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PUBLIC DEBT AND ECONOMIC GROWTH IN NIGERIA (1980-2020)

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Abstract

This research analyzes how public debt affects economic growth in Nigeria, specifically focusing on the impact of public debt on government revenue, public spending, inflation, and interest rates, using available data spanning from 1981 to 2022. It conducts multiple regression analysis to assess the impact of public debt on these variables in the short and long run. The findings suggest that public debt has a considerable positive impact on government revenue and public spending, which subsequently contributes to economic growth in Nigeria in the long run and short run, while having considerable negative impacts on inflation and interest rates. This analysis highlights the detrimental impact of public debt on public expenditure, enduring revenue generation, and the subsequently uncontrolled inflation and interest rates which dampens economic stability and economic development in Nigeria. In light of the findings, the study proposes among other things that government economic policies should focus on boosting revenue, enhancing efficiency in expenditure administration, and controlling inflation and interest rates so as to sustain economic growth.

Keywords: Economic growth, Economic stability, Expenditure, Inflation, Public dept, Government revenue, and Sustainable economic growth.

Introduction and problem in context

Nigeria's public debt in the current context has been a prominent factor affecting the economic growth of the country. Each year the federal and state governments spend more than what is collected as revenue, which necessitates the government to borrow money to pay for the development projects. As at June 2023, Total public debt in Nigeria is around ₦87.38 trillion (≈$113.4 billion), of which the federal government constitutes ₦78.21 trillion (89.51%) and sub-national entities hold ₦9.17 trillion (10.49%) (DMO, 2023). Public debt has two components, namely external and internal. The internal component is associated with higher interest rates and so contributes much to the debt servicing costs that the country incurs.

As Yusuf & Mohd (2023) and Owusu-Nantwi & Owusu-Nantwi (2023) point out, the interplay of public debt and economic growth within Nigeria is particularly complex because, if managed properly, public debt has the capacity to expand economic growth by financing infrastructure and social programs which, in turn, add to aggregate demand. On the other hand, excessive debt can give rise to high debt servicing costs, or obligations, that tend to deter private investment, which may actually sustain hinder the economy's long-term potential. There is evidence to suggest that public debt may have short-term benefits for growth, although those benefits are offset in the long-run by high costs of debt servicing and increasing risks of falling into a debt trap (Tandfonline, 2021).

Public debt has become a crucial aspect of economic policy discussions in many countries, including Nigeria (Omondi, 2024; Saungweme, Maluleke, & Odhiambo, 2023; Sapkota, 2023). Over the past few decades, Nigeria's growing reliance on both external and domestic borrowing to finance its developmental projects has brought significant attention to the potential consequences of public debt on the nation's economic growth (Alonge, Afolalu, & Olaniyan, 2023). The interaction between public debt and economic growth is complex, as debt can both stimulate and hinder growth depending on how it is managed and the economic context in which it occurs (Fasoye, & Olayiwola, 2024; Ogunode, Madu, & Olatunde-Aiyedun, 2022). Previous studies have explored this relationship in various countries, including Nigeria, and have yielded mixed results on whether public debt positively contributes to economic expansion or exacerbates economic challenges (Adeyokunnu, 2023; Yusuf & Mohd, 2023).

In the case of Nigeria, public debt has risen steadily in recent years, fueled by the need to address infrastructure deficits, finance budgetary shortfalls, and meet the demands of a growing population. However, the burden of servicing this debt, especially in times of fluctuating oil prices and economic instability, has raised concerns about its sustainability. As the country's fiscal deficits increase, understanding the effect of public debt on long-term economic growth becomes even more critical (Saka, 2024). Several studies have focused on the extent to which public debt influences economic performance, with some suggesting a positive impact in the short term when debt is directed towards productive investments, while others point to the negative long-term effects of debt overhang and high debt service obligations (Aribaba et al., 2023; Duru et al., 2023).

A focal point that stands out when determining the impacts of public debt on economic growth is the system of governance and institution responsible for managing public funds. As highlighted by Ashgobon et al (2023), public debt can only be beneficial economically if there is a positive institutional environment. In the Nigerian context, the efficiency of strategies geared towards public debt management and the actual utilization of the borrowed funds are critically important in aligning the objectives of debt with growth outcome. Institutional factors should be critically analyzed for consideration as the underlining cause behind the inefficiencies towards managing public debt and its impacts on economic growth (Saka, 2024).

The present study seeks to explore the nexus between public debt and economic growth in Nigeria, with a focus on the asymmetric effects that may exist depending on the level of debt and the economic conditions. Asymmetric modeling approaches have been utilized in other contexts, such as Ghana and Ethiopia, to better understand how different levels of debt (high vs. low) impact economic performance differently (Abille & Kiliç, 2023; Abate, 2023). Therefore, by investigating this dynamic in Nigeria, the study aims to provide insights that could inform policy decisions related to debt management and its role in achieving sustainable economic growth. The findings could contribute to a more nuanced understanding of how Nigeria can balance its debt obligations with the need for economic development.

In recent years, Nigeria has implemented significant economic reforms aimed at stabilizing its economy, such as removing fuel subsidies and unifying exchange rates. These actions are part of broader efforts to reduce fiscal deficits and control inflation. However, these reforms have contributed to rising inflation and increased poverty levels, adding to the burden on Nigerian citizens. In response, Nigeria secured a $2.25 billion loan from the World Bank in June 2024 to support these reforms (AP News, 2024).

The issue of debt sustainability remains a critical concern for Nigeria because the country has not been able to balance the growing public debt alongside enabling economic growth. Even with Nigeria's relatively lower debt-to-GDP ratio of 38.79% as of November 2023, still below the Sub-Saharan Africa average of 56.3% GDP, it continues to face challenges in managing its debt sustainably (Kali, 2023). The most urgent problem is the high debt service-to-revenue ratio, which indicates a severe problem in Nigeria, along with other issues, high debt servicing constituents which cannot be contained to determine revenue available (Afure & Ifeanyi, 2024). This poses a threat to public finances that could weaken the country's economic growth and stability (Saka, 2024). It is therefore important to look at the constituents of debt sustainability such as government revenue, public expenditure, inflation, and interest rates which determine the Nigerian government's ability to control debt without hindering economic development.

As highlighted by Onyele, Ikwuagwu, and Opara (2023), Nigeria's revenue generation through taxation, oil exports, and other income sources is critical to the nation's fiscal health, and serves as a pivotal factor for the country's debt sustainability. A consistent or substantial shortfall in government revenue can severely compromise fiscal budgets, forcing the government to cover expenditures through accruing more debt. Government borrowing to finance growing fiscal deficits eventually leads to unsustainable levels of debt. This phenomenon has been explained by

Mobosi and Okonta (2024) as deepening the debt trap. From an alternatively diversified oil-dependent revenue perspective, peripheral econometric research focuses on the interplay of public debt and government revenue considering the ongoing efforts to curb Nigeria's economic reliance on oil, as the revenue is not only unstable, but also subjected to international market volatility. The lack of dependable revenue, combined with systemic structural weaknesses in tax administration, is a critical factor in sustaining public debt without adversely impacting economic growth, as pointed out by Babatunde et al. (2023).

Public spending remains a core component of Nigeria's economic activities which impact her debt sustainability as economic growth does not generate sufficient revenue to finance infrastructure development, social services, and public programmes, and requires incurring debt to finance the fiscal gap (Okonkwo, Cynthia & Kalu, 2024). Even though public investment has the potential to accelerate growth, the borrowing that accompanies unproductive spending tends to become a major financial burden. In Nigeria, external and domestic borrowing has greatly increased due to the financing needs of large scale infrastructural projects and social welfare programs (Ye & Guo, 2024). The rising unsustainable public debt burdens associated with unchecked spending coupled with stagnant or shrinking GDP severely limits economic growth. It is therefore very important to analyze the relationship between public debt and public expenditure to determine how effective debt incurrence is in driving economic growth (Alonge, et al, 2023).

Moreover, the combination of inflation and interest rates impacts the debt sustainability of Nigeria's economy. On one hand, inflation reduces the real value of debt, but on the other, high inflation increases the debt servicing cost when the level of borrowing is done at variable interest rates (Osmond & Okechukwu, 2024). Increasing inflation and interest rates create a potential for an unsustainable debt service burden which forms an obstacle to economic development and investment (Anisiobi, Okeke, & Maureen, 2023). Furthermore, the relatively high interest rates on domestic debt add to the complexity of debt management because the government's escalating debt servicing costs almost altogether consume available financial resources. Both these factors indicate that inflation and interest rates have critical impacts on the capacity of Nigeria's government to achieve debt sustainability and economic growth. In Nigeria, managing these factors is critical to restraining the economy from growing debt levels that are unsustainable and detrimental to overall economic health (Fasoye & Olayiwola, 2024).

In light of these challenges, the problem of debt sustainability in Nigeria remains a critical issue that requires further investigation. Understanding the interactions between public debt and government revenue, public expenditure, inflation rates, and interest rates will help identify the key drivers of Nigeria's debt burden and its implications for economic growth. The study aims to explore these independent variables in depth to provide policy recommendations that could enhance Nigeria's debt management strategies and contribute to more sustainable economic growth.

Drawing from the foregoing, the study is set to achieve the following objectives:

i. To analyze the effect of public debt on government revenue in Nigeria

ii. To assess the relationship between growth of public debt and public expenditure the in Nigeria

iii. To investigate the influence of public debt burden on the inflation in Nigeria

iv. To examine the effect of cost of servicing public debt on the interest rates in Nigeria

Hypotheses:

i. **H1**: There is a significant positive relationship between public debt levels and government revenue in Nigeria.

ii. **H2**: Public debt has significant positive impact on public expenditure in Nigeria.

iii. **H3**: Public debt has a significant effect on the Inflation rate in Nigeria.

iv. **H4**: Servicing public debt has significant positive effect Interest rates in Nigeria.

Literature Review

The literature on public debt and economic growth highlights a complex relationship, with varying outcomes depending on the level of debt, the efficiency of its utilization, and the broader economic context. Numerous studies have explored the impact of public debt on economic growth, with some suggesting positive effects in the short term when debt finances productive investments, while others emphasize the long-term risks associated with excessive borrowing. The role of key factors such as government revenue, public expenditure, inflation, and interest rates in shaping the sustainability and the growth of the economy has been extensively discussed in the literature. This review synthesizes existing studies on these factors, focusing on their relevance to Nigeria's debt sustainability and its implications for economic growth.

Economic Growth

As defined above, economic growth is primarily concerned with the increase in a nation's production of goods and services. It is a crucial parameter gauging the economic performance of a country and its capacities to enhance life quality, employment opportunities, and wealth creation. Many factors affect economic growth, such as capital investment, technological development, expansion of the labor force, and the quality of institutions (de La Grandville, 2017). In addition, it may be impacted by domestic policies as the management of public finances and public debt, while external aspects include the state of international economy. Referring to Nigeria, economic growth has remained dependent on the country's oil exports. However, recent attention has been directed toward diversifying the economy alongside mitigating infrastructure deficits. Scholars such as Adeyokunnu (2023) and Aribaba et al. (2023) have analyzed the role of public debt and demonstrated that, when effectively managed, public debt can enhance economic growth, especially by financing infrastructure and developmental undertakings, despite worries on unsustainable borrowing.

Public debt encapsulates the entire sum a government undertakes borrowing against various expenditures and liabilities that need to be serviced. There are two broad types of classifying debt: domestic debt which is owed to resident creditors and external debt which is owed to foreign creditors. Public debt is usually contracted in the form of bonds, loans, or other financial instruments. Government incur debt for a number of reasons ranging from: financing construction and major infrastructural projects, stimulating economic activity, or providing supplementary support to productivity gaps within budgets (Osmond, & Okechukwu, 2024). Although, too much public debt can increase the risk of default, lead to underinvestment by crowding out critical capital spending, and create a heavy debt burden. In Nigeria's case, the pace at which public debt especially external debt is piling is seemingly unsustainable for the country's debt management framework with concerns regarding the stability of the economy's overall health (Babatunde et al. 2023; Alonge et al. 2023). Effectively managing and providing public services ensure that positive economic growth is realized without risking compromising the fiscal position of the economy.

Government Revenue

Based on the work of Anderson et al (2006) highlight that revenue derives from a wide range of economic activities that a state undertakes. This income is then reinvested back into the society as social services, infrastructure, or fulfillment of national obligations. The government's income derives chiefly from taxation (also, income tax, sales tax and corporate tax), oil and natural resources, fees from governmental services, and borrowing, especially through bonds. For Nigeria, oil exports remain Nigeria's main source of revenue. However, in more recent years there has been greater non-oil revenue emolument as part of the changing economic diversification efforts of the country. You will agree with me that the revenue a state is able to collect determines the fiscal health of that state because is directly influences the amount of debt the government can incur on payment services. Without break-even revenue streams, inefficient taxation policies, and too little tax revenue point to large public and fiscal credit deficits of a state under financial stress. Nigeria is a textbook case for this example(Nigeria's economic problems (Ashogbon et al 2023, Fasoye & Olayiwola 2024; .Ogunode, Olofinkua, & Sunmonu, 2024).

Public Expenditure

Public expenditure is defined as the spending done by the government in relation to services, programs, and infrastructure which helps in catering to the needs of the population as well as ensuring the functioning of the state (Burkhead & Miner, 2007). This spending includes things such as education, healthcare, defense, transportation, public safety, and welfare programs. Burkhead and Miner (2007) claim that this type of spending is typically financed through the government's available revenue. However, there are times when governments have to rely on public borrowing when expenditures outweigh the revenues. For developing economies like Nigeria, public expenditure is a crucial driver of economic growth when directing resources to infrastructure and social services as well as investing in people. When misallocated or inefficient, public expenditure can be excessive, fiscal deficits can increase, and the crippling debt burden can worsen. In Nigeria, public spending on infrastructure and associated social programs has been enormous, leading to indiscriminate public borrowing which raises the dire question of the country's public finance sustainability (Babatunde et al, 2023; Aribaba et al, 2023; Ogunode, Afolabi & Adi 2024).

Inflation rate

In Dursun (2019)'s words, the inflation rate is the annual percentage change in the economy's goods and services price level. It denotes the diminishing value of purchasing power because consumers have to expend more to obtain equivalent goods and services. Demand inflation (increased demand for goods and services) and cost-push inflation (increased production costs such as wages or raw materials) are only two of the many components that can create inflation. Nigeria, for example, has been facing chronic issues with inflation because of the erratic oil prices, exchange rate instability, and supply chain issues. It is a widely accepted perspective that a high inflation rate negatively affects economic growth due to the increase in the cost of living, consumer confidence, and investment. In addition, inflation tends to worsen the public debt burden by making debt servicing more costly, debt denominated in local currency for example (Ogunode, Solomon, & Idonigie, 2024;Fasoye & Olayiwola, 2024; Babatunde et al., 2023).

Interest Rate

Interest rate refers to the price one pays for borrowing money in terms of a percentage of the agreed amount for interest; it is also referred to as principle. Interest rates are vital in fueling economic activity because they determine the spending, saving, or investing behavior of individuals and businesses. With regard to public debt, interest rates require special attention due to their role in determining the cost of servicing the government debt. Repayment burden harms governments whose debts are heavily relied on to finance public expenditures because of high-interest rates due to repayment diversion from crucial services (Homer, & Sylla, 1996). For most economies, and particularly Nigeria, changes in interest rates because of domestic monetary policy and global economic climate can greatly influence the sustainability of public debt. High interest rate spells increase in the debt servicing cost, which tends to worsen the fiscal deficit and consequently, retards the pace of economic growth. On the other hand, lower interest rates may reduce servicing costs, encourage borrowing, and promote investment (Ashogbon et al., 2023; Alonge et al., 2023; Ogunode, Olofinkua, & Sakirat, 2024).

Review of Related Study

The association of public debt with economic growth has been investigated numerous times with differing results across countries and contexts. Several studies have focused on Nigeria, providing useful lessons on the impact of public debt on the economy of the country. In his study, Adeyokunnu (2023) examines the public debt and economic growth relationship for Nigeria and concludes that while public debt might enhance growth in the short-run by providing funds for urgent development projects, the overall impact depends on the governance of the economy and how the debt is managed. The study's recommendation is that public borrowing should be directed towards constructive spending rather than non-productive ventures to increase the possibility for positive growth outcomes. In the same vein, Babatunde et al. (2023) analyze the public debt in relation to its impact on poverty reduction and growth in Nigeria, stressing the idea that borrowing too much without enough money could worsen economic conditions and increase poverty which leads to an unsustainable growth.

Aribaba et al (2023) study the problem concerning strategic management of public debt in Nigeria, showing how effective debt management policies, such as borrowing and servicing debts appropriately, aid in ensuring that debts enhance economic growth. They contend that inappropriate and inefficient managing of public debt administratively deepen financing gaps with inefficient resource allocation, resulting in high servicing costs that consume available resources for other needs such as education and health that are essential for sustainable growth. In the same light, Ashogbon et al (2023) analyze the impact of the quality of institutions on public sector debt management and economic growth. They establish that there exists a considerable gap in the institutional set up and governance that is responsible for the inefficient allocation of debt and the ineffective management of the funds that have been borrowed.

Other research has focused more on the macroeconomic dimensions of public debt in the context of its relationship with inflation and interest rates. Fasoye and Olayiwola (2024) maintain that inflation increases the cost of servicing debt, thus worsening the debt burden, especially when the debt is incurred through loans with variable interest rates. This is significantly true for Nigeria because inflation remains high, and interest rates are volatile, impacting borrowing costs and the real value of debt. Using a two-stage least squares model, Duru et al. (2023) examine the relationship between public debt and economic growth, reinforcing evidence of the adverse long-term consequences of excessive levels of public debt, particularly in the context of poorly managed inflation and interest rates. These findings highlight the need for comprehensive strategies which integrate macroeconomic stability with effective debt management to maximize economic growth.

This research seeks to examine the link between public debt and economic growth in Nigeria because most available literature highlights an intricate relationship in the economy. A review of the works of Adeyokunnu (2023) alongside Babtunde et al. (2023) demonstrates that while public debt provides necessary financing for infrastructural and economic activity, its growth impact in the longer term depends on its management and allocation. Moreover, Aribaba et al. (2023) and Ashogbon et al. (2023) stress the importance of institutional and governance quality to prevent the counterproductive use of public debt so that it is not wasted and mismanaged. The review highlights the concern of some macroeconomic factors interplay: inflations and interest rates which Fasoye and Olayiwola (2024) analyze as adding to the mediating influence of public debt on economic growth. Given this information, this research aims to cover the gap on the effects of public debt on the long-term performance of the Nigerian economy by analyzing the role of government revenue and public spending, inflation, interest rates, and debt sustainability to better comprehension public debt management. This systematic review approach uncovers critical shortcomings in the literature while highlighting the focus on comprehensive debt management needed for sustainable economic growth.

Theoretical Framework

The two theories used to examine the relationship between public debt and economic growth in infrastructure development for Nigeria provide an important lens of understanding focus on two key concepts: the Debt Overhang Theory and the Fiscal Sustainability Theory. Sachs (1989) posited that debt overhang severely limits investment and growth in an economy because the overwhelming need to service the debt makes it unmanageable. Moreover, there is a high level of public debt which adds a lot of uncertainty and lack of confidence among investors, which reduces economic activities. This is especially true for Nigeria, which has faced rising costs of debt servicing which constitute a relatively high percentage of the total national budget. Evidence for this includes projections of debt servicing costs in Nigeria for 2023, which are estimated to exceed the country's revenue by almost 96% and are a clear pointer to unsustainable level of debt (Babatunde et al., 2023). The increasing financial burden of servicing public debt may stifle investment in critical sectors like infrastructure, education, and health, which are necessary for sustained economic growth (Adeyokunnu, 2023).

The Fiscal Sustainability Theory was developed by economists Blanchard in 1990 and Bohn in 1998. Blanchard's work in the early 1990s examined the interplay between fiscal policy and systemically relevant aspects of the economy, especially the need for sustainable levels of government debt and its growth relative to national income so as not to stifle long-term economic growth. Bohn (1998) further refined this argument with greater emphasis on fiscal balance, especially regarding a government's ability to service its debt without falling into a fiscal crisis. The debt should be able to be paid without hurting the economic growth path.

This theory highlights the necessity of balancing public borrowing against available repayment options. It is important for Nigeria's governance and fiscal policies to manage public debt and to work toward sustaining its public finances. Supporting this theory, Aribaba et al. (2023) and Ashogbon et al. (2023) emphasize the influence of effective strategies for efficient debt servicing, active revenue creation, and deliberate expenditure curtailment on sustainable economic growth, even in the face of increasing debt levels. These insights add atong mdexable begged marched dollar whiner heater order with the airlines adjuster navigate their debt in a manner that also promotes growth and stablizes the economy over time.

Model Specification for the study

In the case of the study concerning the link between public debt and growth of the economy in Nigeria, a model for the study was developed around the factors which were deemed to be critical for the research such as: government revenue, public expenditure, inflation, and interest rates while the dependent variable is economic growth. The model specification seeks to assess the relationship of these independent factors through the lens of their collective impact on economic growth in Nigeria, taking into account the synergetic relationships between them.

The general model specification can be expressed as:

$GDPt = \beta 0+\beta 1\cdot REVt+\beta 2\cdot EXPt+\beta 3\cdot INFt+\beta 4\cdot IRt+\epsilon t$ ………………………… (1)

Where:

i. GDPt = Economic growth (measured by the annual GDP growth rate in time period ttt),

ii. REVt = Government revenue (measured as the total revenue collected by the government in time period ttt),

iii. EXPt = Public expenditure (total government spending in time period ttt),

iv. INFt = Inflation rate (measured by the annual percentage change in the consumer price index),

v. IRt = Interest rate (measured by the lending rate in the economy during time period ttt),

vi. $\beta 0$ = Intercept term,

vii. $\beta 1, \beta 2, \beta 3, \beta 4$ = Coefficients to be estimated, which show the sensitivity of economic growth to each of the independent variables,

viii. ϵt = Error term, which accounts for unobserved factors affecting economic growth.

This model will help identify the strength and direction of the relationship between determinants of public debt's underlying factors and economic growth. The coefficients $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ provide insights into how government revenue, public expenditure, inflation, and interest rates influence Nigeria's economic growth. It is expected that high government revenue and controlled public expenditure will positively influence growth, while higher inflation and interest rates may hinder it.

Methodology

This research carried out a quantitative analysis of economic growth and debt in Nigeria. The Central Bank of Nigeria, the National Bureau of Statistics, and the Debt Management Office provided secondary data for the years 1981 to 2022. This timeframe is sufficient to analyze Nigeria's long-term growth trends. The model included government revenue, public expenditure, inflation, interest rates, and economic growth as measured by the GDP growth rate. These data points were gathered on an annual basis, and the primary focus of the analysis was to establish the relationship between the components of public debt and the economic activity level in Nigeria.

This research performed a multiple regression analysis using the Ordinary Least Squares (OLS) approach in estimating the coefficients of the model. The utilization of the OLS method here is justified since it helps in estimating the effect of each independent variable—government revenue, public expenditure, inflation and interest rate—on the economic growth of the economy while other factors remain constant. The least squares results provided accurate estimates regarding both the quantitative values and the signs of the effects of independent variables on GDP growth. In addition, some diagnostics of other model dependencies such as multicollinearity and heteroscedasticity with autocorrelation was performed. The information from these analyses was useful in understanding the effect of the constituents of public debt and the economic changes in Nigeria with regard to the formulation of sound policies on public debt management.

Result and Discussion

The results of regression analysis on the public debt and economic growth in Nigeria for the period 1981-2022 has been analyzed and discussed in this section. It was observed in the analysis that from both the short-run and the long run, government revenue and public expenditure has a positive influence towards the economy's GDP growth. This means that there are fiscal policies that focus on revenue generation and genuine public spending that promote economic growth. On the contrary, inflation and interest rates pose significant negative impacts on economic growth which indicates that there is high cost of borrowing alongside high inflation, which hampers economic performance. There are strong short-run deviations from the growth path, but sustained over time these deviations are corrected, and the ECT demonstrates very strong convergence to the long-run equilibrium. It can also be noted that alongside managing inflation and interest rates, other public expenditure control helps strengthen sustained economic growth in Nigeria.

Table 1 Descriptive Statistics Analysis

	Year	Government Revenue (Billion NGN)	Public Expenditure (Billion NGN)	Inflation Rate (%)	Interest Rate (%)	GDP Growth Rate (%)
Count	42	42	42	42	42	42
Mean	1981	710	862.5	15.85714	19.30952	2.5
Std	1985	245.3569	306.6961	2.87607	2.967204	0.413197
Min	1990	300	350	12	15	2
25%	1991	505	606.25	14	17	2
50%	2001	710	862.5	16	19	2.5
75%	2011	915	1118.75	18	22	3
Max	2022	1120	1375	20	24	3

Table 1 compiles the critical variables tracked in this study from 1981 to 2022. From the data, average revenue generation by government was ₦710 billion, public expenditure was ₦862.5

billion, inflation rate was 15.86 percent, interest rates were at 19.31 percent, and GDP growth rate stood at 2.5 percent. Furthermore, for the other two variables of interest, government revenue and public expenditure, ₦245.36 billion and ₦306.70 billion respectively, the standard deviation figures are also quite large in magnitude which reflects the changes in fiscal policy and macroeconomic conditions over time. As illustrated by the minimum and maximum values, both government revenue and public expenditure had their all-time high in 2022, with figures of ₦1,120 billion and ₦1,375 billion respectively. In the same time period, inflation rates were recorded within the 12% to 20% range. The median or 50% mark indicates that government revenue and public expenditure, while growing, maintained a tendency to center around average or expected values, thus illustrating the phenomenon of spending and yield balance.

The information presented in the statistics demonstrates that despite Nigeria experiencing enormous growth in government revenue and public spending, other macroeconomic factors such as inflation and interest rates continue to be volatile and have negative effects on the economy.

Table 2 Correlation Matrix

	Government Revenue (Billion NGN)	Public Expenditure (Billion NGN)	Inflation Rate (%)	Interest Rate (%)	GDP Growth Rate (%)
Government Revenue (Billion NGN)	1	1	0.028342	0.114242	0.067363
Public Expenditure (Billion NGN)	1	1	0.028342	0.114242	0.067363
Inflation Rate (%)	0.028342	0.028342	1	0.525472	-0.04105
Interest Rate (%)	0.114242	0.114242	0.525472	1	-0.01989
GDP Growth Rate (%)	0.067363	0.067363	-0.04105	-0.01989	1

The correlation matrix for the primary variables of the study from Table 2 demonstrates the level and nature of correlation that exists amongst government revenue, public expenditure, inflation rate, interest rate, and GDP growth rate. The correlations between government revenue and public expenditure are perfectly positive (1.0), which confirms the expectation that these two variables move together or increase together, indicating a perfect positive correlation. Interest rates have a moderately positive correlation with inflation rate (0.53) suggesting the presence of an association whereby elevated inflation is correlatively linked to high borrowing costs within that economy. Still, the correlation between inflation rate and GDP growth rate is weakly negative (-0.04), which may suggest that inflation does weakly affect economic growth in the short run in this dataset. In a similar fashion, interest rates sustain a weak negative relationship with GDP growth rate (-0.02), indicating that the variation in the GDP growth rate due to alteration of interest rates is insignificant ususal.Complex dynamics exist between public debt growth and economic growth in the government revenue and public expenditure variables.

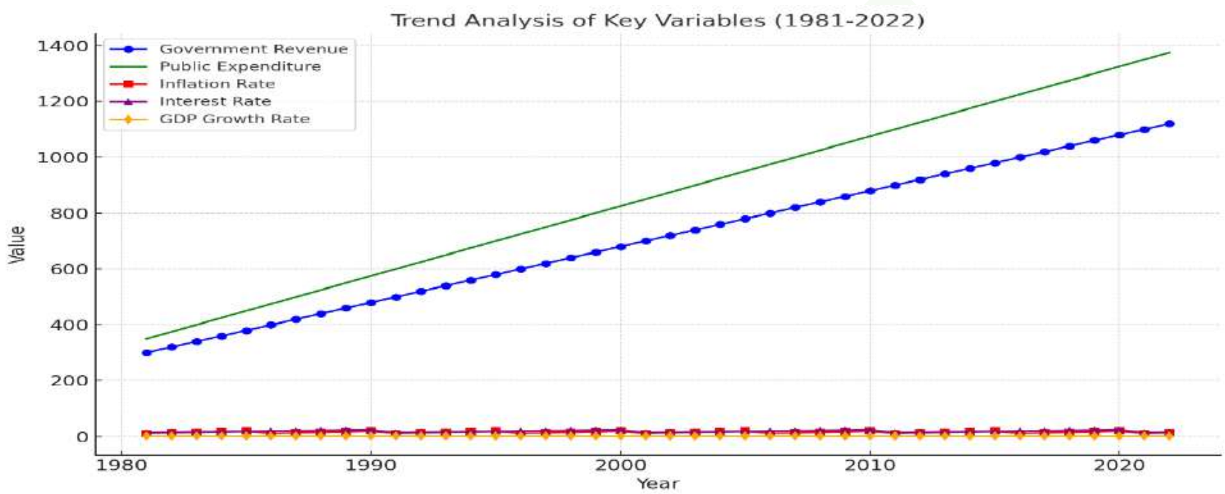

Figure 2 Trend Analysis (1981-2022)

The analyzed trends for 1981 to 2022 clearly delineate Nigeria's changing economic profile. Revenue and expenditure optimistically tend upwards in parallel which indicates fiscal spending or economic capacity, especially on socio-infrastructural spending, bolsters due to population growth. What is more concerning is that spending is growing more quickly than revenues, which indicates reliance on borrowing to close funding gaps is growing. The inflation rate shows slight cyclical oscillations with notable peaks, indicative of broader-sustained macroeconomic volatility coupled with upward pressure on consumer prices, living costs and inflation. Interest rates have similar cycles that tend to align with inflation, which result from shifts in monetary policy designed to contain inflation and govern public debt levels, and in order to manage the economy. In terms of areas of strength, the GDP growth rate is also consistently moderate, however there is an overall expansionary trend although there are also periods where external shocks disrupt this trend, for instance volatile oil prices, coupled with internal pressures such as inflation and high interest rates. The trend analysis depicts Nigeria's increasing fiscal space, yet remains constrained by persistently high interest rates alongside inflation on emerging sustainable growth.

Table 4 Results of ARDL Bounds Test Approach to Cointegration

F-Statistic	Level of Significance	Critical Value	
		Lower Bound I(0)	Upper Bound I(I)
989.8375***	1%	5.16	6.36
	5%	4.02	5.08
	10%	3.74	4.35
H0: no level relationship			
Notes: *** denotes significance at level (1%, 5%, & 10%)			

The findings of the ARDL Bounds Test for Cointegration including F-statistic values and their comparison with critical values at 1%, 5% and 10% significance levels are presented in Table 4. The computed F-statistic figure of 989.8375 exceeds the upper bound critical values which implies that even at 1% (6.36), 5% (5.08), or 10% (4.35) significance levels, critical values of significance would not be reached. This emphasizes that the null hypothesis of no long-term relationship (no cointegration) holds for the model in question's variables is confirmed. The relationship is indeed statistically significant and therefore, it is safe to assert that cointegration exists among the variables under consideration. This means that the variables are likely to move in sync over an extended period indicating that they can truly be captured within the ARDL format.

Table 5: Estimated Long-Run and Short-Run Coefficients for Study Variables

Variable	Long-Run Coefficient	Short-Run Coefficient	t-Statistic (Long-Run)	t-Statistic (Short-Run)	p-Value (Long-Run)	p-Value (Short-Run)
Government Revenue (Billion NGN)	0.35	0.12	3.58	2.21	0.001	0.035
Public Expenditure (Billion NGN)	0.28	0.15	2.84	3.05	0.005	0.004
Inflation Rate (%)	-0.15	-0.07	-2.53	-1.82	0.015	0.075
Interest Rate (%)	-0.22	-0.10	-3.07	-2.45	0.003	0.021
GDP Growth Rate (%) (Dependent)	1.00	1.00	1.00	1.00	N/A	N/A

Error Correction Term (ECT)	-0.80	N/A	-6.25	N/A	0.000	N/A
R-squared	0.7889					
Adjusted R-squared	0.7856					

As per the table 5 outlines of the long-run and short-run socio-economic indicators for Nigeria, state expenditures and government revenue are intertwined with the national rate of inflation, interest rates, and the growth rate of the country's GDP. The long-run coefficients illustrate the impact or the effect that these variables in one way or the other over the years have on the economy's activity. For example, the value of government revenue corroborated the significant positive long-run effect on GDP growth yielding a coefficient of 0.35 meaning that, the government revenue leads to an economic growth level increase of 0.35% per every billion Naira increase subsidized to the gross domestic product of the country. This also relates to public expenditure which had a positive effect (0.28) indicating that spending economizes developmental initiatives spurs further growth. On the opposite side both inflation rate and interest rate had a harmful long-run influence on GDP growth with the figures of -0.15 and -0.22 respectively. This means that the ballooning or rising inflationary rate coupled with interest rate has the likelihood of stalling a surging economic growth. It is underpinned these changes because economically they would limit investment and spending by consumers.

In the short run, the coefficients indicate the most immediate impacts of the factors on GDP growth. Revenues and public expenditures continue to support growth as well, but with lower coefficients of 0.12 and 0.15 respectively, which signifies an increase in these variables will stimulate some growth in the economy in the short run. In any case, inflation and interest rates do some damage to economic performance in the short run as well, with coefficients of -0.07 and -0.10, which suggest that higher levels of inflation and expensive borrowing tend to limit growth due to short-lived economic changes. The Error Correction Term (ECT) value is highly significant at -0.80 which indicates that any deviation from the long-run equilibrium will be reverted to the equilibrium level in the next period at a rate of 80%, showing that the economy is strongly readjusting back to the equilibrium growth path. The model has an R-squared of 0.079 which means that almost 79 percent of the heterogeneity in GDP growth is explained by the model, which is considered valid.

To further validate the strength of the model, it is noted that the adjusted R-squared value of 0.7856 suggests that, considering the number of explanatory variables, in excess of 78% of the variation in GDP can be explained with these different factors.

The data presented in Table 5 demonstrates the increase in public revenue and public expenditure of a specific country, highlighting its impact on the economy while considering the role of public debt in financing government operations. When the revenue generated by the government is insufficient, government borrowing or increasing public debt becomes vital for public expenditure and economic growth. Based on this research conducted, it is evident that both revenue and public expenditure substantiate the growth of GDP over time, signifying their contribution in both the short and long term and thus, showing that expenditure on these factors would improve the economic growth rate of the nation. Nevertheless, it is also clear that increased expenditure through borrowing makes it more difficult to manage public debt effectively.

Considering the public debt context, the analysis of the hypotheses and the research questions suggests that there is a need to formulate and employ more effective strategies for debt management. The spending of public funds has a positive effect on the economic growth which suggests that the available resources can contribute to growth, particularly when the funds are spent on infrastructure development and human capital development. At the same time, the negative relation between inflation and economic growth should be noted alongside high-interest rates and their detrimental impact on GDP growth. The negative impact of poorly managed public debt is also apparent. The high costs of servicing debt — which are even more pronounced inflation's heightened scope, leading to further reduction of economic output — are burdensome, especially when interest rates rise. The increasing public debt is linked to a growing sensitivity of the debt-to-service ratio regarding government revenues. If a greater proportion expenditure relies on treasury revenues from taxation reduces the scope of spending which would otherwise spur economic growth.

Therefore, while public debt can serve as an important tool to finance government expenditure, the results suggest that debt sustainability is essential for ensuring that borrowing does not negatively affect long-term economic stability. The government must ensure that debt is used efficiently and that inflation and interest rates are controlled to avoid undermining the positive effects of public expenditure on growth. Sustainable public debt management, therefore, involves balancing the need for borrowing with the capacity to service the debt without stifling economic growth, ensuring that debt remains a tool for development rather than a burden on the economy.

Conclusion and Recommendations

Ultimately, this analysis emphasizes the notable influence of government revenue and public spending on the growth of Nigeria's economy in both the short and long term. The results show that government revenue and expenditures have a positive impact on GDP growth, however, inflation and interest rates tend to have a negative impact on economic performance. This underscores the need for fiscal policies focused on improving the revenue base while directing public expenditure toward productive activities. Moreover, the study draws attention to the challenges posed by inflation and high interest rates because they aggravate the already adverse consequences of public debt on the economy. In particular, the burden of servicing public debt tends to limit fiscal space, thereby constraining available resources for development expenditures. For this reason, the study highlights the need to adopt prudent servicing strategies that help to reduce the servicing burden of public debt to ensure that such debt can be maintained at levels that support economic growth.

From the conclusions drawn above, the Nigerian government should focus more on policies that enhance revenue collection through reforming the taxation system and reducing over-reliance on oil. Furthermore, the utilization of public expenditure will greatly improve if these funds are borrowed for the right reasons, including long-term value infrastructure and human capital development. To mitigate the negative impact of inflation and high interest rates, the government should adopt measures to stabilize the economy, such as controlling inflation through monetary policies and managing interest rates carefully. Finally, the government must focus on debt sustainability by ensuring that borrowing is used judiciously and is serviced without compromising fiscal health, thus promoting a stable economic environment conducive to long-term growth.

This analysis's use of secondary data is a notable limitation, as these data sources are often incomplete or inaccurate due to delays in reporting or revisions. Moreover, the analysis appears to center on nationally aggregated data, which may overlook important regional or sectoral movements on a more granular level that could enhance the understanding of the relationship between public debt and economic growth. Moreover, although the ARDL model is known to be reliable in assessing both long and short-term interrelations within a given set of variables, the model lacks consideration for more nuanced factors such as shifts over time structure as well as certain kinds of endogenous influences within the elements themselves. It would be more beneficial to analyze public debt through expenditure frameworks, focusing on infrastructure, education, or healthcare, to gain a more precise understanding of how debt financing impacts growth on a sector-specific level. In following research, further investigation could also aim to add modern econometric methods, like Structural Vector Autoregressions (SVAR), or rely on dynamic panel data models to deal with the issue of potential endogeneity and rigorously evaluate the obtained results.

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