
Tax Revenue, Public Debt and Infrastructural Development in Nigeria

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ABSTRACT

Nigeria's infrastructural development continues to fall below expectations despite numerous government initiatives through institutional, statutory, and regulatory measures. This is due to the country's lack of funding for infrastructure projects, which forces it to rely on both tax revenue and borrowing, especially from external sources. However, despite a number of tax changes, tax revenue's contribution to government expenditure has remained low, and Nigeria's external borrowing exposes the country to exchange rate volatility, high repayment obligations, and debt overhang effects that impede domestic capital formation and hamper economic growth. This study investigated how tax revenue and public debt affect infrastructural development in Nigeria. Company income tax and petroleum profit tax were used to represent tax revenue, while foreign debt was used to capture public debt. Government capital expenditure served as the proxy for infrastructural development, which was the dependent variable. The study applied an ex post facto research design, analyzing the data with ordinary least squares (OLS), alongside descriptive and correlation analysis. The results showed that company income tax has a significant positive effect on government capital expenditure, while petroleum profit tax and foreign debt have no significant effect. The study concluded that despite PPT being a major revenue source, petroleum funds appear underutilized, mismanaged, or diverted toward recurrent expenditure rather than developmental projects. The study recommended that there is need for government to ensure stronger fiscal discipline so as to ensure that oil revenues are channeled into long-term development projects rather than recurrent expenditure.

Keywords: Company income tax, Foreign debt, Government capital expenditure, Petroleum profit tax, Public debt, Tax revenue.

1. INTRODUCTION

Globally, infrastructural development is a key driver of economic growth, and Nigeria is no exception. Despite various government initiatives through regulatory, statutory, and institutional measures, infrastructure in Nigeria continues to lag behind expectations. This condition reflects the broader economic challenges the nation faces. Efficient use of public revenue is therefore essential to meeting fiscal responsibilities and ensuring infrastructure provision (Nedozi et al., 2020). Since 2014, most sub-Saharan African countries, including Nigeria, have allocated large portions of revenue to capital expenditure aimed at funding infrastructure projects. However, research indicates a gap between government spending on such projects and the tangible benefits citizens derive from them (Samuel & Tyokoso, 2021; Uche & Adebisi, 2022).

In Nigeria, the government relies on tax revenue and other income sources to fund infrastructure such as electricity, good roads for effective transportation, healthcare, education, security, and defense against both internal and external threats. The availability of these public services often motivates taxpayers, as they directly improve living standards and promote economic stability (Inyiama et al., 2020). To achieve this, government must design effective tax policies and administration that encourage compliance, patriotism, and willingness to contribute (Oshiobugie & Akpokerere, 2019). However, compliance largely depends on taxpayers' level of tax literacy and their perception of whether government infrastructure provision justifies the taxes collected (Ajiteru et al., 2018).

Also, it is widely recognized that many developing countries like Nigeria face funding shortages for infrastructure projects, leading them to resort to borrowing from both domestic and external sources. While such borrowing can provide essential financial support, it also generates public debt. Public debt represents claims against the government by private entities and foreign lenders and may be interest-bearing or not, minus any claims the government holds against them (Oyejide et al., 2016). However, it is to be noted that debt is beneficial when used prudently to achieve macroeconomic goals and raise living standards but becomes harmful when it grows excessive and unsustainable (Jacob, 2024).

Furthermore, adequate infrastructure enhances business activities, as reliable power, good roads, and efficient communication systems improve the ease of doing business and boost production. This, in turn, drives economic growth. Economic growth then provides more funds for government expenditure and strengthens taxpayers' ability to pay, demonstrating the interconnectedness of tax revenue, public debt, infrastructure, and economic development (Manny, 2021).

In Nigeria, tax revenue has been relatively low, limiting the government's ability to meet its developmental goals. Although the country has recorded GDP growth, this has not translated into meaningful social progress, as poverty, unemployment, inequality, and rising debt levels remain widespread. Taxes in Nigeria are levied on both individuals and companies through direct and indirect channels. Despite numerous tax reforms, the contribution of tax revenue to government spending has stayed weak (Edame, 2021). The fall in global oil prices and the collapse of the national economy have further reduced allocations from the federation account to states (Amahalu & Ezechukwu, 2017).

While petroleum has long been a major source of government revenue, recent sharp declines in oil prices have reduced funds available for economic management. This has made it imperative for government to strengthen internal revenue generation through petroleum profit tax, and company income tax, personal income tax, customs and excise duties, and value

added tax, because the urgent need to boost tax revenue explains its growing importance in supporting capital expenditure (Kiabel & Nvokah, 2019).

Also, despite Nigeria's abundant resources and growth potential, the country struggles to achieve stable and sustainable economic expansion. Persistent budget deficits and limited domestic resource mobilization have fueled reliance on public debt, particularly external borrowing, often under unfavorable conditions. Such debts expose Nigeria to exchange rate volatility, heavy repayment burdens, and debt overhang effects that slow economic growth and hinder domestic capital formation. This reduces the government's capacity to provide essential public services. Although borrowing can support infrastructure and economic development, Nigeria's experience suggests otherwise (Akinwunmi & Adekoya, 2018).

Empirical evidence shows that tax revenue significantly influences infrastructure development as revealed in the studies conducted by Adegbite & Fasina(2022), Adegbite (2021), Okwori & Sule (2020), Gwa & Kase (2020), Oti & Odey (2021), Ogbonna & Appah (2023),and Omoruyi (2022). Similarly, studies on public debt demonstrate its strong effect on infrastructure provision as revealed by Babu et al. (2020), Festus et al. (2022), Babalola & Onikosi-Alliyu (2020), Jethro & Mann (2022), and Udoka & Ogege(2021). However, few studies have explored the combined effect of tax revenue and public debt on capital expenditure in Nigeria. Notably, Ntekpere and Olayinka (2020) found that tax revenue had both positive and negative effects on external debt, internal debt, and capital expenditure. Consequently, this study examined the effect of tax revenue and public debt on infrastructural development in Nigeria, thereby focusing on the following objectives:

- i. To examine the effect of petroleum profit tax on government capital expenditure in Nigeria.
- ii. To identify how company income tax affect government capital expenditure in Nigeria
- iii. To determine the effect of foreign debt on government capital expenditure in Nigeria.

2. LITERATURE REVIEW

Conceptual Review

Infrastructural development refers to the collection of facilities and services provided to improve citizens' standard of living. These include potable water, good road networks, quality educational institutions, healthcare facilities, and trained personnel (Inyiama et al., 2020). The primary goal of developing economies is to accelerate growth and raise per capita income, which enhances living conditions. Infrastructure development involves establishing the fundamental systems that allow a society to function, such as roads, water supply, sewerage, electricity, IT networks, and renewable energy (Afuberoh & Okoye, 2024).

Nworji and Oluwalaiye (2022) explained that capital expenditure represents the cost of major projects like roads, airports, schools, hospitals, telecommunications, and energy. Such expenditures are essential for strengthening infrastructure and boosting economic performance. Government capital investment plays a critical role in infrastructure development, requiring significant financial resources to achieve measurable progress. Economic managers often save funds during budgetary constraints to accumulate capital for large-scale investments (Busari et al., 2024).

Government Capital Expenditure

Capital expenditure refers to planned government spending on long-term projects that benefit the economy, its citizens, and the government itself (Ogbuagu & Ekpennyong, 2020). In Nigeria, federal capital expenditure covers infrastructure such as road construction and rehabilitation, government administrative assets, agricultural equipment, power supply,

industrialization, hospitals, schools, social amenities, and debt servicing. These expenditures are major commitments that the federal government undertakes to stimulate growth through fiscal policy (Abubakar, 2021).

Abomaye-Nimenibo (2020) emphasizes that when government intends to stimulate economic activity, it executes projects through budgeted capital expenditure for that fiscal year. Federal capital expenditure functions as a fiscal policy tool that directly impacts productivity and overall economic well-being. However, Nwadiubu and Onwuka (2020) classify capital expenditure into four main categories: economic services, which entails investment in agriculture, housing, mining, and natural resources; administration, which involves spending on long-term assets such as vehicles and furniture; transfers, which constitutes allocations for security, welfare, and debt obligations; and social and community services, which deals with funding education and healthcare.

Tax Revenue

Tax revenue is a compulsory, non-repayable contribution made by individuals, businesses, or associations to government. It can be based on wealth, profits, or sales, serving both as a revenue source and a fiscal policy instrument (Fagbemi, 2017). Tax bases differ—for instance, excise duties are levied on product manufacturing or processing, while income tax is based on taxpayer earnings defined by law.

The Federal Inland Revenue Service (now Nigeria Revenue Service) was restructured as an autonomous agency with a governing board, funded partly by retaining 4% of collected non-oil revenue for administrative purposes, and given authority to handle tax refunds (Uket et al., 2020). To strengthen tax administration, reforms such as the VAT (Amendment) Act 2007, the Companies Income Tax (Amendment) Act 2007, the FIRS (Establishment) Act 2007, and the Petroleum Profit Tax (Amendment) Act 2004 were introduced to widen the tax base and improve compliance (Aguolu, 2024). Tax revenue supports a wide range of government programs, including infrastructure, social services, and administration, making it the most vital source of public finance (Rabul, 2020). Petroleum profit tax and company income tax was used to proxy tax revenue in this study.

Petroleum Profit Tax (PPT)

The Petroleum Profit Tax, governed by the Petroleum Profit Tax Act, is administered by the FIRS and applies to companies engaged in upstream petroleum operations. These operations include exploration, extraction, and transportation of petroleum, but exclude refining (Evans & Hunt, 2021). Petroleum taxation serves as a mechanism for revenue sharing between host governments and international oil companies. PPT is a direct tax, levied annually on net profits from petroleum exploration and production (Mulinge, 2021).

Attamah (2024) stresses that PPT is the most significant source of government revenue in Nigeria, contributing about 70% of total government income and 95% of foreign exchange earnings. Nigerian law, under the PPTA of 2004 (amended in 2007), requires taxation of petroleum profits and provides guidelines for assessment and collection (Jakir, 2021). However, the tax has primarily been used for revenue generation rather than promoting economic development. Given the centrality of oil to Nigeria's economy, sustaining the petroleum sector is crucial for growth (Adegbe, 2024).

Nonetheless, Nigeria lacks sufficient institutional capacity to effectively administer petroleum taxation. The PPT applies to petroleum exploration, development, production,

crude oil sales, and transportation by pipeline to export terminals, but excludes overseas shipment of crude (Ogbonna, 2023).

Company Income Tax

Company Income Tax (CIT) is one of the major taxes imposed in Nigeria in accordance with constitutional provisions. Chigbu and Njoku (2020) explained that taxes are levied on individuals, groups, businesses, or corporate entities by constituted authorities to generate revenue for maintaining peace, security, and promoting economic growth and development for the benefit of citizens. CIT was first introduced in Nigeria in 1961, and over time, the law has undergone several amendments. It is currently codified as the Companies Income Tax Act (CITA) of 1990 (Odusola, 2021).

The Federal Inland Revenue Service (now Nigeria Revenue Service) is mandated to administer CIT. Prior to 1992, CITA policies were narrowly structured, with high tax rates that placed a heavy burden on taxpayers. This discouraged savings and investment and, in many cases, promoted tax evasion and avoidance. Okon (2017) noted that income tax serves as a fiscal policy tool used by governments worldwide to regulate economic activities, either positively or negatively, in order to achieve macroeconomic objectives.

The revenue generated from CIT is expected to fund both social and security-related infrastructure, thereby enhancing societal welfare. Okon (2017) further argued that income tax not only supports government expenditure but also drives key developmental objectives, particularly in developing economies, where raising per capita income and improving living standards are major goals (Afuberoh et al., 2024).

Public Debt

Public debt, also referred to as national debt, represents the total borrowings of government at all levels—federal, state, and local. It encompasses funds owed to domestic private organizations, public institutions, and foreign creditors. Public debt includes future pension liabilities, payments for goods and services received on credit, and other government financial obligations (Mohammed & Ahmed, 2020). It also involves the amount required by government to meet interest and principal repayments on outstanding loans or bonds within a given period.

Idenyi et al. (2021) asserted that public debt serves as one of the major mechanisms for financing government expenditure. While governments may alternatively instruct their central banks to print money, borrowing is often the more conventional route to cover budget deficits. Sam (2021) emphasized that public debt comprises both short- and long-term loans sourced locally and internationally to finance public projects when government revenue falls short. Although debt financing is not the only option available, it is often favored despite its associated interest costs.

Public debt is commonly classified into two categories: reproductive debt—incurred for capital projects such as roads, electricity, factories, and refineries, where the returns help repay the loan; and dead-weight debt—borrowed to finance wars or recurrent expenditures that do not generate future income (Martin, 2019). However, foreign debt was used to measure public debt in this study.

Foreign Debt

Foreign or external debt refers to the portion of a country's total debt owed to non-resident lenders. Olusegun et al. (2021) viewed foreign debt as borrowings from outside a country's borders, repayable in the currency in which the loan was contracted. Sources of external debt include international financial institutions such as the International Monetary Fund (IMF), World Bank, African Development Bank, International Bank for Reconstruction and Development, and foreign commercial banks.

Foreign debt, while necessary at times, carries both benefits and risks. Governments are therefore expected to weigh the merits and drawbacks before contracting such loans (Efanget al., 2020). Jethro and Mann (2019) noted that higher levels of external debt typically increase government expenditure on debt servicing, thereby limiting funds available for development. External debt may be short-term, which matures within one to two years or long-term which matures in more than two years. Its sustainability is often assessed in terms of the ratio of export earnings to debt service obligations, or the "months of import cover" a country's reserves can provide (CBN, 2017).

In Nigeria, the rapid rise in external debt servicing costs has created fiscal imbalances and budgetary pressures that hinder economic growth. As Umary et al. (2023) observed, excessive debt can crowd out private investment and weaken GDP performance. However, as Were (2024) argued, a large debt stock does not automatically translate to slow economic growth; rather, the challenge lies in the government's inability to effectively manage and service its debt due to weak institutional frameworks and poor debt management practices. This remains a major obstacle for Nigeria's economic development.

Conceptual Model

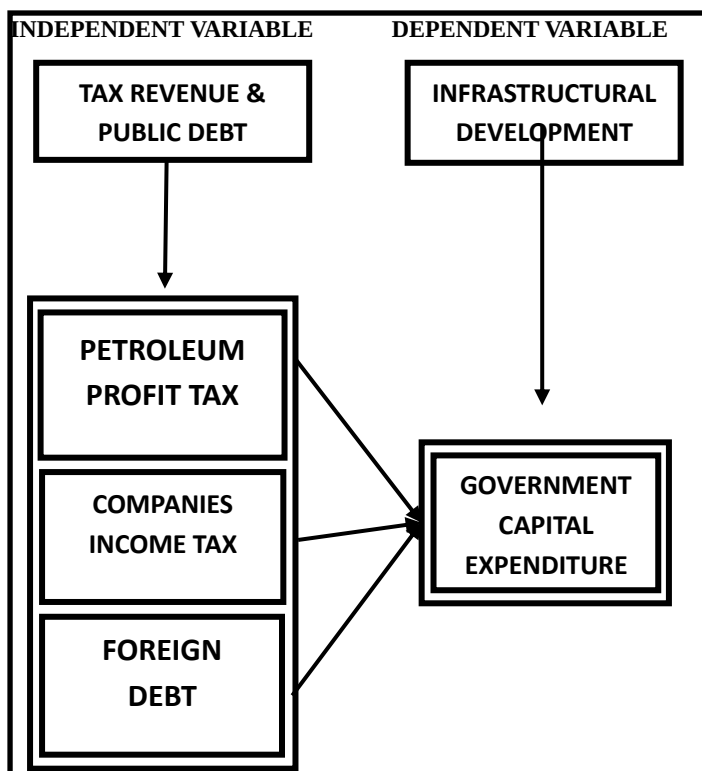


Figure 1: Conceptual Model

Source: Researchers (2026)

Underpinning Theories

The Benefit Received Theory

The Benefit Received Theory, also known as the benefit principle, was originally associated with Knut Wicksell (1896), who proposed that taxpayers should contribute in proportion to the benefits they receive, advocating a unanimity rule. Erik Lindahl (1919) later expanded on this idea by developing the voluntary-exchange model, where each taxpayer's contribution, or "Lindahl price," equals their marginal benefit from public goods. The theory assumes that taxpayers' benefits from public expenditure can be credibly identified, personalized tax shares can be imposed, and that the provision of public goods occurs at an equilibrium where marginal cost equals the sum of individual marginal benefits. It also emphasizes consensus-based financing rather than redistribution, though practical challenges such as misreporting, limited information, and equity concerns complicate its application (Weinzierl, 2018; Scherf, Lockwood & Weinzierl, 2019).

In public finance, the principle addresses two key questions: who pays and who benefits. It views taxation as a reciprocal arrangement where the state provides goods and services in return for taxes (Bhartia, 2019). The theory suggests that higher tax revenue should translate into greater spending on infrastructure, enabling economies to transition from low productivity and savings toward sustainable growth (Muojekwu & Udeh, 2023). As a result, Benefit Received theory was adopted as one of this study's underpinning theory because the theory underscores the efficient use of tax revenue for social and economic facilities, which in turn supports economic development (Ihendinihu, 2019).

Classical/Traditional Theory of Public Debt

The classical or traditional theory of public debt, advanced by Adam Smith (1776), David Ricardo (early 1800s) and John Stuart Mill (1848), argues that borrowing to finance government expenditure shifts the burden from the present to future generations. While the current generation benefits from reduced immediate costs, the future generation faces reduced capital accumulation due to lower savings, leading to diminished productive capacity (Sani & Nwite, 2021). The theory assumes that public debt is a more expensive means of financing than taxation, and excessive borrowing risks undermining national creditworthiness. Khalil and Junaidu (2019) opined that debt should be kept minimal and repaid quickly. This perspective is particularly relevant for Nigeria, where high consumption, especially of imports, reduces infrastructural development as well as savings and investment, thereby fueling public debt and slowing growth.

Empirical Review

Oyedokun et al. (2024) investigated how federal tax revenues affect health sector infrastructure in Nigeria. Using an ex-post facto design, the study analyzed secondary data on tax revenue from CIT, PPT, EDT, and VAT between 2021 and 2023, sourced from FIRS and CBN statistical bulletins. Data analysis employed descriptive statistics and multiple regression via SPSS (version 23). Results showed significant positive effects of CIT, PPT, and VAT on health infrastructure, while EDT had a positive but insignificant effect.

Falade et al. (2024) explored how the composition of public debt influences infrastructure development in Nigeria from 1986–2021, applying ARDL and ECM models within the Keynesian Growth framework. Data from the World Bank and CBN were used. Findings indicated a 94% adjustment speed to equilibrium. In the short run, external debt, debt servicing, and exchange rate negatively affected access to electricity (AE), while domestic

debt had a positive impact. In the long run, both domestic and external debt positively influenced AE, though debt servicing, inflation, and interest rates had negative effects.

Onyiah et al. (2024) examined the relationship between tax revenue, external debt, and economic growth in Nigeria from 2006–2022, adopting an ex-post facto design and secondary data from CBN, BOF, and OAGF. Using OLS regression with statistical adequacy tests and ANOVA, the findings revealed that both tax revenue (proxied by VAT) and external debt significantly and positively influenced GDP.

Busari et al. (2024) assessed public debt's role in infrastructure development from 1990–2022. Using ARDL after stationarity and correlation tests, the study showed that while domestic and external debts had positive but insignificant effects on capital expenditure, debt servicing and inflation negatively affected capital expenditure at the current lag but showed a positive, though insignificant, relationship at lag 1.

Oyewobi and Falolu (2023) analyzed the relationship between rising public debt, tax revenue, and consumption expenditure from 1992–2022 using OLS regression. Results revealed a positive link between total tax revenue, consumption expenditure, and public debt. However, only consumption expenditure had a statistically significant effect, while tax revenue's effect was non-significant.

Muojekwu and Udeh (2023) studied the link between tax revenue and infrastructure over 1995–2021. Using correlation and OLS regression, results showed that PPT, CIT, VAT, and customs/excise duties each had significant positive effects on capital expenditure. Chukwu and Dada (2023) examined tax revenue's role in financing health infrastructure from 1985–2020. Using ARDL and related econometric techniques, findings confirmed that CIT, VAT, PPT, capital gains tax, and education tax significantly influenced health infrastructure financing.

Ntekpere and Olayinka (2020) investigated tax revenue's effect on public debt and capital expenditure from 1999–2018 using OLS and VECM. Results showed that tax revenue had both positive and negative significant effects on external debt, internal debt, and capital expenditure. Tanko and Shishi (2020) studied revenue generation and infrastructure development in Taraba State (2010–2019). Results indicated that internally generated revenue and government grants had positive effects on infrastructure.

Gaps in Literature

Although existing studies provide useful perspectives on infrastructure development, capital expenditure, tax revenue, petroleum profit tax, company income tax, public debt, and foreign debt, several gaps remain. First, while many works define these concepts and outline their general roles, there is limited empirical evidence directly linking them to Nigeria's economic growth and capital expenditure. For instance, although infrastructure is recognized as a growth driver, but the specific channels through which tax revenue, petroleum taxes, or public debt led to measurable improvements in infrastructure are not well explored in the studies conducted by Inyama et al. (2020) as well as Busari et al. (2024).

Second, studies conducted by Abubakar (2021) and Mulinge (2021) acknowledged the role of capital expenditure in stimulating growth, but they do not sufficiently address contextual challenges such as irregular funding, mismanagement, and corruption, which often

undermine project execution in Nigeria. This leaves a gap in explaining why capital spending may fail to achieve its intended developmental outcomes.

Third, while research on tax revenue and petroleum profit tax highlights reforms and revenue-generating potential (Evans & Hunt, 2021; Aguolu, 2024), little attention is given to how efficiently these revenues are utilized. The extent to which petroleum profit tax and company income tax revenues are effectively directed toward capital projects that improve welfare and growth remains underexplored, creating a practical gap.

Fourth, although company income tax and petroleum profit tax have been examined in terms of regulatory frameworks and economic functions, the interaction between these taxes and Nigeria's dependence on oil revenue has not been sufficiently evaluated as noted in the studies carried out by Chigbu & Njoku (2020), Odusola (2021) and Adegbe (2024). The lack of comparative analysis between oil and non-oil tax contributions to capital expenditure leaves a gap in understanding fiscal diversification challenges.

Fifth, while public and foreign debts are acknowledged as financing tools, studies (such as; Mohammed & Ahmed, 2020; Olusegun, Oladipo, & Omotayo, 2021) treated them conceptually, with limited empirical assessment of long-term sustainability. The implications of rising debt for private investment, fiscal space, and intergenerational equity are rarely explored, leaving an analytical gap in balancing debt financing with economic stability.

Finally, theoretical models such as the Benefit Received Theory (Scherf, Lockwood, & Weinzierl, 2019; Bhartia, 2019), and Classical/Traditional Theory of Public Debt (Khalil & Junaidu, 2019; Sani & Nwite, 2021) provide relevant foundations, but their application to Nigeria remains abstract. Limited integration of these theories with empirical evidence makes it difficult to test their real-world relevance, creating a theoretical gap that calls for studies aligning these frameworks with actual data to generate practical policy insights.

3. METHODOLOGY

The research design for this research work takes the form of an ex-post facto, secondary data which serves as the data source for this study are already available and cannot be manipulated. The study covers a 34-year period from 1991 to 2024. The time series data was gathered from CBN Statistical Bulletin as well as annual report of FIRS (now National Revenue Service). Descriptive, correlation and regression analysis were conducted among the dependent and independent variables. Ordinary Least Square was employed to analyze the data collected. The OLS model for this study was adopted from Uket et al. (2020) as specified below:

$$Y = f(X).....i$$

$$GCE = f(PPT, CIT, FOD).....ii$$

Mathematically expressed in this form:

$$GCE = \alpha + \beta_{1PPT} + \beta_{2CIT} + \beta_{3FOD} + \mu.....iii$$

Where:

Dependent Variable:

GCE = Government Capital Expenditure

Independent Variables:

PPT = Petroleum Profit Tax

CIT = Company Income Tax

FOD = Foreign Debt

μ = Error term

α = Intercept

β_1 - β_3 = Slope coefficients

4. RESULTS AND DISCUSSION

Presentation of Result

Table 1 Descriptive Results

	GCE	PPT	CIT	FOD
Mean	2.671765	3.242353	3.012941	3.261471
Median	2.780000	3.300000	3.205000	3.175000
Maximum	3.650000	3.590000	3.580000	4.580000
Minimum	1.380000	2.590000	1.780000	2.480000
Std. Dev.	0.573101	0.219918	0.522874	0.563588
Skewness	-0.659939	-1.439226	-1.014495	0.551589
Kurtosis	2.858762	4.794768	2.948463	2.275657
Jarque-Bera	2.496205	16.30112	5.835895	2.467370
Probability	0.287049	0.000289	0.054044	0.291217
Sum	90.84000	110.2400	102.4400	110.8900
Sum Sq. Dev.	10.83869	1.596012	9.022106	10.48183
Observations	34	34	34	34

Source: E-views Output, 2026.

Descriptive statistics of the variables are presented in Table 1 above. The results show that the mean values for the studied years are 2.671765 for government capital expenditure, 3.242353 for petroleum profit tax, 3.012941 for company income tax, and 3.261471 for foreign debt. The table also provides details on the mean, median, minimum, maximum, skewness, kurtosis, and Jarque-Bera statistics. Overall, the series demonstrate consistency, as their mean and median values fall within the respective minimum and maximum ranges. Finally, the Jarque-Bera test results indicate that government capital expenditure, company income tax, and foreign debt are normally distributed (as their corresponding Jarque-Bera's p-values of 0.287, 0.054, 0.291 > 0.05), whereas petroleum profit tax is not normally distributed (as its p-value, 0.000 < 0.05). This suggests that the normally distributed variables (GCE, CIT and FOD) have higher forecasting accuracy.

Table 2 Correlation Analysis

	GCE	PPT	CIT	FOD
GCE	1.000000	0.844173	0.945994	0.665144
PPT	0.844173	1.000000	0.888399	0.471791
CIT	0.945994	0.888399	1.000000	0.618004
FOD	0.665144	0.471791	0.618004	1.000000

Source: E-views Output, 2026.

Table 2 reveals the association between the variables. The result revealed that all the predictors (PPT, CIT & FOD) is a strong positive relationship with GCE, with their corresponding correlation coefficients shown as 0.844, 0.946 and 0.665 respectively.

Table 3 Unit Root Test Results

At Level					
		GCE	PPT	CIT	FOD
With Constant	t-Statistic	-1.5839	-3.3211	-2.7904	-0.1210
	Prob.	0.4793	0.0219	0.0706	0.9389
		n0	**	*	n0
With Constant & Trend	t-Statistic	-2.5855	-3.0271	-2.0487	-1.5544
	Prob.	0.2887	0.1404	0.5541	0.7885
		n0	n0	n0	n0
Without Constant & Trend	t-Statistic	2.4256	1.4502	2.0959	1.7618
	Prob.	0.9952	0.9605	0.9898	0.9788
		n0	n0	n0	n0
		d(GCE)	d(PPT)	d(CIT)	d(FOD)
With Constant	t-Statistic	-6.6113	-7.1175	-6.4594	-3.8780
	Prob.	0.0000	0.0000	0.0000	0.0057
		***	***	***	***
With Constant & Trend	t-Statistic	-6.6479	-7.7462	-7.6325	-3.8888
	Prob.	0.0000	0.0000	0.0000	0.0244
		***	***	***	**
Without Constant & Trend	t-Statistic	-5.3141	-6.7378	-5.3194	-3.6272
	Prob.	0.0000	0.0000	0.0000	0.0007
		***	***	***	***

Source: E-views Output, 2026.

Table 3 presents the unit root test conducted to determine whether the variables are stationary or exhibit unit roots. Stationarity is essential in time series analysis, as non-stationary data can lead to spurious regression outcomes. At level, the results show that government capital expenditure (GCE), petroleum profit tax (PPT), and foreign debt (FOD) have probability values above 0.05 in most test specifications, indicating non-stationarity at this stage. In contrast, company income tax (CIT) shows significance at the 5% and 1% levels under certain conditions, suggesting partial stationarity at level.

At first difference, however, all variables display highly significant t-statistics, with probability values below 0.05 across different specifications. This confirms that the series attain stationarity after first differencing and are therefore integrated of order one, I(1). Hence, GCE, PPT, CIT, and FOD contain unit roots at level but achieve stationarity after first differencing.

Table 4 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.227140	Prob. F(3,30)	0.3170
Obs*R-squared	3.716240	Prob. Chi-Square(3)	0.2938
Scaled explained SS	4.436039	Prob. Chi-Square(3)	0.2181

Source: E-views Output, 2026.

The Breusch-Pagan-Godfrey heteroskedasticity test results in Table 4 revealed p-values of 0.3170, 0.2938, and 0.2181, all above the 0.05 threshold. This indicates that the null hypothesis of homoskedasticity cannot be rejected, meaning the error variances are constant and the model is free from heteroskedasticity issues. However, even though the model does not suffer from heteroskedasticity and has well-behaved error terms, its explanatory power is very weak since the independent variables fail to significantly influence the dependent variable.

Table 5 Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.008320	0.737060	-1.368029	0.1815
PPT	0.179034	0.324699	0.551386	0.5855
CIT	0.875914	0.153162	5.718865	0.0000
FOD	0.141199	0.073985	1.908484	0.0659
R-squared	0.906343	Mean dependent var	2.671765	
Adjusted R-squared	0.896977	S.D. dependent var	0.573101	
S.E. of regression	0.183949	Akaike info criterion	-0.438183	
Sum squared resid	1.015120	Schwarz criterion	-0.258611	
Log likelihood	11.44910	Hannan-Quinn criter.	-0.376943	
F-statistic	96.77255	Durbin-Watson stat	0.922455	
Prob(F-statistic)	0.000000			

Source: E-views Output, 2026.

Table 5 shows that the intercept (constant) value is -1.008320, representing the autonomous level of government capital expenditure when all predictor variables are held constant. This suggests that expenditure experienced a base movement even in the absence of independent variables. A unit increase in petroleum profit tax (PPT) leads to a 0.179034 decrease in government capital expenditure, with a standard error of 0.324699, a t-statistic of 0.551386, and a p-value of 0.5855, which is above the significant threshold of 0.05. This indicates that PPT exerts a positive but statistically insignificant effect on government capital expenditure in Nigeria.

In contrast, a unit increase in company income tax (CIT) raises government capital expenditure by 0.875914, with a standard error of 0.153162. The t-statistic of 5.718865 and a p-value of 0.0000 (<0.05) confirm that CIT has a positive and significant effect on GCE. In addition, FOD increases government capital expenditure by 0.141199, with a standard error of 0.073985, a t-statistic of 1.908484, and a p-value of 0.0659, which is above the 0.05 threshold. This shows that foreign debt exerts a positive but insignificant effect on GCE in Nigeria.

The regression analysis further indicates that about 91% of variations in government capital expenditure are explained by the combined effect of the independent variables (CIT, FOD, and PPT), while the remaining 9% is due to unexplained factors. The adjusted R-squared confirms that approximately 90% of the variation is accounted for when additional variables are incorporated, supporting the reliability of the coefficient of determination. The F-statistic of 96.77255 with a p-value of 0.00000 (<0.05) shows that the overall regression model is statistically significant and provides a good fit. This confirms that company income tax,

foreign debt, and petroleum profit tax jointly influence government capital expenditure, thereby indicating that tax revenue and public debt significantly affect infrastructural development in Nigeria.

Interpretation of Results

Hypotheses Testing

H₀₁: Petroleum profit tax does not significantly affect government capital expenditure in Nigeria.

The result of the findings from the regression table indicates t-statistic of 0.551386 with associated p-value of 0.5855 >0.05 threshold resulted to acceptance of the first null hypothesis stated above and therefore concurs that petroleum profit tax has insignificant effect on government capital expenditure in Nigeria.

H₀₂: Company income tax has no significant effect on government capital expenditure in Nigeria.

On the other hand, the result of the findings also from the regression table indicates t-statistic of 5.718865 with associated p-value 0.0000 <0.05 significance threshold resulted to rejection of the second null hypothesis, and therefore restates that company income tax has significant effect on government capital expenditure in Nigeria.

H₀₃: Foreign debt does not significantly affect government capital expenditure in Nigeria.

The result of the findings from the regression table indicates t-statistic of 1.908484 with associated p-value 0.0659 >0.05 significant threshold resulted to acceptance of the third null hypothesis which thereby implies that foreign debt has insignificant effect on government capital expenditure in Nigeria.

Discussion of Results

The results indicate varying relationships between revenue sources and government capital expenditure in Nigeria. Petroleum profit tax (PPT) exhibits a negative and insignificant effect, suggesting that oil-based revenues do not significantly contribute to capital investment. This can be linked to Nigeria's dependence on oil, where such revenues are often diverted to recurrent spending, debt servicing, or lost through inefficiencies and corruption, limiting their impact on infrastructure development. In contrast, company income tax (CIT) shows a positive and significant effect, highlighting the importance of non-oil tax revenues as a more stable source for financing capital projects. This supports recent diversification efforts and improvements in tax administration, positioning CIT as a more sustainable driver of capital investment compared to volatile oil revenues.

Foreign debt also demonstrates a positive but insignificant effect on capital expenditure. Although external borrowing is generally intended for infrastructure and development, challenges such as mismanagement, debt servicing burdens, and administrative bottlenecks reduce its effectiveness in driving capital investment. These findings underscore the need to strengthen domestic non-oil revenue mobilization and enforce fiscal discipline so that both tax revenues and external debt are efficiently directed toward sustainable development.

The findings align with Oyedokun et al. (2024), who reported a significant positive link between company income tax, petroleum profit tax, and health infrastructure expenditure.

Similarly, Ukangwa et al. (2022) confirmed a long-run relationship between company income tax and Nigeria's capital expenditure, while Onyiah et al. (2024) found tax revenue and external debt to have a positive and significant impact on GDP. However, the results differ from Falade et al. (2024), who showed that external debt, debt servicing, and exchange rate negatively and significantly influence access to electricity as a proxy for infrastructure. They also diverge from studies such as Unamma et al. (2024), which reported a negative and insignificant effect of public debt on infrastructure, and Chukwu et al. (2023), who found tax revenue to have an insignificant effect on health infrastructure financing.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined how tax revenue and public debt affect infrastructural development in Nigeria. The results indicate that petroleum profit tax has an insignificant effect on government capital expenditure. This implies that despite being a major revenue source, petroleum funds appear underutilized, mismanaged, or diverted toward recurrent expenditure rather than developmental projects. This points to inefficiencies in the allocation of oil revenues for infrastructure.

On the contrary, the findings show that company income tax significantly influences government capital expenditure, underscoring its importance in financing infrastructure and other long-term investments. This highlights the need for efficient administration and collection of corporate taxes as a reliable source of funding for capital projects.

However, foreign debt was found to have an insignificant effect on government capital expenditure. Although external loans are intended for development projects, their misapplication or diversion reduces their effectiveness in driving capital investment. This emphasizes the importance of accountability and transparency in the use of borrowed funds to achieve tangible development outcomes.

Recommendations

Given the insignificant role of petroleum profit tax, transparency and accountability in petroleum revenue management should be improved. Stronger fiscal discipline is needed to ensure oil revenues are channeled into long-term development projects rather than recurrent expenditure. Diversifying the allocation of petroleum revenue could also help reduce overdependence on oil for short-term needs.

Since company income tax significantly contributes to capital expenditure, government should continue to strengthen tax administration and compliance systems to maximize corporate tax revenue. Efforts must target reducing evasion and avoidance, broadening the tax base, and ensuring efficient allocation of revenues to productive capital projects that foster growth.

With foreign debt showing little effect on capital expenditure, government should adopt a cautious approach to external borrowing, contracting loans only for viable projects with clear development value. Effective monitoring and evaluation systems must be enforced to guarantee that borrowed funds are properly utilized for infrastructure and sustainable development.

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