

PUBLIC FINANCE INSTRUMENTS AND POVERTY ALLEVIATION IN NIGERIA

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Abstract: In low-income countries like Nigeria, governments use the instruments of public finance to carry out their crucial function of promoting the well-being of their residents which includes poverty alleviation. However, they often find deciding on how to achieve that objective difficult owing to some challenges. This study investigates the impact of public finance instruments on poverty reduction in Nigeria using *ex post facto* as the research plan strategy. Specifically, it examines the impacts of public revenue, public expenditure and public debt on poverty incidence in Nigeria for 1981 to 2024. Unemployment, inflation and GDP growth rates are introduced in the study as control variables. Descriptive, correlation matrix and hierarchical regression are employed to analyze data. The findings indicate that while the impact of public revenue and public debt on the rate of poverty are positive and weak, the impact of public expenditure on poverty rate is both adverse and non-significant. Also, the findings show that the variables all move together toward the same direction during the study period. The implication is that there are strong interrelationships among the variables and that any alteration in one may have ripple effects across the others. Consequently, governments are advised to fine-tune their public finance instruments to invigorate the economy, reduce income imbalance and reduce poverty level significantly.

Keywords: Public Finance, Public Revenue, Public Expenditure, Public Debt, Poverty Reduction, Nigeria.

1.0 Introduction

With properly-designed fiscal policies and spending, public finance is expected to reduce poverty incidence by fostering economic growth, improving entry to essential services and promoting inclusive development (Ejemezu&Ajala,2024). Although budgetary allocation appears to be the main platform for operationalizing pro-poor growth, it has proved to be among the most evasive challenges (Wilhelm & Fiestas, 2005). Indigence is a universal menace confronting several economies globally. For instance, United Nations, as reported in Ventura (2024), revealed that approximately 700 million persons were living on below \$2.15 per day universally in 2024.This figure represented almost 10% of the world's

population (Ventura,2024). In Sub-Saharan Africa (SSA), the poverty level is high. In 2019, for instance, 40.9% of the region's residents lived below US\$1.90 per person per day (Jobarteh,2023). Poverty incidence in Nigeria is particularly worrisome. No correlation exists between several policies the Nigerian government which target poverty alleviation and the poverty level it recorded from year to year(Ejemezu &Ajala,2024).This situation has necessitated giving destitution serious and urgent government attention To alleviate poverty, the administration has been implementing a lot of schemes in different sectors of the Nigerian economy(Ejemezu &Ajala,2024) but its level has been rising; poverty has been defiling every programme (Olasehinde & Adekoya, 2014).Since the past 42 years, the number of the indigent has been on the increase in Nigeria. National Bureau of Statistics (2020) reported that the pervasiveness of poverty

sky-rocketed from 28.1 per cent during 1980 to46.3 percentin1985.Nigeria witnessed a decrease in the level to 42.7 percent in 1992 and an increase to 65.6 percent in 1996 and a reduction to 54.4 percent in2004.It move up again to 60.9 percent in 2010. Between 2020 and 2022, poverty level moved up from 46.4 percent to 62.9. In the year 2023, approximately 87million residents were already affected. With an HDI of 0.548 in 2022, Nigeria's standing on the Human Development Index is not encouraging, as it held the 161st position among 189 countries (Adebayo, 2025). In spite of this urgly situation, the total public spending has continued increasing (Apere, 2017). In 2017, for instance, it rose from 6456.70 Billion to 17,557.40 Billion, and then to N24,431.21 Billion in 2020, 2021, and 2022 respectively (Central Bank of Nigeria,2022).

Transforming those expenditures into considerable development has proven to be challenging throughout the years as there have emerged troubling figures characterized by a persistent increase in poverty incidence as shown by high rate of unemployment and illiteracy. These have attracted global attention recently amid a shortfall in revenue mobilization to take care of the desired government expenditure (Nimvyap et al.(2023).

The Nigerian government had attempted to better the lives of her population through through interventions in the areas of education, health, economic empowerment of the and infrastructural development, using various schemes. However, the effects of all those interventions on the alleviation of penury in the country still remain questionable (Ajala & Adeyinka,2021).

In 2023,the government arranged to spend N543 billion on servicing public debt out of the debt servicing cost of N592billion.Inspite of this amount of national debt outstanding, debt stock was to move up to approximately N7 trillion (\$45 billion) at the close of 2013 (Ozigbu, 2018). In 2024, the amount national debt rose to N144,670 billion. The enormous public borrowing has been aimed at supporting the productive sectors of the economy to take Nigerians out of poverty. .However, just as is the case in several other low-income countries (Morseno-Dodson & Wodon, 2008), poverty incidence continues to increase in the country (Nimvyap et al.,2023).

It is undisputable that Nigeria has wealth in abundance. What remains an intractable question is the reason that these resources have not translated into national wealth (Kwode, 2024). What looks paradoxical is that the more revenues are assembled and spent, the poorer the Nigerians and Nigeria become (Obi, 2007)..

1.1 The problem

In spite of the situation highlighted above, the studies that seek to find the relationship between public finance instruments and poverty reduction were either executed outside Nigeria or too narrow in scope or methodology (Akpan & Orok, 2009). Further, majority of the researches on poverty alleviation have concentrated on broad macroeconomic policies without specific attention to the impact of public finance instruments on poverty alleviation while others have predominantly relied on theoretical analyses instead of robust empirical inquiries. Even those studies that examined the impact of individual public finance instruments exclusively concluded with conflicting results.

Consequently, a gap has been left in literature concerning how the instruments of public finance, taken together, affect poverty reduction in Nigeria. Therefore, the main objective of this work is to fill this opening by doing a robust empirical evaluation of the contribution of public finance instruments in the fight against destitution in Nigeria. By so doing, the study provides concrete evidence and practical policy implications through appropriate econometric techniques. The data set for the period between 1981 and 2023 facilitates the employment of updated information, thereby making it easier to carry out accurate and relevant analysis of the *nexus* between public finance instruments and poverty rates in Nigeria address potential concerns about omitted variables, the research incorporates key variables identified by literature as important causes of outcomes, namely economic growth, Inflation and unemployment rates.

After reviewing some of the important concepts theories employed in section 2, the paper dedicates Section 3 to methodology. Section 4 is for data analysis and discussion of findings, while Section 5 concludes the paper.

2.0. Literture review

2.1 Conceptual review

2.1.1 Poverty

Poverty usually connected with abysmal income, absence of social, economic, cultural, and political entitlements and lack of access to basic necessities like food, shelter and clean water (Arora & Romijn, 2012). It means not having the fundamental enablement to be part of human society effectively (Kuhe, et al. 2016). It refers to a complex and multidimensional phenomenon that affects persons and societies in several ways (Covarrubias, 2023). While poverty is commonly estimated in financial terms, one should remember that possessing insufficient money is just an indicator instead of the only cause of poverty. Power dynamics, like denial of access to basic needs, is capable of contributing to poverty.

(Arora & Romijn, 2012).

2.1.2 Public finance

This refers to an aspect of a discipline that deals with public revenue, expenditure and debt.

Creedy(1984) defines it as the management of a nation's revenue, spending and borrowings through several public institutions and agencies. Public finance has some principles, namely, efficient resource allocation, even distribution of wealth and stability of the economy. It uses some instruments such as revenue, expenditure, debt and financial administration.

2.1.2.1. Public revenue

Public revenue refers to the overall incomes that accrue to governments) from some sources. The means through which governments generate income and reasons for which revenue is required needed have differed considerably over time and from economy to economy. Generally, governments produce income from taxes, loans, grants and aids, licenses, savings, rents and rates, fees, fines, royalties and earnings from ventures. Of all the revenue sources available to government, tax is generally considered most important both in developing and developed countries (Agbo & Onuegbu, 2022). Public revenues are classified as capital and recurrent revenues. Capital revenue are irregular receipts employed by an administration to fund long-term and big capital projects. Recurrent revenue is the name for the kind of revenue that government receives regularly such as taxes, licenses, fees and fines. States in Nigeria produce incomes from PAYE, direct assessment, road taxes and other taxes and income from ministries, departments and agencies (MDAs) (Agbo, 2024a).

Federal government generates its own revenue from both oil and non-oil taxes. Oil tax comes from petroleum profit. Non-oil taxes come from company income tax (CIT), personal income tax (PIT), Gas income, capital gain tax, stamp duty, value-added tax, etc.

2.1.2.2 Public expenditure

Public spending is the major policy tool through which an economy can directly control poverty incidence. It is a key avenue through which government policies are made to affect development outcomes, particularly poverty levels. It is multi-channeled. Public expenditure in Nigeria is broadly grouped into capital and recurrent expenditure, each with distinct implication for poverty alleviation. Capital expenditure refers to investments in infrastructure like roads, buildings and machinery. Recurrent expenditures include spending on social protection programs, personnel development and social services.

2.1.2.3 Public debt

Public authorities borrow money to carry out their statutory obligations when the income at their disposal becomes below what they need to spend. Public debt is therefore an important instrument that governments use to finance public expenditures and accelerate economic growth, especially when it is not feasible for them to collect taxes or reduce expenditure (Nimvya et al., 2023). The sizes of

external debts are mainly determined by GDP, exchange rate, fiscal deficit, interbank rate, and terms of trade (Udoka & Anyingang, 2010),

2.1.2.4 Public financial management

This refers to the process by which governments acquire and dispose of financial resources (Abianga, 2009). The resources are properly managed and controlled through budgets which are usually prepared annually or through developmental plans for some specified period depending on government's needs.

2.2. Theoretical Framework

This study is founded on the following theories:
theories:

2.2.1 Poverty theories

a. Keynesian/neoliberal theory: The proponents of this theory lay much emphasis on the responsibility of government to stabilize the economy and make public goods available. They consider poverty as mainly involuntary and as caused by the absence of employment opportunities
b. Marxian theory: This theory considers discrimination among classes and groups as mainly responsible for indigence. Consequently, it assigns an important role to public administration in regulating the market place.

2.2.2 Public finance theories

Public finance theories explore how governments manage the finances available to them, encompassing areas like taxation, public spending and debt management. They aim to optimize these functions in the interest of the citizenry by ensuring efficient resource allocation, equitable income distribution and economic stability. The primary theories of public finance center attention on how governments should raise and utilize funds to provide public services.

2.3. Empirical Studies

Yaru and Ohiaka (2022) investigated the link between poverty incidence and income generated from indirect taxes for 29 selected SSA countries between 1990 and 2020. The results gotten from the panel regression estimates indicated that GDP per capita has adverse significant impact on indigence within SSA. Markina (2022) evaluated the effect of taxes on income and penury in Ukraine, using both commitment to equity (CEQ) and linear regression. CEQ was produced to determine how taxes and social expenditure influence destitution and inequality in different countries. Findings were that Ukraine's income tax overhaul should concentrate attention on transferring taxes from the rich to the destitute and preventing aggressive tax planning, instead altering tax rates and tax periods. Ikechukwu et al. (2021) employed CIT, PIT, PPIT and education tax and education tax as direct tax variables during 1990 to 2019 to estimate the impact of direct taxes on the redistribution of income in Nigeria, using annual data sourced from the FIRS and CBN Statistical Bulletin. The findings indicated that PIT and PPIT have strong favorable impact on income redistribution in Nigeria, while CIT and education

tax both have weak adverse impact and help to decrease income inequality.

Using GDP, population, per capita income and inflation as empirical variables, Ahmad and Awan (2021) examined the manner taxes influence indigence in Pakistan. The study analyzed time series data for 1998 through 2018 with correlation and regression methods. The results indicated that taxes and destitution have favorable connection. Multiple regression analysis indicated that while population and per capita income have positive impact on poverty, taxes, inflation, and GDP have adverse effect.

Usman and Idoko (2021) evaluated the effect of taxation as an instrument for poverty alleviation in Nigeria from 1990 to 2019. The research used ARDL to estimate the parameters. The results indicated that PPT, CIT and VAT have positive and strong link with the level of penury, while CED and PIT have adverse and strong connection. Oduro (2001) cited in Kwode (2024) carried out a study and concluded that public spending is capable of decreasing indigence by providing infrastructure and service to the indigent and putting in place the necessary conditions which will increase the competence of the destitute to obtain assets, enabling the provision of infrastructure and services for the institutions that will decrease the risks confronting the poor and reduce the impact of negative shocks through the provision of buffers among others. In Indonesia, Birowo (2011) evaluated connection between public expenditure and poverty rate. Analyzing the data with OLS regression, the author noted that budgetary increase and poverty are positively and slightly related connected. The study conducted by Megbowon et al. (2020) in Nigeria with ARDL analytical methods disclosed that public expenditure reduces indigence and that long-run relationship that exists between public expenditure and poverty rate for all tiers of governance in Nigeria. Aladelusi and Isiaka (2023) sought to determine the extent that the destitute gain from public spending on education, agricultural sectors, health and the amount of public debt in Nigeria. The ARDL method was employed for regression. The findings indicated that fiscal policy has a great effect in decreasing poverty level and that long-run connections exists between them.

Using a set of empirical data and Ordinary Least Squares method, Nkamnebe (2023) evaluated the link between public spending and poverty alleviation for 2000 to 2022. Multidimensional Poverty Index (MPI) constituted the dependent variable, while public expenditure on education, health and infrastructure became the explanatory variables. The study's primary findings disclosed that an upward movement in public spending on education has a significant adverse effect on poverty reduction, both in the short run and long run while government health spending has a strong adverse effect in the short run and no effect in the long run. Kwode (2024) examined the effect of public spending on poverty. The data employed were sourced from official publications of CBN and NBS and analyzed with regression method. The findings indicated that public spending has a positive link with poverty; it has non-significant effect on poverty alleviation and adverse connection with poverty headcount ratio. Adebayo (2025) evaluated the impact of public spending on poverty in Nigeria from 1981 to 2022, using VCM Model framework. The study analyzed the link between poverty level and public expenditure, GDP per

capita, Agricultural Credit Guarantee Scheme Fund and gross enrolment ratio in secondary education. With time series data and cointegration analysis, a strong long-run relationship was found between government spending and poverty alleviation. Bloj (2009) sought to find out the effect of budgeting process on social policies and poverty reduction. The author found that the recent tendency of developing nations to possess results-oriented budgeting approach is in order since this new approach is deemed to be directly linked with poverty alleviation through the Medium Term Expenditure Framework.

Using descriptive technique and non-parametric statistics on data series covering 1980-2005, Akpan and Orok (2015) observed that budgetary provision for poverty reduction program are dissatisfying and ineffective and that actual release of even the allocations are significantly delayed- an issue that has negatively affected the implementation poverty alleviation programmes of government. Oyedele et al. (2013) employed co-integration and regression methods to examine the impact of external debt and debt servicing on poverty alleviation in Nigeria. Time series data on debt income ratio, debt service, degree of openness, growth of agricultural value added, per capita income, inflation rate and investment-income ratio for 1980-2010 were analyzed. Multiple regression results indicated that external debt and debt servicing cause poverty in Nigeria. Ekpo and Udo (2013) investigate the link between debt burden, growth and poverty alleviation in Nigeria between 1970 and 2011. Elements of a failing state comprising corruption, insecurity, and ethnic violence were included in the model as explanatory variables, while the dependent variable (incidence of poverty) was measured by the ratio of public expenditure and social services and income per capita. Findings disclosed that public debt is negatively linked to growth and poverty alleviation.

Ozigbu (2018) evaluated the effect of public debt sustainability on the incidence of poverty in Nigeria. The study employed external debt stock and interest paid on external debt stock as explanatory variables and poverty rate as dependent variable. The outcome of Johansen-Juselius co-integration test disclosed that the series have long-run relationship. Nimvyap et al. (2023) analyzed the effect of public debt on poverty alleviation in Nigeria Secondary data covering 2000–2021) were employed in the research and analyzed using descriptive statistics, correlation matrix, and Error Correction Mechanism (ECM). The findings indicated that external debt has positive and significant effect on poverty reduction, while domestic debt and debt servicing have adverse connection with poverty incidence in Nigeria

Fatoba and Otonne (2024) explored the impact of fiscal policy crashes on Nigeria's income imbalance and household poverty. The authors employed the impulse response function and variance decomposition methodology within the Bayesian Vector Autoregressive (BVAR) framework. The findings indicated that from the second year to the fifteenth year, a 1% change in tax income generates a reduced average effect of 0.036% on household poverty. Contrarily, household indigence level

increases with the changes in public spending.

3.0 Methodology

3.1 Research strategy

Ex post facto research plan was employed in the study.

3.2 Data and Variables

A panel data series covering 1981 to 2023 were utilized. In the key variables, poverty reduction was the dependent variable while public revenue, public expenditure and public debt constituted the explanatory variables. Economic growth rate, inflation rate and unemployment rate were the control variables. Poverty reduction was proxied by poverty headcount ratio. The data were analyzed using GenStat software.

3.3 Model Specification

As was the case with Erin et al.(2020) and Erin and Aribaba(2021), the study used hierarchical regression model specified as follows:-

Step 1: Baseline Model (Control Variables Only) $Poverty\ Rate = \beta_0 + \beta_1(Unemployment\ Rate) + \beta_2(GDP\ Growth\ Rate) + \beta_3(Inflation\ Rate) + \epsilon_1, \dots, (1)$

Step 2: Full Model (Add Predictors)

$Poverty\ Rate = \beta_0 + \beta_1(Unemployment\ Rate) + \beta_2(GDP\ Growth\ Rate) + \beta_3(Inflation\ Rate) + \beta_4(Public\ Debt) + \beta_5(Public\ Revenue) + \beta_6(Public\ Expenditure) \dots, (2)$

Step 2: Full Model (Add Predictors)

Model Evaluation

- Compare R^2 from Step 1 and Step 2 to assess the additional variance explained by the financial predictors.
- Inspect F- test change to check significance of added predictors.
- Look at coefficients ($\beta_4, \beta_5, \beta_6$) to interpret individual effects of debt, revenue, and expenditure on poverty rate.

4.0 Data analysis and interpretation

The empirical data obtained were shown in tables, charts and graphs (see appendices 1 to 9). Both parametric technique was used for data analysis. Specifically, descriptive was done first as preliminary analysis and the inferential statistic that provided more detailed analysis.

Descriptive statistics

The descriptive statistics in Table 1 provide an overview of the central tendency and spread of the major economic variables. The average values exhibit a positive financial balance, with public revenue (4470.312) exceeding public spending (3739.097). However, public debt (11798.395) is significantly high, raising concerns about fiscal sustainability. GDP growth rate modest at 3.180, but inflation rate notably high at 19.040, suggesting potential issues with price stability. In addition, the average

unemployment rate is 14.993 and poverty rate is 54.427 point, occasioning significant economic challenges which affect a big portion of the population. The values of skewness reveal important awareness into the spread of these variables. For total revenue, the skewness of -0.117 shows a nearly symmetric distribution, suggesting balanced revenue sources. Contrarily, public spending indicates a high positive skew (6.923), indicating that some observations are significantly higher than the average, which could reflect irregular spikes in spending. Similarly, the total national debt has a skewness of 17.515, implying that while most entities have lower debt levels, some holds extremely high amounts, contributing to overall financial instability.

Finally, the data highlights pressing economic challenges, particularly high debt, unemployment rate and poverty rate. The values of skewness highlight disparities among data, indicating that averages may mask underlying inequalities, especially in expenditure and debt distribution. Addressing these issues will be crucial for fostering economic solidity and improving the living conditions of the affected populations.

Table 1: Descriptive Statistics

Name	Mean	Median	Observed min	Observed max	Standard deviation	Excess kurtosis	Skewness
Public Revenue	4470.312	2575.100	10.500	18320.000	4714.094	-0.117	0.823
Public Expenditure	3739.079	1225.990	9.640	27500.000	5678.769	6.923	2.465
Public Debt	11798.395	3818.470	13.520	144670.000	25686.472	17.515	3.978
GDP Growth Rate	3.180	3.400	-10.930	15.330	4.768	1.450	-0.464
Inflation Rate	19.040	13.900	5.400	72.800	15.296	3.225	1.878
Unemployment	14.993	11.900	1.800	56.100	14.587	1.302	1.432
Poverty Rate	54.427	59.300	27.200	88.000	15.133	-0.449	0.057

Correlation matrix

The correlation matrix in table 2 provides insight into the linear connections between poverty and other variables in the study that are grouped into control variables and independent variables. Among the control variables, the link between poverty and GDP growth rate is 0.0506, with a p-value of 0.000. Although the correlation is very weak and positive, the link is strong statistically, indicating a consistent but minimal association where slight increases in GDP growth rate correspond to slight increases in poverty. This could reflect growth patterns that do not convert to broad-based improvements in living standards. The link between poverty and inflation rate is negative ($r = -0.237$), meaning that higher inflation may be associated with lower poverty levels. However, with a p-value of 0.121, this connection is weak, suggesting the observed association may be as a result of random chance.

Similarly, the correlation between poverty and unemployment is very weak and positive ($r = 0.067$) with a p-value of 0.667, indicating no statistically meaningful relationship. The implication is that, among the data, alterations in unemployment do not significantly influence poverty levels. Among the explanatory variables, public revenue indicates a weak positive connection with poverty ($r = 0.187$, $p = 0.247$), and public spending has a similarly weak positive link ($r = 0.124$, $p = 0.427$). Both of them are non-significant, implying that variations in public fiscal activities are not directly connected with the alterations in poverty. Total national debt displays a negligible correlation with poverty ($r = 0.010$), yet it is significant (p -value = 0.000). In spite of the level of significance, the practical implication is minimal because of the extremely weak strength of the association. In summary, while GDP growth rate exhibits a statistically significant but positive correlation with poverty, all other variables, both control and independent, exhibit statistically non-significant relationships, underscoring the multifaceted nature of indigence and its determinants.

Table 2: Correlation Matrix

		Public Revenue	Public Expenditure	Public Debt	GDP Growth Rate	Inflation Rate	Unemployment	Poverty Rate
Public Revenue	Correlation Sig. (2-tailed)	1						
Public Expenditure	Correlation Sig. (2-tailed)	.848	1					
Public Debt	Correlation Sig. (2-tailed)	.720	.937	1				
GDP Growth Rate	Correlation Sig. (2-tailed)	.188	.019	-.006	1			
Inflation Rate	Correlation Sig. (2-tailed)	-.300	-.130	-.066	-.281	1		
Unemployment	Correlation Sig. (2-tailed)	.562	.569	.140	.053	-.322	1	
Poverty Rate	Correlation Sig. (2-tailed)	.187	.124	.010	.506	-.237	.067	1

Control variable: Unemployment, GDP Growth Rate, Inflation Rate. Dependent variable: Poverty Rate. Predictors: Total National Debt Outstanding, Total Revenue, Total Expenditure. *p-value < 0.05 (Significant)

Hierarchical Regression Analysis

The results of the hierarchical regression analysis in table 3 provide valuable provide valuable insights into how both control and explanatory variables affect poverty rate.

In the initial model that includes the control variables only, the R-squared is 0.269, indicating that approximately 26.9% of the variations in poverty rate is explained by these three variables. With an F-statistic of 4.791 and a p-value of 0.006, which is below 0.05 threshold, the model is statistically significant- confirming that it has explanatory power. Among the control variables, GDP Growth rate has a positive and strong impact on poverty rate, with a coefficient of 1.512 and p-value of 0.002. This suggests that a unit increase in GDP Growth rate causes a rise in poverty rate by 1.512. This is possibly as a result of the growth patterns that disproportionately benefit higher-income groups. In contrast, inflation rate has a negative statistically non-significant effect (coefficient = -0.108, p = 0.473), suggesting that inflation does not have a meaningful effect on poverty in this model. Unemployment has a very small impact (coefficient = -0.003) and is also non-significant (p = 0.987), indicating no meaningful connection exists between it and poverty amidst other variables.

In the second model, the independent variables (Public Revenue, public Expenditure, and National Debt) are added. This inclusion increases the R-squared to 0.304, meaning that the extended model explains 30.4% of the changes in poverty rate. The F-statistic is 2.617 with a p-value of 0.033, indicating the full model is statistically robust at 5% level. The R-squared change is 0.035, and this increase is significant, implying that adding the explanatory variables provides additional explanatory value. Public revenue has a positive and non-significant impact on poverty rate (coefficient = 0.001, p = 0.348). This indicates that a unit increase in public revenue will cause 0.001 rise in poverty level. This result agrees with the conclusion by Usman and Idoko (2021) who investigated the impact of tax revenue on poverty reduction in Nigeria from 1990 to 2019 and found that both PPT, CIT and VAT have positive link with poverty reduction. Public expenditure has an adverse and weak impact on poverty rate (coefficient = -0.002, p = 0.481). Even though this result conflicts with that of Birowo (2011), it conforms with Oduro (2001), Megbowon et al. (2020) and Aladelusi and Isiaka (2023) and Kwode (2024) that all examined the effect of public expenditure on poverty rate in Nigeria and discovered that public spending decreases poverty incidence.. Public debt has positive but non-significant impact on poverty rate (coefficient = 0.000, p = 0.448). This result is in consonance with the conclusions in Oyedele et al. (2013), Ozigbu (2018) and Nimvyap et al. (2023) who, after investigating the influence of external debt on poverty reduction in Nigeria found that poverty rate increases along with external debt in Nigeria. The results of the study completely show that while the inclusion of the public finance instruments in the model improves the latter slightly, they do not have strong direct impacts on poverty when controlling for economic factors like GDP Growth rate inflation, and unemployment. Further, the analysis discloses that GDP growth rate is the most influential and strong predictor of poverty among the variables studied, even though its positive link with poverty may seem counterintuitive. The inclusion of public finance instruments (revenue, expenditure and debt) modestly improves the model's explanatory power, but individually, they do not significantly affect the poverty rate.

Table 3: Result of Hierarchical Regression Analysis for Poverty Rate

Predictors	B	R ²	Δ R ²	F-Stat
Step 1				
Control variable		.269		4.791 (.006)
GDP Growth Rate	1.512 (.002)			
Inflation Rate	-.108 (.473)			
Unemployment	-.003 (.987)			
Step 2				
Independent variable		.304	.035*	2.617 (.033)
Public Revenue	.001 (.348)			
Public Expenditure	-.002 (.481)			
Public. Debt Outstanding	.000 (.448)			

Control variable: Unemployment, GDP Growth Rate, Inflation Rate. Dependent variable: Poverty Rate. Predictors: Total National Debt Outstanding, Total Revenue, Total Expenditure. *p-value < 0.05 (Significant)

Table 4: Regression Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error				Beta	Tolerance
1	(Constant)	51.913	5.183		10.017	.000		
	GDP Growth Rate	1.512	.452	.478	3.346	.002	.919	1.088
	Inflation Rate	-.108	.149	-.109	-.724	.473	.821	1.219
	Unemployment	-.003	.151	-.002	-.017	.987	.889	1.125
2	(Constant)	50.662	5.420		9.347	.000		
	GDP Growth Rate	1.348	.493	.426	2.735	.010	.798	1.254
	Inflation Rate	-.101	.155	-.102	-.652	.518	.790	1.266
	Unemployment	-.075	.226	-.072	-.333	.741	.410	2.442
	Public Revenue	.001	.001	.382	.952	.348	.420	2.339
	Public Expenditure	-.002	.003	-.631	-.713	.481	.925	3.588
	Public Debt	.000	.001	.481	.768	.448	.849	4.339

a. Dependent Variable: Poverty Rate

Diagnostic Plots

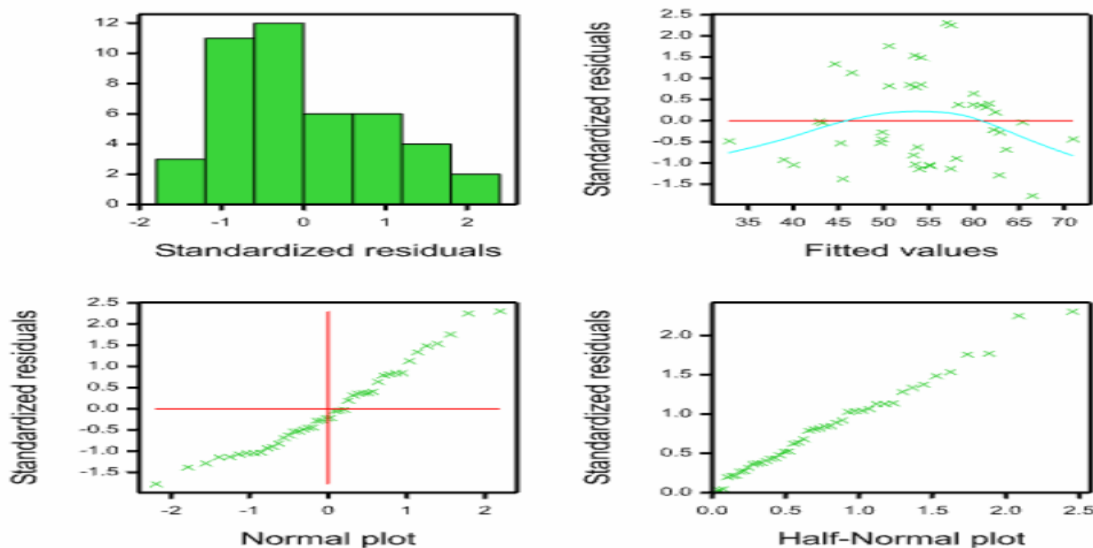


Fig 1: Diagnostic Plot

Diagnostic plot

The diagnostic plots as shown in fig 1 for the regression model, plus the standardized residuals plot, normal Q-Q plot, half-normal plot, and fitted values vs. residuals plot, show that the model assumptions are largely met. In the standardized residuals plot, a random scatter around zero suggests a good fit, while the normal Q-Q plot indicates that the residuals approximate a normal distribution, with any deviations being minor. The half-normal plot similarly indicates that there are no significant outliers, and that the fitted values vs. residuals plot reveals a consistent, random scatter around zero. This confirms the absence of heteroscedasticity. Overall, these findings suggest that the model is appropriate and robust, with only minor deviations from ideal conditions. Along with the diagnostic plot at fig 1, the line plots all confirm the robustness of the regression.

5.0 Conclusion and Recommendation

The study evaluated the impact of public finance instruments on poverty reduction in Nigeria. Its specific aims were to establish the effect of public revenue, public expenditure and public debt on poverty rate for 1981 to 2024. Unemployment, inflation and GDP growth rates were introduced in the model as control variables. The data-set were analyzed using correlation matrix and hierarchical regression model. Results show that none of the explanatory variables is statistically strong individually. The effects of public revenue and public debt on poverty incidence were found to be both positive and non-significant while public spending has adverse and weak effect on poverty rate. Further, the variables of the study were found to be all moving together in the same direction. The study recommends as follows:

1. In order to better the general wellbeing of the populace, public revenue should be wisely allocated to the construction of high-quality infrastructure, namely, schools, railroads, healthcare facilities and other commercial establishments throughout the states to help minimize the disparity in income between the nation's wealthiest and least fortunate citizens.
2. There ought to be a more holistic and sustained policy interventions, particularly in addressing structural barriers to poverty alleviation and improving the efficiency of public spending in Nigeria's socioeconomic development initiatives.
3. Results-oriented budgeting approach ought to be adopted by the government as would create the required effect on penury and inequity.
4. Governments should increase budgetary provisions or allocations to their poverty alleviation programmes and ensure sound management and efficient project implantation. In addition, it should encourage participation in the budget process.
5. Government should review its policies on tax holidays and external borrowing and mobilize domestic savings efforts to tackle the nuisance of indigence in Nigeria.

6. Finally, since a strong interrelationship exists among the variables used in this study, government is advised to fine-tune their public finance instruments to allow for the stimulation of the economy, reduce income imbalance and poverty level significantly.

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APPENDIX 1

ANNUAL HISTORICAL DATA

Year	Public Revenue (N'Billion)	Public Expenditure N'Billion)	Public Debt (N'Billion)	GDP Growth Rate	Inflation Rate	Unempt	Poverty Rate												
1981	13.3	11.41	13.52	-6.80	20.90	3.90	27.20												
1982	11.4	11.92	23.83	-6.80	7.70	3.90	27.20												
1983	10.5	9.64	82.80	-10.93	23.20	3.90	27.20												
1984	11.3	9.93	40.48	-1.11	39.60	3.90	27.20												
1985	15.1	13.04	45.25	5.91	5.50	6.10	46.30												
1986	12.6	16.22	69.89	0.06	5.40	5.30	46.30												
1987	25.4	22.02	137.52	3.20	10.20	7.00	45.40												
1888	27.8	27.75	180.59	7.33	38.30	5.30	42.70												
1989	53.9	41.03	287.44	1.92	40.90	4.00	42.70												
1990	98.1	60.27	382.70	11.78	7.50	3.50	44.00												
1991	101.0	66.58	446.75	0.36	13.00	3.10	44.00												
1992	190.5	92.80	722.22	4.63	44.50	3.40	42.70												
1993	192.8	191.23	806.98	-2.04	57.20	2.70	42.70												
1994	201.9	160.89	1,056.69	-1.82	57.00	2.00	42.70												
1995	460.0	248.77	1,194.60	-0.08	72.80	1.80	60.00												
1996	523.6	337.22	1,036.70	4.19	29.30	3.80	65.60												
1997	582.8	428.22	1,097.70	2.93	8.50	3.20	74.00												
1998	463.6	487.11	1,193.85	2.58	10.00	3.20	74.00												
1999	949.2	947.69	3,312.18	0.58	6.60	8.20	74.00												
2000	1,906.2	701.05	3,995.63	5.01	6.90	13.10	88.00												
2001	2,231.6	1,018.00	4,192.66	5.92	18.90	13.60	88.00												
2002	1,731.8	1,018.18	5,098.88	15.33	12.90	12.60	65.70												
2003	2,575.1	1,225.99	5,808.01	7.35	14.00	14.80	65.00												
2004	3,920.5	1,504.20	6,260.60	9.25	15.00	13.40	54.40												
2005	5,547.5	1,919.70	4,220.58	6.44	17.90	11.90	65.70												
2006	5,965.1	2,038.00	2,204.72	6.06	8.50	12.30	65.70												
2007	5,727.5	2,450.90	2,608.03	6.59	5.40	12.70	59.30												
2008	7,866.6	3,240.82	2,844.06	6.76	15.10	14.90	59.30												
2009	4,844.6	3,452.99	3,818.47	8.04	13.90	19.70	59.30												
2010	7,303.7	4,194.58	5,241.66	9.13	11.80	21.40	64.90												
2011	11,116.8	4,712.06	6,519.69	5.31	10.30	23.90	64.90												
2012	10,654.7	4,605.30	7,564.44	4.21	12.00	27.40	68.20												

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2013	9,759.8	5,185.32	8,505.71	5.49	8.00	24.70	67.00						
2014	10,068.9	4,587.39	9,535.53	6.22	8.00	25.10	46.00						
2015	6,912.5	4,988.86	10,948.51	2.79	9.60	29.20	40.75						
2016	5,616.4	5,858.56	14,537.12	-1.58	18.55	35.20	61.33						
2017	7,444.8	6,456.70	18,376.91	0.82	15.37	40.87	61.33						
2018	9,544.3	7,813.74	20,533.64	1.91	11.44	43.27	40.10						
2019	9,819.8	9,712.22	23,295.06	2.27	11.98	43.27	39.09						
2020	8,569.2	10,232.33	28,729.51	-1.92	15.75	56.10	39.10						
2021	10,345.0	12,164.15	35,097.79	3.40	15.63	56.10	63.00						
2022	12,586.53	14,946.25	40,912.61	3.10	21.34	5.30	62.90						
2023	12,370.0	19,808.44	91,477.86	2.74	28.92	5.40	62.90						
2024	18,320	27,500.00	144,670.00	3.40	12.48	5.30	47.00						

SOURCE: NBS, CBN AND WORLD BANK, CBN STATISTICAL BULLETIN