing obligations constrain fiscal capacity and limit public investment. This calls for policy measures aimed at reducing the debt servicing burden through restructuring, refinancing, or renegotiating existing debt terms. Policymakers should also focus on enhancing domestic revenue mobilization to reduce reliance on borrowing and ensure that debt repayments do not crowd out critical expenditure in infrastructure, health, and education. Furthermore, fiscal policy should emphasize efficiency and accountability in debt utilization, ensuring that every borrowed naira

contributes to productive outcomes that ultimately strengthen the economy's capacity to meet future debt obligations without undermining growth.

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