

Effect of Public Debt on Economic Development in Nigeria (1986-2024)

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DOI: <https://doi.org/10.51244/IJRSI.2026.1308000028>

Received: 09 August 2026; Accepted: 14 August 2026; Published: 27 August 2026

ABSTRACT

This study examined the effect of public debt on economic development in Nigeria over the period 1986–2024. Specifically, the study analyzed the influence of public debt on the Human Development Index (HDI), poverty level, Gross Domestic Product (GDP) per capita, and unemployment. The study was anchored on the Keynesian Theory of Public Debt and the Debt Overhang Theory. An ex-post facto research design was adopted, while annual secondary data were obtained from the Central Bank of Nigeria Statistical Bulletin and the World Bank Development Indicators. The Autoregressive Distributed Lag (ARDL) estimation technique was employed to examine the study because of its suitability for time-series data with mixed orders of integration. The empirical findings revealed that public debt exerts a positive but insignificant effect on the Human Development Index. public debt was found to have a positive but statistically insignificant effect on poverty. Furthermore, the results showed that public debt has a positive but statistically insignificant effect on GDP per capita. Likewise, public debt exhibited a positive but statistically insignificant effect on unemployment, indicating that debt accumulation has not significantly influenced employment generation. Overall, the study concludes that public debt has not significantly enhanced economic development in Nigeria. The study recommends that borrowed funds should be directed towards productive and labour-intensive sectors, while strengthening transparency, accountability, and project monitoring to ensure that public borrowing translates into sustainable economic development.

Keywords: Public debt, Economic development, Human Development Index, Poverty, GDP per capita, Unemployment.

1.0 INTRODUCTION

Public debt is an important instrument of fiscal policy that significantly influences the economic performance and developmental trajectory of nations. As countries pursue economic growth and sustainable development, governments frequently resort to both domestic and external borrowing to finance budget deficits, invest in infrastructure, and stimulate economic activities. Although public borrowing has the potential to accelerate economic development, its actual impact remains a subject of considerable debate within the macroeconomic literature, with empirical studies reporting mixed and often conflicting findings (Reinhart & Rogoff, 2010). Public debt enables governments to sustain public expenditure, particularly when tax revenues and other sources of government income are insufficient to meet growing expenditure demands or during periods of economic recession. It serves as a vital fiscal instrument for financing developmental programmes, maintaining macroeconomic stability, and supporting economic recovery during periods of fiscal stress (Ofurum & Fubara, 2022). Consequently, governments borrow to bridge the gap between available revenue and planned expenditure. This practice is especially prevalent in developing economies, where limited domestic resource mobilization constrains the government's ability to finance essential public investments. In such economies, deficit financing through domestic and external borrowing has become a major source of funding government expenditure (Abimboye, Ibeme, Ebele, & Musa, 2025). Furthermore, recurrent global economic crises have intensified the need for borrowing, particularly in developing countries that are often confronted with declining capital inflows alongside increasing public expenditure requirements (Ogbonna, Ibenta, Chris-Ejiogu, & Atsan, 2019).

Nigeria presents a typical example of an economy where government expenditure has consistently exceeded public revenue. According to Adegbe, Otitolaiye, Agugum, and Ajayi (2022), the persistent expansion of

government bureaucracy, coupled with other structural inefficiencies, has contributed significantly to recurring fiscal deficits. In addition, Nigeria's heavy dependence on crude oil exports as its principal source of government revenue has exposed public finances to fluctuations in international oil prices. Consequently, periods of declining oil prices have consistently weakened government revenue and widened fiscal imbalances. The country's fiscal deficits have persisted since the early 1980s following the collapse of the global oil market (Afure & Nnebe, 2024). Its developmental impact depends largely on the efficiency with which borrowed resources are utilized. When borrowed funds are invested in productive sectors such as infrastructure, education, healthcare, agriculture, and industrial development, they can stimulate productivity, generate employment, increase national income, and strengthen the government's capacity to meet future debt obligations. Conversely, when public debt finances predominantly recurrent expenditure rather than productive investments, the likelihood of debt becoming unsustainable increases substantially. Unsustainable debt accumulation undermines creditors' confidence in a country's repayment capacity, thereby reducing access to international credit markets or increasing the cost of borrowing through higher interest rates and more stringent lending conditions. Excessive public debt may also generate adverse macroeconomic consequences, including increased taxation, exchange rate depreciation, declining domestic savings, capital flight, and financial or balance-of-payments crises.

Economic development extends beyond the expansion of national output to encompass sustained improvements in the welfare and quality of life of a country's population (Okon, Etim, & Mfon, 2020). Unlike economic growth, which primarily measures increases in aggregate production or income, economic development reflects broader structural transformation characterized by poverty reduction, employment generation, equitable income distribution, improved healthcare and educational outcomes, infrastructure development, institutional strengthening, and enhanced social welfare (Ezenwobi & Anisiobi, 2021). Nigeria's growing public debt has therefore become a major concern for policymakers, development practitioners, and international financial institutions. According to the Central Bank of Nigeria (CBN) Statistical Bulletin (2024), the country's total public debt increased from ₦69.89 billion in 1986 to ₦140,720.28 billion in 2024, reflecting substantial increases in both domestic and external debt. As of 2024, external debt amounted to ₦70,310.42 billion, while domestic debt stood at ₦70,409.86 billion. The increase in external debt resulted primarily from additional borrowings and disbursements under existing multilateral and bilateral loan arrangements, whereas the rise in domestic debt was largely driven by the issuance of government securities to finance budget deficits, implement the 2024 Appropriation Act, meet contractual obligations, and accommodate borrowing by sub-national governments. Although Nigeria benefited from significant debt relief under the Paris Club agreement in 2005, which reduced the country's debt burden substantially between 2004 and 2006, public debt has continued to rise steadily in subsequent years. Prior to the debt cancellation, Nigeria's external debt was estimated at approximately US\$40 billion, with over US\$30 billion owed to the Paris Club alone. Since then, successive administrations have increasingly relied on borrowing to finance government expenditure, often with limited evidence that borrowed resources have generated commensurate developmental outcomes. Consequently, Nigeria's debt profile has continued to expand amid persistent concerns regarding fiscal sustainability, governance deficiencies, inefficient utilization of borrowed funds, and the country's long-term economic development prospects.

Statement of the Problem

The relationship between public debt and economic development remains one of the most debated issues in macroeconomic literature. Over the past two decades, Nigeria has experienced a substantial increase in public debt, driven by persistent fiscal deficits, declining oil revenues, exchange rate volatility, infrastructure financing needs, and recurring economic shocks, including the global financial crisis, fluctuations in international crude oil prices, and the COVID-19 pandemic. Although public borrowing has been justified as a mechanism for financing developmental projects, addressing infrastructure deficits, and supporting economic recovery, the rapid accumulation of both domestic and external debt has raised serious concerns regarding fiscal sustainability and the country's capacity to meet its debt obligations without compromising long-term economic development. The inconsistencies in the existing literature are further compounded by methodological differences among previous studies. Researchers have employed different estimation techniques, model specifications, measurement of variables, sample periods, and proxies for both public debt and economic development. Furthermore, many previous studies have concentrated on the aggregate stock of public debt without adequately examining its implications for multiple dimensions of economic development. Given the changing structure of

Nigeria's debt portfolio, the increasing reliance on both domestic and external borrowing, and the growing burden of debt servicing, there is a need for a comprehensive empirical investigation that evaluates whether rising public debt has translated into meaningful improvements in human development, poverty reduction, income levels, and employment generation.

Nigeria continues to experience persistent developmental challenges, despite Nigeria's substantial increase in public borrowing over the years, the country continues to experience significant developmental challenges. Rising debt servicing obligations have imposed considerable pressure on public finances by absorbing an increasing proportion of government revenue, thereby reducing the fiscal resources available for investment in critical sectors such as education, healthcare, agriculture, infrastructure, and industrial development. Consequently, resources that could have promoted long-term economic transformation are increasingly diverted towards servicing accumulated debt. These persistent socioeconomic challenges raise important concerns regarding the developmental effectiveness of public borrowing in Nigeria. Specifically, the fundamental question remains why the continuous expansion of public debt has not translated into the level of economic development predicted by economic theory for a developing economy such as Nigeria.

Against this background, this study seeks to examine the effect of public debt on economic development in Nigeria by investigating its influence on the Human Development Index, poverty level, GDP per capita, and unemployment over the period 1986–2024.

Objectives of the Study

The main objective of this study is to evaluate the effect of public debt on economic development in Nigeria. The specific objectives are:

1. To evaluate the effect of public debt on human development index in Nigeria.
2. To ascertain the effect of public debt on poverty level in Nigeria.
3. To examine the effect of public debt on gross domestic product per capita in Nigeria.
4. To assess the effect of public debt on unemployment in Nigeria

Research Hypotheses

The following research hypotheses stated in the null form guided this study

H0₁: Public debt has no significant effect of on human development index in Nigeria.

H0₂: Public debt has no significant effect on poverty level in Nigeria.

H0₃: Public debt has no significant effect on the gross domestic product per capita in Nigeria.

H0₄: Public debt has no significant effect on unemployment in Nigeria.

2.0 REVIEW OF RELATED LITERATURE

2.1 Conceptual Frame work

2.1.1 Public Debt

Public debt refers to the total financial obligations owed by a government to external and internal creditors as a result of borrowing to finance budget deficits and other economic activities (Amu ,Kanu., Akuwudike & Okere ,2025). It is essentially the cumulative amount of money that a government owes, arising when its expenditures exceed revenues, compelling it to seek funds from either domestic or foreign sources (Okezie & Promise, 2025). Public debt is often documented through instruments such as bonds, treasury bills, promissory

notes, and loans, which serve as evidence of the government's promise to repay the borrowed funds under agreed terms (Ikwuo et al., 2024). This form of debt is not limited to a single period but builds up over time as governments continuously borrow to address developmental projects, service previous debts, or stabilize their economies in times of crisis. Public debt can be seen as a reflection of the financial capacity of a state, since it provides resources that enable governments to meet obligations beyond the limits of tax revenue and other income sources (Abimboye et al., 2025).

2.1.2 Economic Development

Economic development refers to the broad and sustained process through which a country improves the standard of living of its population (Afure & Ifeanyi, 2024). It is not limited to increases in income or production but includes the overall advancement of social, health, educational, and infrastructural conditions. Unlike economic growth, which mainly refers to increases in output and income, economic development is a broader idea that looks at how well people benefit from such increases. It emphasizes improvements in living conditions, such as better housing, improved healthcare, job creation, and access to education. Development, in this sense, involves both quantitative and qualitative progress that shapes the overall welfare of society. Economic development is often linked to long-term structural changes in the economy (Ogbonna et al., 2023). It is a dynamic process that evolves as societies move from lower levels of productivity and welfare to higher ones. Economic development can be described as the path through which a country moves from underdevelopment to improved human well-being (Ofurum & Fubara, 2022). It highlights the transformation of both the economy and the society in ways that allow citizens to live longer, healthier, and more meaningful lives.

2.2 Theoretical Framework

Theoretical framework for this study anchored on Keynesian Theory of Public Debt and Debt Overhang Theory.

Keynesian Theory of Public Debt

The Keynesian theory argues that public debt is an effective instrument for stimulating economic growth and development, particularly during periods of economic recession or insufficient aggregate demand. Keynes maintained that government borrowing enables increased public expenditure on infrastructure, education, healthcare, and other productive investments, which create employment, increase household income, and stimulate aggregate demand. Through the multiplier effect, increased government spending encourages private investment and expands national output. From this perspective, public debt contributes positively to economic development when borrowed funds are invested in productive sectors capable of generating returns that exceed the cost of borrowing. Such investments enhance infrastructure, improve human capital, increase productivity, and promote sustainable economic growth. However, Keynesian economists acknowledge that excessive borrowing without productive investment may generate inflationary pressures, increase debt servicing costs, and reduce fiscal sustainability.

Debt Overhang Theory

The Debt Overhang Theory reassert how excessive public debt can hinder economic development. The theory proposes that when a country's debt reaches unsustainable levels, investors anticipate that future government revenues will primarily be used to repay existing debts rather than finance productive investments. Consequently, both domestic and foreign investors become reluctant to invest because they expect higher future taxes, macroeconomic instability, or possible debt default. This discourages private investment, slows economic growth, and reduces employment Opportunities. Debt overhang also diverts substantial government resources toward servicing debt instead of financing essential public services such as education, healthcare, infrastructure, and technological development. In highly indebted countries, rising debt-service obligations reduce fiscal space, thereby limiting the government's ability to promote inclusive and sustainable development.

2.3 Empirical Review of related studies

Ferraz (2026) analysed the impact of public debt on economic growth using panel data for thirty-eight countries from different continents covering the period 1974–2023. Employing the Pooled Mean Group–Autoregressive Distributed Lag (PMG-ARDL) model, the study found that the debt-to-GDP ratio exerted a negative and

statistically significant long-run effect on GDP per capita. The findings imply that excessive public debt undermines long-term economic performance and emphasize the importance of prudent fiscal management in promoting sustainable economic growth. Onuoha (2025) examined the mediating role of public expenditure in the relationship between domestic debt and economic growth in Nigeria using annual data from 1981 to 2020. Structural Equation Modelling (SEM) was employed after conducting the Augmented Dickey–Fuller unit root test. The study established that both domestic debt and public expenditure exert significant positive effects on economic growth, while public expenditure partially mediates the relationship between domestic debt and economic growth.

Amu, Kanu, Akuwudike, and Okere (2025) examined the relationship between public debt and economic development in Nigeria using an ex-post facto research design. The study assessed the effects of public debt on economic growth, aggregate demand, sectoral composition, and debt thresholds. The findings revealed the existence of debt thresholds of approximately 50–60 percent for external debt and 15–17 percent for domestic debt, beyond which debt accumulation adversely affects economic development. The study showed that both domestic and external debt exert significant negative effects on economic growth and development. Using the Autoregressive Distributed Lag (ARDL) technique, Oladele and Ojiekwe (2025) examined the effects of domestic debt, external debt, debt servicing, and debt maturity structure on Nigeria's economic growth over the period 2000–2023. Their findings indicated that domestic debt and debt maturity structure positively and significantly influence real GDP, whereas external debt and debt servicing costs exert significant negative effects. Okezie and Promise (2025) studied the effects of domestic and external public debt on Nigeria's economic performance using the Vector Error Correction Model (VECM) and causality analysis. The findings revealed that external debt contributes positively and significantly to economic growth when channelled towards productive investments, whereas domestic debt exerts a significant negative effect due to crowding-out effects and increasing fiscal pressure. Anaemena, Onwuatuolu, Ogbonna, and Ezeaku (2023) examined the effects of domestic and external debt on Nigeria's Human Development Index (HDI) and per capita income using the Granger causality approach. The study reported that both domestic and external public debt have no statistically significant effect on either HDI or per capita income. Asinya, Nelson, and Iyamba (2024) examined the ever-growing public debts profile and economic growth in Nigeria for the period spanning 1986 – 2022. Time series data on domestic and external debts was used to capture the overall debt obligation. An empirical investigation was conducted using time series data on Gross Domestic Product (GDP), domestic and external debts profile from 1986 – 2022. Ordinary Least Squares econometric technique was used. Before estimation, the stationarity of the variables was examined, co-integration technique was applied to test for the order of integration, while Augmented Dickey–fuller (ADF) unit root test was used to determine the stationarity of the data and granger causality test. The result shows that, domestic debt has a negative relationship with GDP while external debt has a positive and significant relationship with GDP. Akanbi and Uwaleke (2023) analysed the relationship between domestic public debt and economic development in Nigeria from 1981 to 2019 using the ARDL methodology. The findings showed that domestic debt positively influenced economic growth during the military era but exhibited a negative relationship during the democratic period. The study also reported that budget deficits had a positive, though statistically insignificant, relationship with economic growth. Obiero and Topuz (2023) examined the nonlinear effects of domestic and public debt on Kenya's economic development using the Smooth Transition Regression model. Their findings revealed a U-shaped relationship between debt and economic growth, implying that debt contributes positively to growth only after specific threshold levels are attained.

Nisa (2023) assessed the effects of domestic debt on Pakistan's economic development using the Ordinary Least Squares (OLS) technique. The results indicated that domestic debt positively contributes to economic growth, whereas debt servicing exerts a negative influence because of the increasing burden of non-developmental expenditure. Usman and Ishaq (2022) analysed the effects of external and domestic debt on Nigeria's real Gross Domestic Product using the Vector Error Correction Model (VECM). The findings showed that external debt positively contributes to economic growth in both the short and long run, while domestic debt exerts a negative effect on economic performance. Odubuasi, Uzoka, and Anichebe (2018) examined the effect of external debt on Nigeria's economic growth using Johansen Cointegration and Granger Causality techniques. Their findings showed that external debt stock and government capital expenditure positively influence economic growth, whereas external debt servicing has no significant effect. Similarly, Thao (2018) investigated six ASEAN countries using the Generalized Method of Moments (GMM) estimation technique and found that public debt

positively and significantly affects economic growth. Essien, Agboegbulem, Mba, and Onumonu (2016) extended previous studies by incorporating both domestic and external debt into their analysis of Nigeria. The study found that both debt components negatively affect economic growth, with domestic debt exerting a stronger adverse effect due to the crowding-out of private sector credit.

3.0 METHODOLOGY

The effect of public debt on economic development in Nigeria over a period of thirty nine (39) years, that is, from 1986 to 2024 was ascertained using an ex-post facto research design.

Sources of Data

The secondary data on human development index, poverty level, gross domestic product per capita, and public debt were obtained from the Central Bank of Nigeria (CBN) statistical bulletin and World Bank Development Indicators from 1986 to 2024.

Variables of the Models

Human Development Index (HDI), Poverty Level (POV), Gross Domestic Product Per Capita (GDPC) and Unemployment (UNEMP) are the dependent variables and proxies for measuring economic development. Public Debt (PUB) which comprises of total domestic and external debt is the independent variables.

Model Specification and Description of Variables

The study adopted and modified the model of Asinya, Nelson, and Iyamba (2024) The original model of Asinya, Nelson, and Iyamba (2024) is stated as:

$$\text{LnGDP} = f(\text{LnDD}, \text{LnFD}) \quad 3.1$$

Where:

LnGDP = Economic growth

LnDD = Domestic debt

LnFD = Foreign debt

In an attempt to evaluating the effect of public debt on economic development in Nigeria, the following models were developed and stated functionally as:

$$\text{HDI} = f(\text{PUB}) \quad 3.2$$

$$\text{POV} = f(\text{PUB}) \quad 3.3$$

$$\text{GDPC} = f(\text{PUB}) \quad 3.4$$

$$\text{UNEMP} = f(\text{PUB}) \quad 3.5$$

Where:

HDI - human development index;

POV - poverty level;

GDPC - gross domestic product per capita;

UNEMP is unemployment;

PUB - public debt;

a_0 is constant coefficient;

a_1 is the coefficient of the independent variable;

u is a random error term and,

t is the time trend; which are usually included in an econometric model to take into consideration of omitted variables.

Techniques for Data Analysis

The data were analyzed and presented based on the objectives, hypotheses and research questions. The models were estimated using the Auto-regressive Distributive Lag (ARDL) model estimation method with the help of E-Views version 13.0.

Econometric Statistics

The results of the Auto-regressive Distributive Lag (ARDL) estimation for the models were interpreted using coefficient of individual variable, Adjusted R-Squared, F-Statistic and Durbin Watson test of autocorrelation.

4.2 Data analysis and Discussion of Findings

This section analyzed and discussed the generated statistical data in respect of the dependent and independent variables.

Human Development Index, Poverty Level, GDP per Capita, Unemployment, and Public Debt from 1986 to 2024

Year	Human Development Index	Poverty Level (%)	GDP per Capita (US Dollars)	Unemployment Rate (%)	Public Debt (Billion Naira)
1986	0.51	51.10	1,414.70	5.30	69.89
1987	0.52	51.10	1,422.83	7.00	137.58
1988	0.52	51.10	1,488.18	5.10	180.99
1989	0.53	51.10	1,477.61	4.50	287.44
1990	0.58	51.10	1,608.71	3.50	382.71
1991	0.53	51.10	1,573.70	3.10	444.65
1992	0.58	55.20	1,605.55	3.50	722.23
1993	0.53	55.20	1,533.18	3.40	906.98
1994	0.58	55.20	1,467.09	3.20	1,056.40
1995	0.53	55.20	1,429.01	0.90	1,194.60
1996	0.59	60.90	1,451.82	2.80	1,037.30
1997	0.55	60.90	1,457.73	3.40	1,097.68

1998	0.52	60.90	1,457.70	3.50	1,193.85
1999	0.67	60.90	1,429.41	17.50	3,372.18
2000	0.64	60.90	1,462.54	18.10	3,995.64
2001	0.60	60.60	1,508.55	13.70	4,193.27
2002	0.45	60.90	1,693.75	12.20	5,098.89
2003	0.45	51.10	1,769.88	14.80	5,808.01
2004	0.46	54.40	1,882.18	11.80	6,260.59
2005	0.47	54.40	1,950.12	11.90	4,220.98
2006	0.48	54.40	2,013.27	12.30	2,204.72
2007	0.48	54.40	2,088.60	12.70	2,608.53
2008	0.48	54.40	2,170.06	14.70	2,843.56
2009	0.48	54.40	2,281.39	19.70	3,818.47
2010	0.48	69.00	2,397.32	21.10	5,241.66
2011	0.49	35.20	2,455.75	23.90	6,519.69
2012	0.50	33.10	2,490.21	23.90	7,564.44
2013	0.51	33.10	2,585.65	10.00	8,506.31
2014	0.51	33.10	2,677.49	7.80	9,535.53
2015	0.52	33.10	2,679.55	10.40	10,948.51
2016	0.52	30.90	2,570.96	14.20	14,537.12
2017	0.53	30.90	2,527.00	18.80	18,377.00
2018	0.53	40.10	2,512.08	23.10	20,533.64
2019	0.54	40.10	2,505.46	27.10	23,295.07
2020	0.54	40.10	2,401.18	33.30	28,729.50
2021	0.54	40.10	2,429.59	35.00	35,097.79
2022	0.54	40.10	2,449.59	32.83	40,912.62
2023	0.54	38.90	2,460.39	31.53	91,477.86
2024	0.55	46.00	2,447.64	32.23	140,720.28

Source: Central Bank of Nigeria (CBN) statistical bulletin and World Bank

It started with the hypothesis in Null form.

H0₁: Public debt has no significant effect of on human development index in Nigeria.

Dependent Variable: HDI
Method: ARDL
Date: 05/15/26 Time: 11:49
Sample (adjusted): 1987 2024
Included observations: 38 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): PUB
Fixed regressors: C
Number of models evaluated: 20
Selected Model: ARDL(1, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	0.593916	0.135890	4.370557	0.0001
PUB	8.52E-08	2.43E-07	0.351271	0.7275
C	0.213840	0.071768	2.979578	0.0052

R-squared	0.357439	Mean dependent var	0.527895
Adjusted R-squared	0.320721	S.D. dependent var	0.048332
S.E. of regression	0.039835	Akaike info criterion	-3.532510
Sum squared resid	0.055538	Schwarz criterion	-3.403227
Log likelihood	70.11769	Hannan-Quinn criter.	-3.486512
F-statistic	9.734762	Durbin-Watson stat	2.072548
Prob(F-statistic)	0.000435		

*Note: p-values and any subsequent tests do not account for model selection.

The estimated model examines the effect of Public debt (PUB) on the Human Development Index (HDI) in Nigeria using the ARDL methodology over the period 1987–2024. The optimal model selected by the Akaike Information Criterion (AIC) is ARDL(1,0), indicating one lag of the dependent variable and no lag of the explanatory variable. The coefficient of the lagged HDI is 0.5939, implying that approximately 59.4% of the previous year's human development level is carried over into the current year. This reflects a strong persistence in human development outcomes over time. The p-value (0.0001) is less than 0.05, indicating that the coefficient is statistically significant. Therefore, past levels of human development significantly influence current human development performance in Nigeria. The R² value of 0.3574 indicates that approximately 35.7% of the variations in HDI are explained by the model. The adjusted R² of 32.1% suggests a moderate explanatory power. The probability value of the F-statistic (0.000435) is less than 0.05, indicating that the model is jointly significant. This means that the explanatory variables, taken together, significantly explain changes in the Human Development Index. The Durbin-Watson statistic is approximately 2.07, which is very close to 2. This suggests the absence of first-order serial correlation in the residuals, indicating that the model does not suffer from autocorrelation problems. The coefficient of public debt is positive 8.5208 , indicating that increases in public debt tend to improve the Human Development Index. However, the coefficient is extremely small and the p-value 0.7275 is greater than 0.05, implying that the effect is statistically insignificant. This suggests that although public debt appears to have a positive relationship with human development, the evidence is insufficient to conclude that public debt has a meaningful effect on HDI during the study period.

DISCUSSION OF FINDINGS

The findings reveal that public debt has a positive but statistically insignificant effect on human development in Nigeria between 1987 and 2024. While increased government debt is theoretically expected to improve welfare through investments in education, health, and social infrastructure, the empirical evidence suggests that public debt has not translated effectively into measurable improvements in human development outcomes.

Hypothesis Decision

H₀: Public debt has no significant effect on human development in Nigeria.

Since the p-value of PUB (0.7275) is greater than 0.05, the null hypothesis cannot be rejected.

H02: Public debt has no significant effect on poverty level

Dependent Variable: POV
Method: ARDL
Date: 05/15/26 Time: 11:52
Sample (adjusted): 1987 2024
Included observations: 38 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): PUB
Fixed regressors: C
Number of models evaluated: 20
Selected Model: ARDL(1, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
POV(-1)	0.800637	0.112146	7.139227	0.0000
PUB	2.00E-06	4.36E-05	0.045825	0.9637
C	9.642611	5.882535	1.639193	0.1101
R-squared	0.636731	Mean dependent var	49.04211	
Adjusted R-squared	0.615973	S.D. dependent var	10.53090	
S.E. of regression	6.525988	Akaike info criterion	6.665118	
Sum squared resid	1490.598	Schwarz criterion	6.794401	
Log likelihood	-123.6372	Hannan-Quinn criter.	6.711116	
F-statistic	30.67370	Durbin-Watson stat	2.303514	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection.

The model examines the effect of Public debt (PUB) on Poverty (POV) in Nigeria over the period 1987–2024 using the ARDL estimation technique. The Akaike Information Criterion (AIC) selected an ARDL(1,0) model, indicating one lag of the dependent variable and no lag of the explanatory variable. the previous year's poverty level persists into the current year. The R^2 value of 0.6367 implies that approximately 63.7% of the variations in poverty are explained by the model. The adjusted R^2 of 61.6% indicates a reasonably good fit after accounting for the number of explanatory variables included in the model.

The probability of the F-statistic is 0.0000, which is less than 0.05. This indicates that the model is jointly significant, meaning that the explanatory variables collectively explain variations in poverty over the study period. The Durbin-Watson statistic of 2.30 is close to the ideal value of 2. This suggests that there is no serious first-order autocorrelation in the residuals and that the model satisfies one of the key assumptions of regression analysis. The coefficient is positive and highly statistically significant at the 1% level ($p = 0.0000$). This suggests that poverty in Nigeria exhibits a strong degree of persistence, meaning that current poverty conditions are heavily influenced by past poverty levels. The coefficient of public debt is positive (2.00×10^{-6}), indicating that increases in public debt are associated with a very slight increase in poverty. However, the coefficient is statistically insignificant because the p-value (0.9637) is substantially greater than 0.05. This implies that public debt does not exert a significant effect on poverty reduction in Nigeria during the study period. The extremely small coefficient further indicates that the magnitude of the effect is negligible. The finding suggest that increases in government debt have not effectively translated into poverty alleviation, possibly due to: Inefficient allocation of public resources, weak implementation of poverty-reduction programmes, The intercept is positive but statistically insignificant because its p-value exceeds 0.05.

DISCUSSION OF FINDINGS

The ARDL results reveal that public debt has a positive but statistically insignificant effect on poverty in Nigeria.

Hypothesis Testing

Null Hypothesis (H_0): Public debt has no significant effect on poverty reduction in Nigeria.

Since the p-value of public debt (0.9637) is greater than 0.05, the null hypothesis cannot be rejected.

H0₃: Public debt has no significant effect on the gross domestic product per capita in Nigeria.

Dependent Variable: GDPC
Method: ARDL
Date: 05/15/26 Time: 11:43
Sample (adjusted): 1989 2024
Included observations: 36 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): PUB
Fixed regressors: C
Number of models evaluated: 20
Selected Model: ARDL(3, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDPC(-1)	1.294839	0.170534	7.592826	0.0000
GDPC(-2)	-0.016031	0.286486	-0.055958	0.9557
GDPC(-3)	-0.299124	0.171680	-1.742334	0.0914
PUB	-6.69E-05	0.000427	-0.156603	0.8766
C	50.52631	47.77276	1.057638	0.2984
R-squared	0.985126	Mean dependent var	2025.048	
Adjusted R-squared	0.983207	S.D. dependent var	464.2529	
S.E. of regression	60.16241	Akaike info criterion	11.16022	
Sum squared resid	112205.0	Schwarz criterion	11.38015	
Log likelihood	-195.8839	Hannan-Quinn criter.	11.23698	
F-statistic	513.2849	Durbin-Watson stat	1.857379	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection.

The Autoregressive Distributed Lag (ARDL) estimation was conducted to examine the effect of public debt on economic development in Nigeria, using Gross Domestic Product per Capita (GDPC) as the proxy for economic development over the period 1989 to 2024. Based on the Akaike Information Criterion (AIC), the optimal model selected was ARDL(3,0), indicating that the current value of GDP per capita is explained by its three lagged values and the contemporaneous value of public debt (PUB). The model was estimated using 36 annual observations after necessary adjustments. The regression results reveal that the first lag of GDP per capita [GDPC(-1)] has a positive coefficient of 1.294839 and is statistically significant at the 1 percent level ($p = 0.0000$). This finding indicates that the previous year's level of GDP per capita has a strong positive influence on the current level of GDP per capita. The result suggests a high degree of persistence in economic development, implying that improvements in GDP per capita are likely to be sustained over time. This outcome reflects the dynamic nature of economic growth, where past performance significantly influences current economic outcomes. Conversely, the second lag of GDP per capita [GDPC(-2)] has a negative coefficient of -0.001603, but the relationship is statistically insignificant ($p = 0.9557$). This indicates that GDP per capita recorded two years earlier does not exert any meaningful influence on current economic development. Similarly, the third lag of GDP per capita [GDPC(-3)] has a negative coefficient of -0.299124 and is statistically significant only at the 10 percent level ($p = 0.0914$). Although the coefficient suggests that economic performance three years earlier may exert a mild negative influence on current GDP per capita, the evidence is relatively weak and does not meet the conventional 5 percent level of statistical significance. This negative relationship may reflect cyclical adjustments or the long-term effects of previous economic fluctuations. The principal explanatory variable, public debt (PUB), records a positive coefficient of 6.69×10^{-5} , indicating that increases in public debt are associated with slight increases in GDP per capita. However, the coefficient is statistically insignificant, as evidenced by its probability value of 0.8766, which is substantially higher than the 5 percent significance level. This implies that public debt does not have a statistically significant effect on economic development in Nigeria during the study period. Although the positive sign suggests that debt financing may contribute marginally to improvements in GDP per capita, the lack of statistical significance indicates that the observed relationship is too weak to conclude that public debt has been an effective driver of economic development. The overall performance of the estimated model is satisfactory. The coefficient of determination (R^2) is 0.985126, indicating that approximately 98.51 percent of the variation in GDP per capita is explained by the explanatory variables included in the model. Likewise, the adjusted R^2 of 0.983207 shows that, after adjusting for the degrees of freedom, about 98.32 percent of the changes in GDP per capita are accounted for by the model. These statistics indicate that the model possesses a very high explanatory power. Furthermore, the F-statistic of 513.2849, with a corresponding probability value of 0.0000, demonstrates that the model is statistically significant as a whole. This implies that the explanatory variables jointly provide a significant explanation for variations in GDP per capita. The Durbin-Watson statistic of 1.857379, which is close to the benchmark value of two, indicates the

absence of serious first-order autocorrelation among the residuals, suggesting that the estimated coefficients are reliable and free from substantial serial correlation problems. Overall, the ARDL results indicate that while GDP per capita exhibits strong persistence over time, public debt does not exert a statistically significant influence on economic development in Nigeria during the study period. Although the model demonstrates excellent explanatory power and is statistically robust, the empirical evidence suggests that increases in public debt alone have not translated into meaningful improvements in GDP per capita.

H04: Public debt has no significant effect on the rate of employment in Nigeria.

Dependent Variable: UNEMP

Method: ARDL

Date: 05/15/26 Time: 13:25

Sample (adjusted): 1988 2024

Included observations: 37 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): PUB

Fixed regressors: C

Number of models evaluated: 20

Selected Model: ARDL(2, 0)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
UNEMP(-1)	1.168267	0.164869	7.086032	0.0000
UNEMP(-2)	-0.338169	0.179478	-1.884178	0.0684
PUB	4.39E-05	3.41E-05	1.288218	0.2066
C	2.201303	1.249096	1.762317	0.0873
R-squared	0.859986	Mean dependent var	14.63486	
Adjusted R-squared	0.847257	S.D. dependent var	10.16719	
S.E. of regression	3.973574	Akaike info criterion	5.699015	
Sum squared resid	521.0466	Schwarz criterion	5.873168	
Log likelihood	-101.4318	Hannan-Quinn criter.	5.760412	
F-statistic	67.56337	Durbin-Watson stat	1.935557	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection.

The Autoregressive Distributed Lag (ARDL) model was estimated to examine the effect of public debt on unemployment in Nigeria over the period 1988–2024, using annual time series data. Based on the Akaike Information Criterion (AIC), the optimal model selected was ARDL(2,0), indicating that the current unemployment rate (UNEMP) is explained by its two lagged values and the contemporaneous value of public debt (PUB). The model was estimated using 37 observations after adjustments.

The regression results indicate that the first lag of unemployment, UNEMP(-1), has a positive coefficient of 1.168267 and is statistically significant at the 1 percent level, with a probability value of 0.0000. This finding suggests that unemployment exhibits a high degree of persistence over time. Specifically, an increase in the unemployment rate in the preceding year leads to a corresponding increase in the current unemployment rate. This persistence reflects the structural nature of unemployment in Nigeria, where labour market rigidities, inadequate job creation, low industrial productivity, and slow economic transformation make it difficult for unemployment to decline in the short run.

The second lag of unemployment, UNEMP(-2), has a negative coefficient of -0.338169 and is statistically insignificant, with a probability value of 0.0684. Although the negative sign suggests that unemployment recorded two years earlier may contribute to a slight reduction in the current unemployment rate, the relationship is not statistically significant at the conventional 5 percent level. Consequently, there is insufficient empirical evidence to conclude that unemployment from two years prior has a meaningful influence on current unemployment. This finding implies that the effect of past unemployment diminishes over time and that more recent labour market conditions play a greater role in determining current unemployment levels.

The principal explanatory variable, public debt (PUB), has a positive coefficient of 4.39×10^{-5} , indicating that increases in public debt are associated with marginal increases in unemployment. However, the coefficient is statistically insignificant, as indicated by its probability value of 0.2078, which exceeds the 5 percent significance level. This result implies that public debt does not have a statistically significant effect on unemployment in Nigeria during the period under review. Although the positive coefficient suggests that increases in public

borrowing may be accompanied by slight increases in unemployment, the evidence is insufficient to conclude that public debt is a significant determinant of unemployment.

The overall performance of the estimated model is satisfactory. The coefficient of determination (R^2) is 0.859986, indicating that approximately 85.99 percent of the variation in unemployment is explained by the explanatory variables included in the model. The adjusted coefficient of determination (Adjusted R^2) of 0.847257 further shows that, after accounting for the number of explanatory variables, approximately 84.73 percent of the variations in unemployment are explained by the model. These statistics indicate that the estimated model possesses strong explanatory power.

Furthermore, the F-statistic of 67.56337, with a corresponding probability value of 0.0000, indicates that the explanatory variables are jointly statistically significant in explaining variations in unemployment. This confirms the overall reliability and goodness-of-fit of the estimated model. In addition, the Durbin-Watson statistic of 1.935557 is close to the benchmark value of two, suggesting the absence of serious first-order autocorrelation among the residuals. This implies that the estimated coefficients are reliable and that the regression does not suffer from significant serial correlation problems.

Overall, the ARDL estimation reveals that unemployment in Nigeria is largely influenced by its own past values, demonstrating considerable persistence over time. Although public debt exhibits a positive relationship with unemployment, its effect is statistically insignificant, indicating that public borrowing has not significantly influenced unemployment during the study period. This finding suggests that increasing public debt alone is insufficient to reduce unemployment unless borrowed funds are effectively channelled into productive sectors capable of generating sustainable employment opportunities.

5.0 CONCLUSION AND RECOMMENDATION

The findings of the study, shows that Public debt has no significant effect on the economic development in Nigeria, based on the findings of this study the researcher makes the following recommendations:

1. The government should prioritize the utilization of borrowed funds for investments in education, healthcare and affordable housing. Since the Human Development Index is largely determined by health, education, and living standards.
2. Government should strengthen project planning, implementation, monitoring, and evaluation to ensure that debt-financed projects achieve measurable poverty reduction outcomes.
3. Strong monitoring and evaluation mechanisms should be implemented to ensure that borrowed funds are used efficiently and transparently. Reducing corruption and project delays would increase the developmental impact of public debt.
4. The government should ensure that borrowed funds are invested in productive and labour-intensive sectors such as agriculture, manufacturing, infrastructure, solid minerals, and small and medium-sized enterprises (SMEs). Investments in these sectors have greater potential to create sustainable employment opportunities and reduce unemployment.

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