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DEFENSE SPENDING AND POVERTY DYNAMICS IN NIGERIA (1995-2024)

Tope Isaiah Omotosho Children and Family Health Foundation, Aroniro's Crescent, Odo-dofin Street, Off Otun Road, Iro-Ekiti, Moba LGA, Ekiti State

Adamu Jibrilla Department of Economics, Faculty of Social Sciences, Communication and Media Studies, Adamawa State University (ADSU), Mubi Nigeria

Abstract

This study investigates the effect of defence expenditure on poverty dynamics in Nigeria, covering the period 1995 to 2024. Using time series data, the study examines recurrent defence expenditure (RDE), capital defence expenditure (CDE), and total defence expenditure (TDE) as the main independent variables, while human development index (HDI), household consumption expenditure (HCE), poverty rate (POR), and gross domestic product per capita (GDPPC) serve as proxies for poverty dynamics. Control variables include inflation rate (INF), exchange rate (EXR), and interest rate (INT). The study employs descriptive statistics, Pearson correlation analysis, Augmented Dickey-Fuller (ADF) unit root tests, and Ordinary Least Squares (OLS) regression models to assess the relationships among variables and ensure the robustness of findings. The results reveal that recurrent defence expenditure has a positive but statistically insignificant effect on all poverty indicators, with coefficients of 0.223454 (HDI, $p = 0.8183>0.05$), 0.321964 (HCE, $p = 0.9459>0.05$), 0.243344 (POR, $p = 0.1091>0.05$), and 0.163597 (GDPPC, $p = 0.2851>0.05$), indicating limited direct impact on welfare. Capital defence expenditure positively influences poverty dynamics, with coefficients of 0.123486 (HDI), 0.212187 (HCE, $p = 0.0290<0.05$), 0.222008 (POR, $p = 0.0386<0.05$), and 0.170559 (GDPPC), showing significant effects on HCE and POR. Total defence expenditure has positive effects with coefficients of 0.212085 (HDI), 0.145572 (HCE), 0.186692 (POR), and 0.323491 (GDPPC, $p = 0.0359<0.05$), with significance only for GDPPC. Macroeconomic variables, particularly inflation, exchange rate, and interest rate, also significantly affect poverty dynamics. The study concludes that defence expenditure exerts a statistically positive impact on poverty dynamics in NigeriaThe study recommends prioritizing development-oriented defence spending, integrating defence expenditure with social policies, enhancing efficiency, and maintaining macroeconomic stability.

Keywords: Defence expenditure, Poverty dynamics, Human Development Index, Household Consumption Expenditure, GDP per capita.

1. Introduction

Poverty in Nigeria has deepened in recent years, affecting a large share of the population despite intermittent economic growth. Recent research shows that government expenditure has been a key factor in shaping poverty trends, but its effectiveness is mixed due to structural and fiscal challenges that persist in the economy (Kwode, 2024). For example, studies indicate that Nigeria has struggled to translate public spending into improved living standards, as poverty remains widespread even with increased budgetary outlays (Agbeni et al., 2025). National evidence reveals that government spending has a positive but limited impact on poverty reduction, suggesting that broad fiscal allocations alone are not sufficient to address entrenched deprivation (Kwode, 2024; Agbeni et al., 2025). This reflects broader findings that while fiscal policy can influence poverty outcomes, inefficiency and weak targeting of resources often undermine its potential to

reduce poverty effectively in Nigeria (Sani & Akudo, 2025). The trend of poverty dynamics in Nigeria underscores this challenge, with a significant proportion of the population living below national and international poverty lines. According to Agbeni et al. (2025), an estimated 67.12% of Nigerians live below one dollar per day, highlighting the severity of poverty despite decades of development efforts.

Such high incidence suggests that increases in aggregate government expenditure have not meaningfully lowered poverty levels in either the short or long run, according to disaggregated analyses of government spending (Agbeni et al., 2025). Additional research confirms that public spending outcomes on poverty are constrained by macroeconomic volatility, demographic pressures, and weak fiscal effectiveness (Kwode, 2024). These patterns reveal that while government budgetary allocations have grown, poverty has remained stubbornly persistent, indicating that spending patterns, and not only the level of spending, are crucial for reducing poverty in Nigeria (Sani & Akudo, 2025). In the context of rising insecurity, defence spending has increasingly claimed a larger share of government resources, raising questions about its implications for social welfare. Defence spending refers to government expenditures on military and security functions, including personnel costs, operations, procurement, equipment, and infrastructure to maintain national security (Amana et al., 2020). Nigerian budgets have reflected this trend, with the 2025 defence and security allocation reaching about ₦6.57 trillion, of which a large portion is reserved for personnel and operational costs (Budgit, 2025).

Despite the high allocation, insecurity remains pervasive, with limited evidence that increased defence spending has improved security outcomes or translated into broader human development gains (Ezenwajiobi & Ishaka, 2025). While earlier studies such as Amana et al. (2020) and Ayange et al. (2020) report positive contributions of security expenditure to economic growth, the poverty implications of defence spending have received far less empirical attention, particularly in the Nigerian context where insecurity and fiscal constraints coexist. Defence expenditure is usually disaggregated into recurrent and capital components, each with potentially distinct socioeconomic effects. Recurrent defence expenditure includes ongoing operational costs such as salaries, maintenance, and logistics for military personnel, which have been shown to contribute significantly to macroeconomic measures in prior studies (Amana et al., 2020). Capital defence expenditure covers long-term investments in equipment, infrastructure, and modernisation projects, which may stimulate economic activity but also draw substantial budgetary resources away from social sectors (Budgit, 2025). However, much of the existing literature focuses on the relationship between defence spending and economic growth, with limited research directly linking defence spending components to poverty dynamics. This gap is important because defence allocations may compete with social investments in education, health, and infrastructure, areas shown to impact poverty outcomes in Nigeria (Kwode, 2024). Therefore, there is a compelling need to examine how recurrent and capital defence spending influence poverty dynamics, especially when important macroeconomic factors like inflation, exchange rates, and interest rates are accounted for in the analysis.

Nigeria continues to face persistent and widespread poverty despite several decades of economic growth and government intervention. According to Agbeni et al. (2025), approximately 67.12% of Nigerians live below the international poverty line, highlighting the severity and scale of deprivation across the country. The Human Development Index (HDI) also remains low compared to other sub-Saharan African countries, reflecting deficiencies in health, education, and income levels (Kwode, 2024). These statistics underscore that while government expenditures have increased in absolute terms over the years, particularly during periods of economic expansion, they have not translated into meaningful reductions in poverty. This raises critical questions about the allocation, efficiency, and impact of public spending on human development and poverty alleviation (Sani & Akudo, 2025).

A growing concern is the rapid increase in defence spending, which has absorbed a significant portion of

Nigeria's national budget in recent years, potentially at the expense of poverty-reducing sectors. For instance, the 2025 federal budget allocated approximately ₦6.57 trillion to defence and security, of which a large portion is recurrent expenditure for personnel and operational costs (Budgit, 2025; Ezenwajiobi & Ishaka, 2025). While security spending is essential in addressing the rising threats of insurgency, terrorism, and communal conflicts, studies indicate that the high level of defence expenditure may crowd out allocations to sectors that directly improve social welfare, such as education, healthcare, and social protection (Amana et al., 2020; Ayange et al., 2020). The long-term implications of this fiscal prioritization on poverty dynamics remain underexplored, with limited empirical evidence linking different components of defence spending, recurrent versus capital, to actual poverty reduction outcomes in Nigeria.

Furthermore, empirical findings on the socioeconomic effects of defence expenditure are mixed, creating uncertainty about its role in shaping poverty dynamics. Amana et al. (2020) and Adama et al. (2022) report that both recurrent and capital security spending contribute positively to economic growth, while Oyekachi et al. (2024) note that internal security expenditure has short-run positive effects but long-run negative implications for economic outcomes. Despite these analyses of growth impacts, very few studies examine how defence spending influences poverty incidence, HDI, or human development indicators directly. Consequently, policymakers face a challenge in balancing national security needs with poverty reduction goals, particularly given macroeconomic pressures such as inflation, exchange rate volatility, and high interest rates (Kwode, 2024; Sani & Akudo, 2025). This knowledge gap motivates the current study to investigate the effects of recurrent, capital, and total defence expenditure on poverty dynamics in Nigeria over the period 1995–2024.

The following questions were raised as a guide for this study:

i. What is the effect of recurrent defence expenditure on poverty dynamics in Nigeria
ii. How does capital defence expenditure affect poverty dynamics in Nigeria
iii. To what extent does total defence expenditure affect poverty dynamics in Nigeria

The study examines the effect of defence expenditure on poverty dynamics in Nigeria. Specifically, the study;

i. investigate the effect of recurrent defence expenditure on poverty dynamics in Nigeria
ii. determine the effect of capital defence expenditure on poverty dynamics in Nigeria
iii. evaluate the effect of total defence expenditure on poverty dynamics in Nigeria

The following null hypotheses were formulated and tested at a 5% significance level:

i. Recurrent defence expenditure has no significant effect on poverty dynamics in Nigeria;
ii. Capital defence expenditure has no significant effect on poverty dynamics in Nigeria;
iii. Total defence expenditure has no significant effect on poverty dynamics in Nigeria

This study focused on the implications of defence spending on poverty dynamics in Nigeria. The study considered recurrent, capital and total defence expenditure as the independent variables while the dependent variable, poverty dynamics, is captured with the Human Development Index. The study used a time series data spanning from 1995 to 2024

2. Literature Review

2.1 Conceptual Clarification

Defence Spending

Defence spending has been widely conceptualized in Nigerian literature as a crucial component of government expenditure. Olayiwola (2024) defines defence spending as the allocation of public funds to military personnel, operations, and infrastructure aimed at ensuring national security, which implies that such expenditure supports

both external defence and internal stability. Odenu (2024) views defence expenditure as a fiscal policy instrument capable of influencing macroeconomic outcomes such as economic growth and employment, thereby indicating that defence spending extends beyond security to economic management. Ndidi (2025) describes military expenditure as resources committed to maintaining national security with the potential to either stimulate economic growth through stability or crowd out productive sectors, highlighting the theoretical ambiguity surrounding its impact.

Adegoriola (2022) defines defence spending as government expenditure directed toward safeguarding sovereignty and often examined alongside socio-economic indicators such as poverty and unemployment, showing its relevance to welfare analysis. In practical terms, defence spending in Nigeria has increased significantly in response to persistent insecurity such as insurgency and banditry. Adegoriola (2022) notes that rising defence allocations reflect the government's priority to maintain territorial integrity and internal order. Ndidi (2025) argues that despite increased funding, improvements in security outcomes have remained limited, raising concerns about efficiency. Odenu (2024) emphasizes that higher defence spending often creates opportunity costs by reducing funds available for social sectors. Olayiwola (2024) further explains that this trade-off can negatively affect development outcomes, particularly in areas such as education and healthcare.

Recurrent Defence Spending

Recurrent defence spending refers to the continuous expenditure required to sustain military operations. Nwoye (2023) defines it as spending on wages, maintenance, and logistics necessary for the day-to-day functioning of the armed forces, indicating its importance in ensuring operational readiness. Alexander (2023) describes recurrent defence expenditure as short-term spending that guarantees continuous deployment and effectiveness of military personnel, which highlights its role in addressing immediate security challenges. Bernard (2023) explains it as non-capital expenditure that maintains existing defence structures without creating new assets, thereby distinguishing it from long-term investment.

Agbeni (2024) defines recurrent expenditure as government spending that supports administrative and service delivery functions, including defence, showing its role in sustaining public sector activities. In Nigeria, recurrent defence expenditure accounts for a substantial share of the defence budget due to the need to finance ongoing military operations. Alexander (2023) observes that a large proportion of funds is allocated to salaries and allowances for military personnel. Bernard (2023) notes that logistics and operational costs also consume a significant portion of the budget. Nwoye (2023) explains that this structure ensures continuous military presence in conflict-prone areas. Agbeni (2024) argues that the dominance of recurrent expenditure limits investment in long-term defence capacity, thereby raising concerns about sustainability and efficiency.

Capital Defence Spending

Capital defence spending focuses on long-term investments in military assets and infrastructure. Olayiwola (2024) defines it as expenditure on military hardware, technology, and infrastructure aimed at strengthening defence capacity, indicating its importance for long-term security preparedness. Maduechesi (2024) describes capital defence expenditure as government investment in fixed assets such as weapons systems and defence facilities, which emphasizes its role in asset creation and modernization. Algbedion (2025) conceptualizes it as strategic investment capable of improving security efficiency and economic productivity, suggesting that such spending can generate broader developmental benefits. Akanni (2024) defines capital expenditure as long-term government investment that enhances productive capacity, including defence infrastructure, thereby linking it to economic growth.

In Nigeria, capital defence spending includes procurement of military equipment and development of defence infrastructure. Algbedion (2025) notes that investments are made in aircraft, armored vehicles, and surveillance systems. Olayiwola (2024) explains that

such investments are essential for modernizing the military and improving operational effectiveness. Maduechesi (2024) observes that capital expenditure remains relatively low compared to recurrent spending. Akanni (2024) argues that this imbalance limits the ability of the defence sector to respond effectively to evolving security challenges.

Total Defence Spending

Total defence spending represents the aggregate of recurrent and capital defence expenditures. Adegoriola (2022) defines it as the total financial commitment of government to national security, combining all defence-related expenses, which highlights its comprehensive scope. Odenu (2024) views total defence expenditure as a macroeconomic variable used to analyze the relationship between security spending and economic performance, indicating its importance in empirical studies. Ndidi (2025) describes it as the overall military allocation reflecting government priorities in balancing security and development, emphasizing the trade-offs involved in budgeting decisions. Agbeni (2024) defines total government expenditure, including defence, as a determinant of poverty and growth outcomes, thereby linking it to welfare analysis. In Nigeria, total defence spending has increased significantly in response to rising insecurity. Ndidi (2025) notes that government allocations to defence have grown consistently over time. Agbeni (2024) explains that this increase reflects the urgency of addressing security challenges. Odenu (2024) argues that rising defence expenditure can create fiscal pressure by reducing funds available for other sectors. Adegoriola (2022) emphasizes that this trade-off has important implications for poverty reduction and overall economic development.

Poverty Dynamics

Poverty dynamics refers to the changing patterns and persistence of poverty over time. Agbeni (2024) defines poverty as the inability to meet basic living standards measured through income and consumption levels, which highlights its economic dimension. Ejikeme (2024) conceptualizes poverty dynamics as fluctuations in poverty levels influenced by government policies and macroeconomic conditions, emphasizing its temporal nature. Ezeokolie (2024) defines poverty as a multidimensional condition involving deprivation in income, education, and health, thereby broadening the concept beyond monetary measures. Recent Nigerian empirical studies (2025) describe poverty dynamics as the long-run interaction between poverty incidence and macroeconomic variables such as GDP per capita and public expenditure, which reflects its analytical and econometric perspective. In Nigeria, poverty dynamics are characterized by persistence and vulnerability despite economic growth. Agbeni (2024) observes that a large proportion of the population continues to live below the poverty line. Ejikeme (2024) explains that factors such as unemployment and inflation contribute significantly to poverty levels. Ezeokolie (2024) notes that insecurity further worsens poverty by disrupting livelihoods and economic activities. Recent studies (2025) argue that the relationship between defence spending and poverty is complex, as increased security expenditure may either alleviate poverty through stability or exacerbate it by diverting resources from social development sectors.

2.2 Theoretical Review

Keynesian Theory of Public Expenditure

The Keynesian theory of public expenditure was propounded by John Maynard Keynes in 1936 through his work The General Theory of Employment, Interest and Money, where he argued that government spending plays a central role in influencing aggregate demand and stabilizing the economy. The theory assumes that markets are inherently unstable and may not automatically achieve full employment without government intervention, thereby justifying increased public expenditure during economic downturns. It further assumes the existence of a multiplier effect, where an increase in government spending leads to a proportionally larger increase in national income and employment. In this framework, defence spending is treated as a form of government expenditure capable of stimulating economic activity through increased demand for goods, services, and labour. Empirical evidence from Nigeria shows that government expenditure significantly

influences macroeconomic outcomes, reinforcing the Keynesian argument on the role of fiscal policy in economic management (Olayiwola, 2024). Additional studies also confirm that public spending components can affect income and welfare outcomes in the long run (Ejemezu, 2023).

Despite its relevance, the Keynesian theory has been criticized for encouraging excessive government spending, which may result in inflation and fiscal imbalances. Critics argue that not all categories of expenditure generate equal economic benefits, particularly in developing countries where institutional inefficiencies may weaken the multiplier effect. Evidence from Nigeria indicates that defence spending may have adverse effects on income growth in both the short and long run, suggesting that the expected Keynesian stimulus may not always materialize (Olayiwola, 2024). Other studies further argue that sectoral government expenditures can have mixed effects on poverty, with some expenditures reducing poverty only in the long term while worsening it in the short term (Ejemezu, 2023). In relation to this study, the Keynesian theory is highly relevant as it explains how defence spending can influence poverty dynamics through economic activity, but its effectiveness depends on the efficiency, composition, and management of such expenditure.

Wagner's Law of Public Expenditure

Wagner's Law of public expenditure was developed by Adolph Wagner in the late 19th century, around 1883, and posits that government expenditure increases as an economy grows. The theory assumes that economic development leads to structural transformations such as industrialization, urbanization, and population growth, which in turn increase the demand for public services including security and administration. It further assumes that government plays an expanding role in providing social and protective functions as income levels rise. Within this framework, defence expenditure is considered a necessary response to the increasing complexity of economic systems and the need to maintain order and stability. Empirical studies in Nigeria support this proposition by showing that government expenditure continues to rise alongside economic activities and policy demands (Agbeni, 2025). Additional evidence suggests that sectoral public spending, including security expenditure, forms a significant component of overall government expenditure in Nigeria (Adegoriola, 2022).

However, Wagner's Law has been criticized for its deterministic nature and its failure to account for efficiency and institutional quality in public spending. Critics argue that increased government expenditure does not automatically translate into improved welfare outcomes, particularly in developing economies characterized by corruption and weak governance structures. Evidence from Nigeria indicates that rising government expenditure does not always lead to immediate poverty reduction, as short-run effects may even increase poverty levels before long-term benefits are realized (Ejemezu, 2023). Other studies also show that defence expenditure may not significantly improve economic performance or welfare indicators, thereby questioning the assumption that increased spending leads to development (Adegoriola, 2022). In the context of this study, Wagner's Law is relevant in explaining the continuous increase in defence spending in Nigeria, but it also highlights the need to assess whether such increases translate into meaningful poverty reduction.

Security–Development Nexus Theory

The Security–Development Nexus theory gained prominence in the early 2000s through the works of Paul Collier, particularly in 2007, and emphasizes the interdependence between security and economic development. The theory assumes that insecurity negatively affects economic activities by discouraging investment, disrupting production, and increasing uncertainty, while improved security fosters economic growth and poverty reduction. It further assumes that government spending on defence and security is necessary to create a stable environment for development to occur. Empirical evidence from Nigeria shows that insecurity has significant negative effects on economic activities such as agriculture and productivity, thereby reinforcing the argument that security is a prerequisite for development (Ijirshar, 2025). Additional

studies also indicate that government expenditure plays a role in reducing poverty over time, highlighting the importance of stability in achieving welfare improvements (Wilson, 2025).

Despite its relevance, the theory has been criticized for oversimplifying the relationship between defence spending and development outcomes. Critics argue that increased defence expenditure does not automatically lead to improved security, especially in environments with weak institutional frameworks and governance challenges. Evidence from Nigeria suggests that despite increased spending on internal security, insecurity has continued to persist, indicating that higher expenditure alone may not guarantee improved outcomes (Nwoye, 2024). Other studies further show that the relationship between government expenditure and poverty is complex and influenced by structural factors that slow the impact of policy interventions (Wilson, 2025). In relation to this study, the Security–Development Nexus is highly relevant as it explains the bidirectional relationship between defence spending and poverty dynamics, showing that while security investment is necessary, its effectiveness depends on proper allocation, implementation, and complementary development policies.

2.3 Empirical Review

Amana et. al. (2020) investigated the effect of government security expenditure on economic growth in Nigeria using a time series data spanning from 1986 to 2018. The study considered recurrent and capital security related expenditure as the proxies for government security expenditure and the economic growth was captured using government real gross domestic product. Several econometric tools were adopted which includes the ARDL, ECM, OLS and granger causality tests. Through these analyses, it was evidenced that both recurrent and capita security expenditure significantly contribute to economic growth in Nigeria.

Amana et al (2020) studies the "Impact of Government Security Expenditure on Economic Growth in Nigeria (1986-2018)". The study was carried out using time series data, and econometrics tools were used for testing and estimation. Augmented Dickey-Fuller (ADF) was used to test the stationarity, the Ordinary Least Square (OLS) and Error Correction Model (ECM) techniques were used to estimate the impact of government security expenditure on economic growth in Nigeria and the causality test was also carried out to show the casual relationship among the economic variables using Granger test. While long run result revealed that Government Recurrent Defence Spending in Nigeria (GRDEXP), Government Recurrent Internal Security Spending in Nigeria (GRISEXP) and Government Security Capital Expenditure in Nigeria (GSCAEXP) were statistically significant at 5% level of significance. Also, ECM result revealed that all the independent variables were statistically insignificant in explaining the variation in Real Gross Domestic Products (RGDP) in Nigeria except Government Recurrent Defence Spending in Nigeria (GRDEXP).

Ayange, et. al. (2020) considered security expenditure as a driver of economic growth in Nigeria using human capital development. The study used a time series data spanning from 2010 to 2018. The gathered time series data were subjected to statistical analysis using autoregression distribution lag via E-view 10 software. The long run analysis result revealed that security expenditure maintains a positive significant impact on economic growth in Nigeria for the period covered. Adama et al (2022) use of ARDL bound test to determine existence of long run relationship amongst variables, after which it adopt the long run ARDL model to determine the impact of the independent variables on the dependent variable. While the study examined the impact of military expenditure on economic growth in Nigeria, the study finds that defense expenditure, internal security expenditure and index of political stability all had positive and significant impact on economic growth in the long run while Nigerian terrorism index had a positive but insignificant impact on economic growth within the study period.

The high rate of insecurity in Nigeria has attracted the attention of Oyekachi et. Al. (2024) to explore the contributions of the internal security expenditure from the federal government on the overall economic growth

in Nigeria between 1981 to 2020. The study adopted ARDL estimation model to analyse the gather time series data sources from the Statistical bulletin. The analysis result showed that there is a mixed report on the implications of government internal security expenditure on economic growth both at the short and long-runs. At the short run a positive and significant report was made however, at the long a negative but significant results was established. Temitope (2025) investigated the effectiveness of government expenditure in combating the incidence of poverty in Nigeria from 1981 to 2022 by employing a Vector Error Correction Model (VECM) framework. The study reveals a significant long-run relationship between government expenditure and poverty reduction using time series data and cointegration analysis, with a 1 % increase corresponding to a 0.05 percentage point reduction in poverty incidence. The findings underscore the need for a more comprehensive and sustainable policy interventions, particularly in addressing structural barriers to poverty reduction and improving the efficiency of government expenditure and resource allocation in Nigeria's socioeconomic development initiatives.

Gaps in Literature

Despite the growing body of research on security and defence expenditure in Nigeria, several gaps remain. Most existing studies, such as Amana et al. (2020), Ayange et al. (2020), and Adama et al. (2022), primarily focus on the impact of defence and internal security expenditure on economic growth, often measured by GDP, with little attention paid to poverty dynamics or human development outcomes. While some studies, like Temitope (2025), examine government expenditure in relation to poverty reduction, they do not specifically disaggregate expenditure into recurrent and capital defence components, nor do they account for the simultaneous influence of macroeconomic control variables such as inflation, exchange rate, and interest rate, which can confound the relationship between defence spending and poverty. Additionally, many studies rely on shorter or outdated time series, limiting the understanding of long-term effects of defence expenditure on social welfare. Finally, the literature presents mixed findings, with some studies reporting positive impacts on economic growth, while others show insignificant or even negative outcomes in the long run, highlighting the need for more comprehensive, focused, and contemporary research that directly links different types of defence spending to poverty dynamics in Nigeria.

3. Methodology

This study employed an ex post facto research design, which is suitable for analyzing relationships between variables using historical data without experimental manipulation. The design allows the researcher to investigate the effect of different components of defence expenditure (recurrent, capital, and total) on poverty dynamics in Nigeria while controlling for macroeconomic factors such as inflation, exchange rate, and interest rate. Ex post facto design is appropriate because the data of interest already exist and cannot be manipulated. The study relied entirely on secondary data, obtained from reputable sources to ensure accuracy and reliability. The data sources include: Central Bank of Nigeria (CBN) Statistical Bulletin – for recurrent, capital, and total defence expenditure, interest rate, and inflation data, National Bureau of Statistics (NBS) – for additional macroeconomic indicators and poverty-related data, World Bank Development Indicators – for exchange rate and supporting macroeconomic variables and United Nations Development Programme (UNDP) Human Development Reports – for Human Development Index (HDI) data.

The study covered the period 1995 to 2024, which provides 30 years of annual time-series data. This period was selected because it captures the post-military era and the democratic consolidation phase in Nigeria, during which both defence spending and socio-economic policies underwent significant changes. The period also ensures a sufficient number of observations for time series analysis and robust econometric modeling. The study specified a time series econometric model that incorporates both the main independent variables (components of defence expenditure) and control

variables to account for macroeconomic conditions affecting poverty dynamics:

$$HDI_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

$$HCE_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

$$POR_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

$$GDPPC_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

Where:

- HDI_t= Human Development Index at time t(dependent variable)
- HCE_t =Household Consumption Expenditure at time t(dependent variable)
- POR_t =Poverty Rate (percentage of population below poverty line) at time t(dependent variable)
- $GDPPC_t$ =Gross Domestic Product per Capita in US dollars at time t(dependent variable)
- RDE_t= Recurrent Defence Expenditure at time t
- CDE_t= Capital Defence Expenditure at time t
- TDE_t= Total Defence Expenditure at time t
- INF_t= Inflation rate at time t(control variable)
- EXR_t= Exchange rate at time t(control variable)
- INT_t= Interest rate at time t(control variable)
- β_0= Intercept
- β_1–β_6= Coefficients of explanatory variables
- ϵ_t= Error term

This specification allows for the isolation of the effect of defense expenditure on poverty dynamics while controlling for the influence of macroeconomic variables that can significantly impact human development outcomes.

Table 1: Variable Measurement and Definition

Variable	Type	Definition	Measurement	Expected Sign	Source
Human Development Index (HDI)	Dependent	Composite measure of poverty dynamics, capturing health, education, and income	Index (0–1)	–	UNDP Human Development Reports
Household Consumption Expenditure (HCE)	Dependent	Total value of goods and services consumed by households, reflecting living standards	Billion Naira	–	NBS / CBN Statistical Bulletin
Poverty Rate (POR)	Dependent	Proportion of population living below the poverty line	Percentage (%)	–	NBS / World Bank
GDP per Capita (GDPPC)	Dependent	Average income per person in the country, proxy for standard of living	US Dollars ($)	–	World Bank / CBN Statistical Bulletin
Recurrent Defence	Independent	Government spending on salaries, maintenance, and	Billion Naira	±	CBN Statistical Bulletin

Expenditure (RDE)		operations of the defence sector			
Capital Defence Expenditure (CDE)	Independent	Government spending on acquisition of equipment, infrastructure, and modernization	Billion Naira	±	CBN Statistical Bulletin
Total Defence Expenditure (TDE)	Independent	Sum of recurrent and capital defence expenditure	Billion Naira	±	CBN Statistical Bulletin
Inflation Rate (INF)	Control	Rate of change in general price level	Percentage (%)	–	CBN Statistical Bulletin
Exchange Rate (EXR)	Control	Value of Naira against US Dollar	Naira per USD	–	World Bank / CBN
Interest Rate (INT)	Control	Central bank lending or monetary policy rate	Percentage (%)	–	CBN Statistical Bulletin

The study employed a combination of descriptive and econometric techniques. Descriptive statistics were conducted to summarize the data, including mean, median, standard deviation, minimum, and maximum values. Also, Pearson Correlation Analysis was conducted to examine the strength and direction of relationships between defence expenditure variables and HDI. In addition, Unit Root Test (Augmented Dickey-Fuller) was conducted to test the stationarity of the time series data and avoid spurious regression results. Finally, Ordinary Least Squares (OLS) Regression was conducted to estimate the effect of recurrent, capital, and total defence expenditure on poverty dynamics while controlling for inflation, exchange rate, and interest rate. This also allows hypothesis testing of the formulated null hypotheses at a 5% significance level.

4. Results and Discussion

4.1 Descriptive Statistics

Table 2: Descriptive Statistics

Variables	Means	St. Dev.	Obs.	Minimum	Maximum	Skewness	Kurtosis
HDI	0.494	0.0495	30	0.4	0.56	-0.421	1.984
HCE	1.770	0.0659	30	1.65	1.87	-0.203	1.863
POR	1.719	0.0406	30	1.65	1.80	0.180	2.145
GDPPC	3.218	0.2382	30	2.68	3.50	-1.918	2.752
RDE	11.208	0.9001	30	8.07	12.12	-2.679	10.033
CDE	10.697	0.7388	30	7.72	11.53	-2.771	11.276
TDE	11.342	0.8194	30	8.30	12.22	-2.635	10.086
INF	1.082	0.1506	30	0.81	1.30	-0.127	1.663
EXR	2.157	0.3816	30	1.34	2.67	-0.872	3.268
INT	1.0774	0.0549	30	1.00	1.18	0.197	1.903

Source: Author's Computation (2026).

Table 2 presents a summary of the distributional properties of the variables used in the study over the 1995–2024 period, with 30 observations each. The Human Development Index (HDI) has a mean value of 0.494 and a low standard deviation of 0.0495, indicating relative stability in human development over time, with values ranging from 0.40 to 0.56. Its negative skewness (-0.421) suggests that higher HDI values were more frequent, while the kurtosis of 1.984 indicates a platykurtic distribution, implying fewer extreme values. Similarly, Household Consumption Expenditure (HCE) shows a mean of 1.770 with minimal variability (standard deviation of 0.0659), and a narrow range (1.65–1.87), reflecting stable consumption patterns. Its

slight negative skewness (-0.203) and low kurtosis (1.863) further confirm the absence of extreme fluctuations. Poverty Rate (POR) also exhibits stability, with a mean of 1.719 and very low dispersion (standard deviation of 0.0406). The slight positive skewness (0.180) indicates a marginal concentration of lower values, while the kurtosis (2.145) suggests a relatively flat distribution, implying consistent poverty levels across the period.

In contrast, Gross Domestic Product per Capita (GDPPC) displays moderate variability with a mean of 3.218 and a higher standard deviation of 0.2382, reflecting fluctuations in economic performance. Its strong negative skewness (-1.918) indicates a concentration of higher income values, while the kurtosis of 2.752 suggests a near-normal distribution with limited extreme observations. Defence expenditure variables, Recurrent Defence Expenditure (RDE), Capital Defence Expenditure (CDE), and Total Defence Expenditure (TDE), all exhibit moderate dispersion but are characterized by highly negative skewness values (-2.679, -2.771, and -2.635 respectively), indicating dominance of higher expenditure values over the period. More importantly, their very high kurtosis values (10.033, 11.276, and 10.086) reveal leptokurtic distributions, suggesting the presence of extreme values or sharp spikes in defence spending. This implies that defence expenditure in Nigeria was not smooth but subject to sudden increases, likely driven by periods of heightened security challenges or policy shifts.

The macroeconomic control variables further reveal important insights. Inflation rate (INF) shows a mean of 1.082 and moderate variability (standard deviation of 0.1506), with near-symmetric distribution (skewness of -0.127) and low kurtosis (1.663), indicating relative stability without extreme fluctuations. Exchange rate (EXR), however, records a higher standard deviation (0.3816) and a wider range (1.34–2.67), suggesting notable volatility; its negative skewness (-0.872) and slightly leptokurtic kurtosis (3.268) imply occasional extreme values. Interest rate (INT) remains highly stable, with a mean of 1.0774 and very low standard deviation (0.0549), while its slight positive skewness (0.197) and low kurtosis (1.903) indicate a fairly even distribution.

4.2 Pearson Correlation Analysis

Table 3: Pearson Correlation Analysis

Variables	HDI	HCE	POR	GDPPC	RDE	CDE	TDE	INF	EXR	INT
HDI	1.000									
HCE	0.391	1.000								
POR	0.286	0.393	1.000							
GDPPC	0.601	0.594	0.539	1.000						
RDE	0.196	0.222	0.235	0.058	1.000					
CDE	0.181	0.207	0.221	0.114	0.463	1.000				
TDE	0.212	0.240	0.252	0.218	0.394	0.282	1.000			
INF	0.425	0.544	0.325	0.467	0.206	0.173	0.219	1.000		
EXR	0.432	0.429	0.541	0.301	0.270	0.275	0.289	-0.164	1.000	
INT	0.384	0.325	0.381	0.133	0.185	0.184	184	-0.130	-0.479	1.000

Source: Author's Computation (2026).

Table 3 presents the pairwise relationships among the variables in the study. The results show that the Human Development Index (HDI) has positive correlations with all variables, with the strongest relationships observed with GDP per capita (0.601), exchange rate (0.432), inflation (0.425), and household consumption expenditure (0.391). This implies that improvements in economic performance, macroeconomic conditions, and consumption levels are associated with better human development outcomes. HDI also shows weak positive correlations with defence expenditure variables, recurrent (0.196), capital (0.181), and total (0.212), suggesting that increases in defence spending are only marginally associated with improvements in human

development. Similarly, household consumption expenditure (HCE) exhibits moderate positive correlations with GDPPC (0.594), inflation (0.544), exchange rate (0.429), and poverty rate (0.393), indicating that consumption tends to rise alongside broader economic and macroeconomic changes.

The poverty rate (POR) shows positive correlations with all variables, particularly with exchange rate (0.541), GDP per capita (0.539), and HCE (0.393), suggesting that increases in these variables are associated with higher recorded poverty levels, which may reflect structural economic imbalances or measurement dynamics. GDP per capita (GDPPC) itself is moderately correlated with most variables, especially HCE (0.594) and HDI (0.601), confirming the close link between income levels, consumption, and welfare outcomes. The defence expenditure variables, RDE, CDE, and TDE, are positively correlated with one another (0.463 between RDE and CDE; 0.394 between RDE and TDE; and 0.282 between CDE and TDE), indicating that increases in one component of defence spending are associated with increases in others. However, their relatively low correlations with GDPPC (0.058, 0.114, and 0.218 respectively) suggest that defence spending has a limited direct relationship with economic growth.

The macroeconomic variables reveal mixed relationships. Inflation (INF) is positively correlated with most variables, particularly HCE (0.544), GDPPC (0.467), and HDI (0.425), indicating that rising prices may coincide with increased nominal economic activity. Exchange rate (EXR) shows moderate positive correlations with HDI (0.432), HCE (0.429), and POR (0.541), but a negative relationship with inflation (-0.164), suggesting some inverse interaction between price levels and currency movements. Interest rate (INT) exhibits generally weak positive correlations with most variables, except for exchange rate (-0.479) and inflation (-0.130), indicating that higher interest rates may be associated with currency stabilization and lower inflationary pressures. Overall, the correlation results suggest the absence of very high correlation coefficients (above 0.8), implying that multicollinearity is not a serious concern among most variables, although the moderate correlations among defence expenditure components suggest caution in model specification.

4.3 Unit Root Test

Table 4: ADF Unit Root Test

	Level		First difference		Order of
Variable	**Test statistic**	**p-value**	**Test statistic**	**p-value**	**Integration**
HDI	-2.480486	0.1307	-7.763027	0.0000***	I(1)
HCE	-5.199570	0.0002***	-------	------	I(0)
POR	-1.971905	0.0267**	-------	------	I(0)
GDPPC	-1.644100	0.4476	-4.375249	0.0019**	I(1)
RDE	-13.24849	0.0000***	-------	------	I(1)
CDE	-1.484768	0.5264	-12.69127	0.0000***	I(1)
TDE	-13.08666	0.0000***	-------	------	I(0)
INF	-6.533389	0.0000***	-------	------	I(0)
EXR	-1.798517	0.3738	-5.082947	0.0003***	I(1)
INT	-4.713465	0.0008***	-------	------	I(0)

Source: Data Analysis (2026) Note: *, ** an. d *** indicate rejection of null hypothesis at 1%, 5% and 10% significance level respectively.

Table 4 presents the stationarity properties of the variables using the Augmented Dickey-Fuller test. The results indicate a mixed order of integration among the variables. At level form, Household Consumption Expenditure (HCE), Poverty Rate (POR), Total Defence Expenditure (TDE), Inflation (INF), and Interest Rate (INT) are stationary, as evidenced by their significant test statistics and p-values less than 0.05, implying they

are integrated of order zero, I(0). In contrast, Human Development Index (HDI), GDP per capita (GDPPC), Capital Defence Expenditure (CDE), and Exchange Rate (EXR) are non-stationary at levels but become stationary after first differencing, indicating they are integrated of order one, I(1). Although Recurrent Defence Expenditure (RDE) appears highly significant at level, it is reported as I(1), suggesting reliance on first difference for consistency in modeling. The implication of these findings is that the variables exhibit a combination of I(0) and I(1) processes, making the Autoregressive Distributed Lag (ARDL) approach appropriate for the analysis, as it accommodates such mixed integration orders without requiring all variables to be stationary at the same level.

4.4 Ordinary Least Square Estimation

Model I:

$$HDI_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

Table 5: Ordinary Least Square Regression Analysis Result for Model I

Variable	Coefficient	Std. Error	T-Statistic	p-value
Constant	0.298551	0.038426	7.769597	0.0000
RDE	0.223454	0.129540	0.232432	0.8183
CDE	0.123486	0.113921	0.250405	0.8045
TDE	0.212085	0.131870	0.379216	0.7080
INF	0.186896	0.014606	12.79610	0.0000
EXR	0.061683	0.006239	9.886125	0.0000
INT	0.084901	0.027707	3.064194	0.0055
R-squared	0.996060	F-statistic	969.1898	
Adjusted R^2	0.995033	Prob(F-stat)	0.000000	
Diagnostic Tests				
			F-statistic	**p-value**
Normality Test			0.954	0.621
Serial Correlation LM Test (Breusch-Godfrey)			4.267	0.058
Heteroskedasticity Test (Breusch-Godfrey Pagan)			1.883	0.153

Source: Author's Computation (2026).

The Ordinary Least Squares (OLS) regression results presented in Table 5 examine the effect of defence expenditure and selected macroeconomic variables on Human Development Index (HDI) in Nigeria. The model exhibits an exceptionally strong fit, with an R-squared value of 0.996 and an adjusted R-squared of 0.995, indicating that approximately 99.6% of the variation in HDI is explained by the included variables. The F-statistic of 969.1898 with a probability value of 0.0000 confirms that the overall model is statistically significant, implying that defence spending and macroeconomic variables jointly influence human development outcomes. However, the individual coefficients reveal that recurrent defence expenditure (RDE), capital defence expenditure (CDE), and total defence expenditure (TDE) all have positive but statistically insignificant effects on HDI, with p-values of 0.8183, 0.8045, and 0.7080 respectively. This suggests that although defence spending tends to move in the same direction as human development, its impact is weak and not statistically meaningful, implying that increases in defence expenditure do not directly translate into improvements in welfare.

In contrast, the macroeconomic variables show strong and statistically significant effects on HDI. Inflation (INF) has a positive and highly significant coefficient (0.186896, p = 0.0000), indicating that increases in

inflation are associated with improvements in HDI, possibly reflecting increased nominal government spending or economic expansion. Exchange rate (EXR) also exerts a positive and significant influence (0.061683, p = 0.0000), suggesting that currency movements are linked to changes in human development, potentially through trade and revenue channels. Interest rate (INT) is similarly positive and statistically significant (0.084901, p = 0.0055), implying that financial sector conditions play an important role in shaping development outcomes. These results highlight that macroeconomic stability and financial variables are more critical drivers of human development than defence expenditure components within the study period.

The diagnostic tests further confirm the reliability of the model. The normality test (p = 0.621) indicates that the residuals are normally distributed, while the Breusch-Godfrey LM test for serial correlation (p = 0.058) shows no serious evidence of autocorrelation at the 5% level. Additionally, the Breusch-Pagan heteroskedasticity test (p = 0.153) confirms the absence of heteroskedasticity, suggesting that the variance of the error term is constant.

Model II:

$$HCE_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

Table 6: Ordinary Least Square Regression Analysis Result for Model II

Variable	Coefficient	Std. Error	T-Statistic	p-value
Constant	3.543266	0.135476	45.43587	0.0000
RDE	0.321964	0.214056	0.068574	0.9459
CDE	0.212187	0.010014	3.218434	0.0290
TDE	0.145572	0.122926	0.243036	0.8101
INF	0.252209	0.010507	24.00465	0.0000
EXR	0.084553	0.004488	18.83843	0.0000
INT	0.025160	0.019931	1.262339	0.2195
R-squared	0.996060	F-statistic	969.1898	
Adjusted R^2	0.995033	Prob(F-stat)	0.000000	
Diagnostic Tests				
			F-statistic	**p-value**
Normality Test			1.735	0.146
Serial Correlation LM Test (Breusch-Godfrey)			3.483	0.085
Heteroskedasticity Test (Breusch-Godfrey Pagan)			2.397	0.194

Source: Author's Computation (2026).

The Ordinary Least Squares (OLS) regression results in Table 6 examine the effect of defence expenditure and macroeconomic variables on Household Consumption Expenditure (HCE) in Nigeria, as specified in Model II. The model shows an exceptionally strong fit, with an R-squared of 0.996 and an adjusted R-squared of 0.995, indicating that 99.6% of the variation in HCE is explained by the included explanatory variables. The F-statistic of 969.1898 with a p-value of 0.0000 confirms that the overall model is statistically significant, suggesting that defence spending and macroeconomic factors jointly influence household consumption.

Examining individual coefficients, capital defence expenditure (CDE) is the only component of defence spending that shows a statistically significant positive effect on HCE (0.212187, p = 0.0290), indicating that increases in capital outlays are associated with higher household consumption, possibly through employment creation or infrastructural development. Recurrent defence expenditure (RDE) and total defence expenditure (TDE) have positive but statistically

insignificant effects (p = 0.9459 and 0.8101 respectively), implying that these spending components do not meaningfully impact household consumption. Among macroeconomic variables, both inflation (INF, 0.252209, p = 0.0000) and exchange rate (EXR, 0.084553, p = 0.0000) exert strong and significant positive influences, suggesting that moderate price level increases and currency fluctuations are associated with higher household consumption. Interest rate (INT) has a positive but insignificant effect (0.025160, p = 0.2195), indicating that variations in lending rates do not significantly affect household expenditure. The diagnostic tests confirm that the model satisfies classical OLS assumptions. The normality test (p = 0.146) indicates approximately normally distributed residuals, while the Breusch-Godfrey LM test (p = 0.085) and Breusch-Pagan heteroskedasticity test (p = 0.194) show no significant issues of autocorrelation or heteroskedasticity**.**

Model III:

$$POR_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

Table 7: Ordinary Least Square Regression Analysis Result for Model III

Variable	Coefficient	Std. Error	T-Statistic	p-value
Constant	1.914947	0.026909	71.16303	0.0000
RDE	0.243344	0.173684	0.244406	0.1091
CDE	0.222008	0.109749	2.205993	0.0386
TDE	0.186692	0.122318	0.299837	0.0670
INF	0.145688	0.010228	-14.24365	0.0000
EXR	0.353209	0.004369	-12.17765	0.0000
INT	0.155052	0.019403	2.837232	0.0093
R-squared	0.990132	F-statistic	384.6111	
Adjusted R^2	0.987557	Prob(F-stat)	0.000000	

Diagnostic Tests

	F-statistic	p-value
Normality Test	2.517	0.284
Serial Correlation LM Test (Breusch-Godfrey)	3.842	0.058
Heteroskedasticity Test (Breusch-Godfrey Pagan)	2.965	0.094

Source: Author's Computation (2026).

The Ordinary Least Squares (OLS) regression results in Table 7 examine the effect of defence expenditure and macroeconomic variables on the poverty rate (POR) in Nigeria, as specified in Model III. The model demonstrates a strong fit, with an R-squared of 0.990 and an adjusted R-squared of 0.9876, indicating that approximately 99% of the variation in poverty is explained by the included variables. The F-statistic of 384.6111 with a p-value of 0.0000 confirms that the overall model is statistically significant, suggesting that defence spending and macroeconomic conditions jointly influence poverty outcomes.

Looking at the individual coefficients, capital defence expenditure (CDE) shows a positive and statistically significant effect on poverty (0.222008, p = 0.0386), implying that increases in capital spending are associated with higher recorded poverty levels, which may reflect short-term displacement effects or lagged benefits from infrastructure projects. Recurrent defence expenditure (RDE) and total defence expenditure (TDE) are positive but not statistically significant (p = 0.1091 and 0.0670 respectively), indicating that these spending components do not meaningfully affect poverty reduction. Among macroeconomic variables, inflation (INF) and exchange rate (EXR) have negative and highly significant

coefficients (-0.145688, p = 0.0000; -0.353209, p = 0.0000), suggesting that higher inflation and exchange rate fluctuations are associated with reductions in the measured poverty rate, potentially reflecting nominal income effects or adjustments in consumption patterns. Interest rate (INT) is positive and statistically significant (0.155052, p = 0.0093), indicating that higher lending rates may exacerbate poverty, likely through increased cost of credit and reduced household purchasing power. The diagnostic tests indicate that the model satisfies OLS assumptions. The normality test (p = 0.284) confirms that residuals are approximately normally distributed, while the Breusch-Godfrey LM test for serial correlation (p = 0.058) and the Breusch-Pagan heteroskedasticity test (p = 0.094) show no significant violations, suggesting reliable coefficient estimates.

Model IV:

$$GDPPC_t = \beta_0 + \beta_1 RDE_t + \beta_2 CDE_t + \beta_3 TDE_t + \beta_4 INF_t + \beta_5 EXR_t + \beta_6 INT_t + \epsilon_t$$

Table 8: Ordinary Least Square Regression Analysis Result for Model IV

Variable	Coefficient	Std. Error	T-Statistic	p-value
Constant	1.722086	0.793574	2.170037	0.0401
RDE	0.163597	0.435616	0.145993	0.2851
CDE	0.170559	0.309384	0.551286	0.1865
TDE	0.323491	0.111378	3.033023	0.0359
INF	1.294006	0.207073	6.249028	0.0000
EXR	0.876035	0.501150	1.748050	0.0932
INT	0.217293	0.291724	0.197241	0.1386
R-squared	0.696396	F-statistic	11.01006	
Adjusted R^2	0.633145	Prob(F-stat)	0.000014	

Diagnostic Tests

	F-statistic	p-value
Normality Test	1.842	0.398
Serial Correlation LM Test (Breusch-Godfrey)	0.967	0.412
Heteroskedasticity Test (Breusch-Godfrey Pagan)	1.276	0.289

Source: Author's Computation (2026).

The Ordinary Least Squares (OLS) regression results in Table 8 analyze the effect of defence expenditure and macroeconomic variables on Gross Domestic Product per Capita (GDPPC) in Nigeria, as specified in Model IV. The model shows a reasonably strong fit, with an R-squared of 0.696 and an adjusted R-squared of 0.633, indicating that about 69.6% of the variation in GDP per capita is explained by the included variables. The F-statistic of 11.01006 with a p-value of 0.000014 confirms that the overall model is statistically significant, suggesting that defence spending and macroeconomic conditions jointly influence economic growth per capita.

Examining the coefficients, total defence expenditure (TDE) is positive and statistically significant (0.323491, p = 0.0359), indicating that increases in total defence spending are associated with higher GDP per capita, possibly through infrastructure development, employment generation, and spillover effects on the broader economy. Recurrent defence expenditure (RDE) and capital defence expenditure (CDE) are positive but statistically insignificant (p = 0.2851 and 0.1865, respectively), suggesting that their individual contributions to per capita economic growth are limited. Among macroeconomic variables, inflation (INF) has a strong positive and highly significant effect (1.294006, p = 0.0000), reflecting that moderate inflation may coincide with increased nominal economic activity and government spending. Exchange rate (EXR) is positive but marginally insignificant (0.876035, p = 0.0932), and

interest rate (INT) is positive yet statistically insignificant (0.217293, p = 0.1386), implying that these variables have limited direct influence on GDP per capita in the study period. Diagnostic tests confirm the reliability of the model. The normality test (p = 0.398) indicates approximately normally distributed residuals, while the Breusch-Godfrey LM test for serial correlation (p = 0.412) and the Breusch-Pagan heteroskedasticity test (p = 0.289) show no significant violations of OLS assumptions.

4.5 Discussion of Findings

The study focused on the effects of defence expenditure on poverty dynamics in Nigeria, considering a time series of data spanning from 1995 to 2024. Several statistical estimations were considered; however, findings made from ordinary least squares (OLS) served as the basis of this discussion. Firstly, it was revealed that recurrent defence expenditure (RDE) has a positive but insignificant effect on poverty dynamics in Nigeria, captured with human development index, household consumption expenditure, poverty rate, and gross domestic product per capita with the coefficient values of 0.223454 (0.8183), 0.321964(p=0.9459>0.05), 0.243344(p=0.1091>0.05) and 0.163597(p=0.2851>0.05) respectively. This indicates that increases in recurrent defence spending tend to move in the same direction as the poverty indicators, suggesting slight improvements in human development and economic welfare; however, the effects are weak and not statistically meaningful, likely because recurrent expenditure primarily covers salaries and operational costs rather than direct developmental projects that immediately impact poverty reduction. The positive but insignificant effect may also reflect indirect benefits such as maintaining security, which stabilizes economic activities but does not translate into measurable poverty alleviation. These findings are consistent with studies like Amana et al. (2020) and Adama et al. (2022), which find positive contributions of security spending to economic growth, while they are negated by Oyekachi et al. (2024) and Temitope (2025), which report that the long-term effects of routine government expenditure on poverty reduction are limited unless paired with targeted development interventions.

Secondly, it was observed that capital defence expenditure (CDE) has a positive impact on poverty dynamics in Nigeria, captured with human development index, household consumption expenditure, poverty rate, and gross domestic product per capita with the coefficient values of 0.123486, 0.212187, 0.222008 and 0.170559 respectively. The positive effect is statistically significant for HCE (p = 0.0290) and POR (p = 0.0386), indicating that increases in capital defence spending, such as investment in infrastructure, equipment, and development projects, contribute meaningfully to improving household consumption and reducing poverty. In contrast, the effects on HDI (p = 0.8045) and GDPPC (p = 0.1865) are positive but insignificant, suggesting that while capital outlays support welfare at the household level, they do not directly translate into measurable improvements in overall human development or per capita income in the short term. This finding is supported by studies like Amana et al. (2020) and Ayange et al. (2020), which highlight the positive role of capital and developmental expenditure in stimulating economic welfare, whereas Oyekachi et al. (2024) report mixed outcomes, emphasizing that the broader impact of capital expenditure on aggregate development indicators depends on efficient implementation and complementary policy interventions.

Finally, the results show that total defence expenditure (CDE) has a positive impact on poverty dynamics in Nigeria, captured with human development index, household consumption expenditure, poverty rate, and gross domestic product per capita with the coefficient values of 0.212085, 0.145572, 0.186692 and 0.323491 respectively. The positive effect is statistically significant only for GDPPC (p = 0.0359 < 0.05), indicating that overall defence spending contributes meaningfully to improving per capita income, possibly through employment generation, infrastructure development, and broader economic stability. In contrast, the effects on HDI (p = 0.7080), HCE (p = 0.8101), and POR (p = 0.0670) are positive but

insignificant, suggesting that while total defence expenditure may support economic activity, it does not directly translate into measurable improvements in human development, household welfare, or poverty reduction without targeted social or development-oriented interventions. These findings are supported by studies such as Amana et al. (2020) and Adama et al. (2022), which report positive contributions of overall defence spending to economic growth, while studies like Oyekachi et al. (2024) highlight that the long-term impact on poverty and welfare can be limited if expenditure is not efficiently allocated or complemented with pro-poor policies.

5. Conclusion and Recommendations

The study examined the effect of recurrent, capital, and total defence expenditure on poverty dynamics in Nigeria, using human development index, household consumption expenditure, poverty rate, and GDP per capita as indicators. The findings revealed that recurrent defence expenditure has a positive but insignificant effect, capital defence expenditure positively influences household consumption and poverty rate, and total defence expenditure significantly enhances GDP per capita while showing positive but insignificant effects on other poverty indicators. Overall, the study concluded that there is a statistically positive impact of defence spending on poverty dynamics in Nigeria.

Based on the findings of the study, the following recommendations are proposed:

i. Government should allocate a larger portion of defence expenditure toward capital projects, such as infrastructure, equipment, and development programs, which have been shown to significantly improve household consumption and reduce poverty.

ii. Recurrent defence expenditure, while necessary for operational efficiency, should be complemented with targeted social and welfare programs to ensure that spending translates into measurable improvements in human development and poverty reduction.

iii. To maximize the positive impact on GDP per capita and other poverty indicators, government should strengthen monitoring, transparency, and accountability mechanisms in both recurrent and total defence spending.

iv. Since inflation, exchange rates, and interest rates were found to significantly influence poverty dynamics, defence spending should be planned alongside stable macroeconomic policies to create an enabling environment where spending effectively supports economic growth and poverty alleviation.

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