Journal of Economic Studies (JES)
Department of Economics,
Nnamdi Azikiwe University, Awka,
Anambra State, Nigeria.

Web: www.nauecojournals.com *ISSN 1119-2259*

PUBLIC EXPENDITURE ON DEFENCE AND ITS IMPACT ON ECONOMIC DEVELOPMENT IN NIGERIA

[1]Ayeni, Abigael. F.; [2]Tanko, Yahya. I.

[1,2]Department of Economics, Nigerian Defence Academy, Kaduna

Corresponding Email: [1]faayeni@nda.edu.ng, +2348144146890;
[2]isahyahya99@gmail.com

ABSTRACT

This paper investigates the effect of public defence expenditure on economic development in Nigeria from 1990 to 2024. The motivation for this paper has been attributed to increases in defence allocations owing to ongoing security problems and a desire to test whether defence spending has translated into improved welfare for individuals in Nigeria. Annual time-series data were collected from the United Nations Development Programme (UNDP) and the World Bank World Development Indicators. The autoregressive distributed lag (ARDL) estimation technique was applied because the variables contain mixed orders of integration. The findings revealed that public defence expenditure has a positive but insignificant effect, while foreign direct investment, public debt, and information and communication technology positively and significantly impact economic development in the long run. On the contrary, inflation has a negative but significant effect on economic development. In the short run, public defence spending has no significant effect on economic development or any other explanatory variables. The study concludes that defence expenditure has a positive but rather weak and insignificant effect on development owing to factors such as resource inefficiency and continuing security risks. The study proposes that defence expenditure must be managed as an instrument to complement expenditures on education, health care and infrastructure. The study further suggests that measures be put in place to improve transparency and accountability in defence procurement, increase investment in human capital development, enhance R&D in the defence sector and undertake institutional reforms that promote the effectiveness of defence expenditure in achieving defence and development goals.

Keywords: *Defence Expenditure; Economic Development; Human Development Index; Foreign Direct Investment; Public Debt; Information and Communication Technology; ARDL.*

JEL Classification Codes*: H56, O15, O11, F21, H63, C22.*

1.0. Introduction

Globally, economic development is one of the primary goals of governments, as it is an indicator of the continuous gain in the welfare and quality of citizens. Economic development is not just about rising national output but also about increased living standards, social welfare, job creation, education, health and human welfare (Haller, 2012). These goals can only be realised by

efficient use of public resources within strategic sectors of the economy. The defence sector is one such area that is crucial for ensuring the security and stability needed for sustainable economic growth and development (United Nations Development Programme [UNDP], 2022).

The defence budget has been on a rising trend in the world as a result of rising geopolitical tension, war, terrorism, cybercrimes, transnational crimes and many other emerging security threats. According to the United Nations report, the global military budget has reached a new height of US$2.7 trillion in 2024, which is a 9 per cent increase compared to last year and makes it the tenth successive year of increased spending on defence (United Nations [UN], 2025). It is also recommended in the same report that there is a need for a new level of increase in military expenditures across the globe, and US$4.7 trillion to US$6.6 trillion could be invested in 2035 (UN, 2025). The United Nations (2025) suggests that higher military spending reduces public investment in other sustainable development priorities, such as education, health care, and poverty alleviation, among others, and raises policy choices, such as the trade-off between higher military spending and higher public spending on other priorities.

Similarly, the International Monetary Fund (IMF, 2026) reports that there has been an increase in defence expenditures both in advanced and developing nations in the past ten years. The Fund finds that around half of the nations all over the globe had been making greater allocations towards their military spending during the period 2020-2024, and over 40 per cent of nations had been spending more than 2 per cent of their GDP towards their military expenditure in 2024. As stated by IMF (2026), defence spending affects economic activities in the short run through its impact on consumption and investment spending, but the more a nation continues with its defence spending via fiscal deficits, the more likely it is to have public debt increasing. The developmental impact of defence expenditure remains an important issue in public finance and development economics.

The relationship between public spending on defence and development in Africa has attracted increasing attention due to persistent insecurity arising from insurgency, terrorism, political instability, communal conflicts and violent extremism (Smaldone, 2006; Asongu et al., 2021; IMF, 2026). African governments have been forced to allocate greater amounts of public funds to the defence industry because of these security concerns in order to ensure national sovereignty and/or national security (Stockholm International Peace Research Institute [SIPRI], 2025; IMF, 2026). Despite these increased defence spending budgets, many African nations still suffer from low

rates of human progress, poor health infrastructure, insufficient infrastructure, high unemployment and deep poverty rates (African Development Bank [AfDB], 2025; AfDB, 2023), and questions remain as to whether such increases in defence spending can lead to improved economic development (Asongu et al., 2021; IMF, 2026).

Nigeria remains relevant in this discussion due to the security problems it has been experiencing for years now. Insurgency by the Boko Haram group in North East Nigeria began in 2009 (World Bank, 2021), while militancy in the Niger Delta was common from the mid-2000s until the Presidential Amnesty Program was introduced in 2009 (U.S. Department of State, 2012). Banditry has been experienced in the North West, while Farmers/Herders conflict has been observed in North Central Nigeria (World Bank, 2017; Human Rights Watch, 2026). These security problems have necessitated successive governments to invest more in defence spending, in order to restore peace and national security (Ezenwajiobi & Ishaka, 2025).

Consistent with these security challenges, Nigeria's public expenditure on defence has increased considerably over the last decade. According to the Budget Office of the Federation through successive Appropriation Acts (2015–2025), defence and security have remained major components of federal government expenditure, with allocations increasing substantially over the period (Budget Office of the Federation, 2015, 2025). Despite these increasing allocations, insecurity continues to affect productive economic activities, discourage private investment, and constrain improvements in human welfare (World Bank, 2022; IMF, 2026), thereby raising questions about the effectiveness of increased defence expenditure in promoting economic development.

Empirical evidence on the relationship between public expenditure on defence and economic development in Nigeria remains mixed. Okolie and Nnamani (2019) argued that excessive defence expenditure undermines human security by reducing public investment in education, healthcare and other welfare-enhancing sectors. Raymond and Ibyingibo (2021) found that recurrent defence expenditure exerted adverse welfare implications, whereas capital defence expenditure exhibited favourable long-run effects. Ezeala et al. (2022) reported that government expenditure on defence and internal security significantly influenced both economic growth and economic development measured by the Human Development Index (HDI). More recently, Dimitraki and Emmanouilidis (2024) and Akume and Akadiri (2025) demonstrated that the relationship between defence expenditure and economic performance is nonlinear and

depends on prevailing political and security conditions.

Despite these contributions, important gaps remain in the literature. A measurement gap exists because many previous studies focused primarily on economic growth, measured by Gross Domestic Product (GDP) or Real Gross Domestic Product (RGDP), rather than economic development, which provides a broader assessment of human welfare through the Human Development Index (HDI). In addition, a variable gap exists because existing Nigerian studies have largely overlooked the role of Information and Communication Technology (ICT) in the defence expenditure-economic development nexus despite its increasing importance in enhancing security operations, improving public service delivery and supporting human development. This study addresses these gaps by examining the impact of public expenditure on defence on economic development in Nigeria, using the Human Development Index (HDI) as a proxy for economic development and incorporating ICT as a control variable.

2.0. Literature Review

2.1 Conceptual review

Public expenditure on defence means the money used by the government to defend the sovereignty, security of life and property and its territorial integrity. It covers spending on military forces and facilities (Stockholm International Peace Research Institute, 2023). Economic Development means the long-run improvement of the economy. It includes an increase in living standards, income, and enhancement in health and education levels (Haller, 2012). A country's level of economic development is commonly proxied by the Human Development Index (HDI).

2.2 Basic Theory

2.2.1 Endogenous Growth Theory

The Endogenous Growth Theory was developed through the contributions of Romer (1986) and Lucas (1988) as an alternative to growth models that treated technological progress as exogenous. The theory explains long-run economic performance in terms of factors generated within the economy, particularly human capital accumulation, knowledge, innovation, technological progress and government policy. Romer (1986) discussed the process of knowledge accumulation and technological change, and Lucas (1988) pointed to knowledge accumulation through human capital as a key factor to sustained productivity improvement. The theory rests on the premise that investment in human resources, knowledge, research and innovation will result in sustained productivity gains. It also assumes that knowledge and technological improvements can produce spill over effects across the economy and that government policies can

influence investment, productivity and long-run economic performance. Thus, public expenditure can affect development when it is efficiently directed towards activities that enhance productivity, human capital and the economic environment. However, the theory has some limitations. Its emphasis on increasing returns and knowledge spillovers may be difficult to establish empirically across different economies. It may also give insufficient attention to institutional, political and structural constraints that determine whether public expenditure translates into productive outcomes. Furthermore, government expenditure does not automatically generate development because inefficient allocation, waste and poor governance can reduce its productive effects.

The theory is relevant to this study because public expenditure on defence can influence economic development through both productive and diversionary channels. Effective defence expenditure can improve security and stability, protect productive assets and create an environment conducive to investment and economic activity. Conversely, excessive or inefficient defence expenditure may divert scarce public resources from education, healthcare, infrastructure and other activities that contribute directly to human capital accumulation and welfare improvement. Therefore, the effect of defence expenditure on economic development depends not only on the amount spent but also on its efficiency and allocation. For this study, the Endogenous Growth Theory provides a basis for examining how public expenditure on defence influences economic development, measured by the Human Development Index (HDI), while foreign direct investment (FDI), inflation, public debt and information and communication technology (ICT) are included as additional factors that may influence the development process.

2.3 Theoretical Framework

This study is anchored on the Endogenous Growth Theory, developed by Romer (1986) and Lucas (1988). The theory explains long-run economic outcomes through internally generated factors such as human capital accumulation, technological progress, knowledge and policy intervention. It is therefore appropriate for examining how public expenditure and technological development influence economic development.

The use of HDI instead of GDP is in line with the theory since human capital and enhancement of productive capacity are emphasised by endogenous growth. HDI reflects the quality of improvement in health, education and standard of living and offers a wider range of indicators of development outcomes other than economic output (as

shown in GDP). Public defence spending is added to the framework because security and stability can provide an environment in which investment, production and human-capital formation can take place. However, high defence spending can divert public funding from other development areas such as education, health and infrastructure, which can result in development constraints. Therefore, it can have an effect on development both via the security channel as well as the resource-allocation channel. ICT is incorporated because technological advances and the dissemination of knowledge play a key role in endogenous growth. Theoretically, ICT is relevant in the context of human development because it enables access to information, the adoption of technologies, productivity and the provision of economic and social services.

Accordingly, the functional relationship is specified as:

$$ED = f(DEX, FDI, INF, DEBT, ICT) \quad (1)$$

Where ED = Economic Development (proxied by HDI); DEX = Public Defence Expenditure; FDI = Foreign Direct Investment; INF = Inflation Rate; DEBT = Public Debt; and ICT = Information and Communication Technology.

The framework therefore assumes that defence expenditure can either enhance or constrain economic development depending on whether its security benefits outweigh its opportunity costs, while ICT represents the technological mechanism through which productivity and human capabilities can be enhanced.

2.4 Empirical Review

There is mixed empirical evidence in the existing literature on the relationship between defence spending and economic development, especially when using human development indicators as a measure of development. This is significant, as economic development involves both human welfare and human health, education and living standards that are more clearly captured by the Human Development Index (HDI) than by GDP. Obasi et. al (2018) analysed how military spending affects human capital development in Nigeria, using annual data from 1970 to 2014 and an Autoregressive Distributed Lag (ARDL) model. The study revealed that expenditure on the military had a negligible negative impact on human capital development in the field of education and a significant negative impact on the health component of human capital development. Similarly, Alugbuo and Uremadu (2020) found in their study using Nigerian data from 1981-2017 and an ARDL model that military expenditure had a negative relationship with HDI in both the short and long run but was not statistically significant. The results point to the need to consider whether greater

defence spending is associated with better levels of human development, but also to the need to consider whether greater spending on defence leads to less spending on human capital investment.

But recent evidence suggests otherwise. The Dynamic Ordinary Least Squares (DOLS) technique was applied to examine military spending and human development in Nigeria over the period 1999-2024 by Fatuase et al. (2025). They found that recurrent military spending had a positive and significant impact on the HDI, whereas capital military spending had a significant negative impact. This result contrasts with the earlier Nigerian studies and suggests that the developmental effect of defence expenditure may depend not only on the amount spent but also on the composition and allocation of defence expenditure.

Evidence from outside Nigeria further demonstrates the complexity of the relationship. Pérez-Cárceles (2025) investigated defence expenditure and HDI across G20 countries for 1990–2021 using dynamic panel-data models. The study found that defence expenditure had a positive effect on contemporary human development, with the effect continuing into the first lag but becoming weaker subsequently. This finding differs from the predominantly negative Nigerian evidence and suggests that the institutional and socioeconomic context within which defence expenditure occurs may influence its developmental outcome.

In addition, the empirical evidence does not support a uniform relationship between defence expenditure and economic development. Nigerian studies have generally identified negative or mixed effects, while more recent evidence indicates that the composition, allocation and timing of defence expenditure may determine whether it contributes to or constrains human development. The contrasting findings also indicate that defence expenditure may generate security benefits that support development while simultaneously creating opportunity costs through reduced resources for health, education and other human-capital investments. Therefore, the existing literature leaves an important empirical issue unresolved in Nigeria. While some studies have examined military expenditure in relation to individual human-capital indicators or HDI, limited attention has been given to the broader relationship between public defence expenditure and economic development measured by HDI while controlling for other relevant macroeconomic factors, particularly ICT. This study contributes to the literature by examining this relationship within the Nigerian context and incorporating ICT as a control variable.

3.0 Methodology

3.1 Model specification

The present study follows the approach of Alugbuo and Uremadu (2020), who investigated the impact of military spending on human capital formation in Nigeria with the autoregressive distributed lag (ARDL). Human Development Index (HDI), military expenditure (MEXP), government expenditure on education (GEXPE), government expenditure on health (GEXPH), total population (TOPOP), and gross fixed capital formation (GFCF) were part of their model. Their model is of the functional form:

HDI=f (MEXP, GEXPE, GEXPH, TOPOP, GFCF) (2)

Building on this framework, the present study retains HDI as the measure of economic development and public defence expenditure (DEX) as the principal explanatory variable. However, the model is modified by incorporating foreign direct investment (FDI), inflation (INF), public debt (DEBT), and information and communication technology (ICT) to reflect the specific objectives and variables of the present study. In particular, the inclusion of ICT addresses the variable gap identified in the literature.

3.1.1 Functional Model

Based on the adapted framework, the functional relationship among the variables is specified as:

HDI=f (DEX, FDI, INF, DEBT, ICT) (3)

where HDI represents economic development measured by the Human Development Index; DEX represents public defence expenditure; FDI represents foreign direct investment; INF represents inflation rate; DEBT represents public debt; and ICT represents information and communication technology.

3.1.2 Econometric Model

The econometric model is specified as:

$$HDI_t = \beta_0 + \beta_1 DEX_t + \beta_2 FDI_t + \beta_3 INF_t + \beta_4 LogDEBT_t + \beta_5 LogICT_t + \mu_t \quad (4)$$

Where: HDI_t = Human Development Index at time t, β_0 = Constant term, $\beta_1 - \beta_5$ = Parameters to be estimated, μ_t = Stochastic error term and t = Time period

The natural logarithm is applied to DEBT and ICT to reduce differences in scale and dispersion and to limit the influence of extreme values in the estimation. The transformation also allows changes in these variables to be interpreted in proportional terms. DEX, FDI, and INF are retained in their original forms because they are measured as expenditure or ratios/rates and do not require the same scale transformation. Thus, logarithmic transformation is applied only to variables for which it is appropriate based on their measurement and distribution.

3.2. Nature and Sources of Data

This paper employed time series data between 1990 and 2024, meaning a span of

thirty-five (35) years. This time period was dictated by data availability, in order to analyse movements in defence spending, economic development and macroeconomic performance in Nigeria. This study used only secondary data, which were gathered from relevant sources. Economic Development, in the sense of human development, is proxied by the Human Development Index (HDI) and is sourced from the UNDP Human Development Reports. Public Expenditure on Defence (DEX), Foreign Direct Investment (FDI), Inflation Rate (INF), Public Debt (DEBT) and Information Communication and Technology (ICT) are obtained from the World Development Indicators (WDI) databases.

4.0. Results and Discussion of Findings

The 35 years of observations (1990–2024) are covered in the study. The HDI has 34 observations; however, the 2024 data were not available at the time of analysis. On the other hand, complete observations are available for the entire 1990-2024 period for DEX, FDI, INF, LOGDEBT, and LOGICT. Consequently, the descriptive statistics for HDI are based on 34 observations, while those of the other variables are based on 35 observations. This difference is attributable solely to the unavailability of the 2024 HDI data and does not represent a missing observation within the available HDI series.

4.1. Presentation of Results

4.1.1. Descriptive Statistics

Table 4.1: Result of Descriptive Statistics

	HDI	DEX	FDI	INF	LOGDEBT	LOGICT
Mean	0.476206	0.586093	1.252558	18.70559	10.60944	0.435836
Median	0.490500	0.539231	1.196726	13.00697	10.53313	0.830589
Maximum	0.560000	1.012702	2.900249	72.83550	11.03646	1.615017
Minimum	0.379000	0.348375	-0.028873	5.388008	10.24283	-2.054039
Std. Dev.	0.058695	0.183021	0.859177	15.86930	0.212069	1.097343
Skewness	-0.248141	0.865295	0.221746	2.071452	0.621396	-0.791388
Kurtosis	1.664703	2.572459	1.822083	6.495683	2.604428	2.467874
Jarque-Bera	2.874863	4.634199	2.310254	42.85088	2.480640	4.066329
Probability	0.237537	0.098559	0.315017	0.000000	0.289292	0.130921
Observations	34	35	35	35	35	35

Source: Authors' Computation using EVIEWS

Summary of descriptive statistics of variables used in the study is shown in Table 4.1. As shown, Human Development Index (HDI) gave an average value of 0.4762 with a maximum of 0.5600 and a minimum value of 0.3790, revealing moderate deviation in economic development of the study economy. Defence expenditure (DEX) recorded a mean value of 0.5861, indicating a relatively stable government expenditure on defence, with

values ranging from 0.3484 to 1.0127. Foreign Direct Investment (FDI) showed a mean value of 1.2526, whereas inflation (INF) revealed a relatively higher mean value of 18.71%, indicating persistently high inflationary pressure in the Nigerian economy. Public debt (LOGDEBT) revealed a mean value of 10.6094, and ICT(LOGICT) showed a mean value of 0.4358. Standard deviation indicates that inflation recorded the highest standard deviation of 15.8693, implying drastic changes in price level over the study period, and that Human Development Index (HDI) recorded the least standard deviation of 0.0587, which shows relative stability in the economic development of Nigeria.

The skewness statistics reveal that HDI and ICT are negatively skewed, indicating a longer tail on the left side of their distributions, while DEX, FDI, INF, and LOGDEBT are positively skewed, indicating a concentration of observations below the mean. The kurtosis values show that inflation is leptokurtic (6.4957), implying a peaked distribution with heavier tails, whereas the remaining variables are platykurtic, suggesting flatter distributions than the normal distribution.

Furthermore, the Jarque-Bera statistics and their associated probability values indicate that HDI, DEX, FDI, LOGDEBT, and LOGICT are normally distributed since their probability values exceed the 5 per cent level of significance. However, inflation does not follow a normal distribution as its probability value is less than 0.05. Overall, the descriptive statistics suggest that the data are suitable for further econometric analysis.

4.1.2. Trend Analysis

The behaviour of the variables over time during the study period can be seen in Figure 4.1 From the chart, the Human Development Index (HDI) displays a steady upward trend indicating a gradual increase in the living standard, literacy level and health facilities in Nigeria. There is some fluctuation, but it shows steady progress. The public expenditure on defence (DEX) shows an upward trend over the whole period, reflecting an increase in challenges Nigeria faced in the form of insurgency, banditry, kidnapping and other security problems, all of which require increased public expenditure. Foreign direct investment (FDI) fluctuated greatly over the period under study and may be due to an increase in macroeconomic variables, investor confidence and the global economic situation, etc. The observed downward trend in a certain period reflects the effect of insecurity and unstable economic conditions on foreign investment in Nigeria.

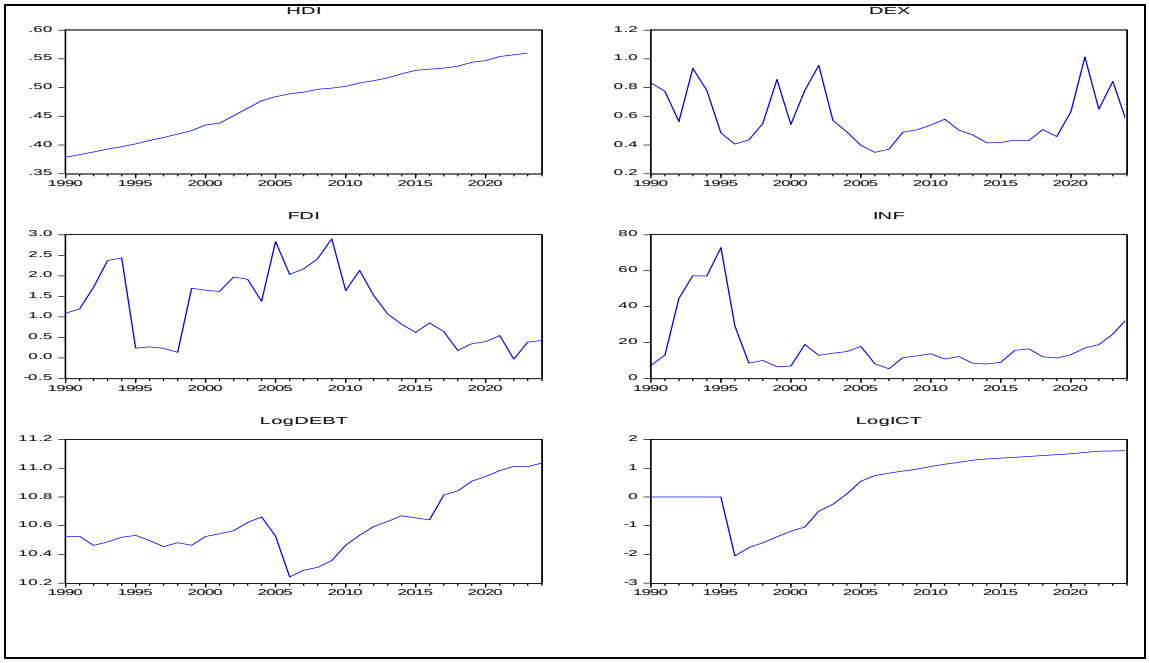

Figure 4.1: Trend analysis of the variables of the study
Source: Authors' Computation using EVIEWS

Inflation shows high variability and a sharp increase at a certain point in time, which may suggest that an unstable macroeconomic situation persists in the country, which has a great effect on consumers' welfare. Public debt shows a persistent upward trend, indicating an increasing reliance on loans for the government to finance budget deficits and develop projects in Nigeria; the accumulation has been higher recently. ICT shows an upward trend, representing an increase in infrastructure and usage. In general, there were noticeable varying movements in most variables over time, which justifies the use of further econometric analysis in analysing the nature of the relationship between defence expenditure and economic development in Nigeria.

4.1.3. Stationarity Test

Table 4.2: Result of ADF Unit Root Test

Variables	ADF at level	ADF at 1st difference	Order of integration
HDI	-1.4485	-3.4542	**I(1)**
DEX	-3.6613	----------	**I(0)**
FDI	-2.2692	-7.0119	**I(1)**
INF	-2.1287	-4.6572	**I(1)**
LogDEBT	0.0116	-4.2810	**I(1)**
LogICT	-3.4882	----------	**I(0)**
ADF Critical value (%) = -2.95			

Source: Authors' Computation using EVIEWS

The Augmented Dickey-Fuller (ADF) unit root test was conducted to determine the stationarity properties of the variables and to ensure that none of the variables was

integrated of order two, I(2), which is a prerequisite for applying the ARDL bounds testing approach (Pesaran et al., 2001). The results indicate that defence expenditure (DEX) and ICT (LOGICT) are stationary at levels, implying that they are integrated of order zero, I(0). In contrast, HDI, FDI, inflation, and public debt became stationary after first differencing, indicating that they are integrated of order one, I(1). The mixed order of integration among the variables justifies the use of the Autoregressive Distributed Lag (ARDL) estimation technique, which is suitable when variables are integrated at both I(0) and I(1), but none is integrated at I(2). The result therefore confirms the appropriateness of the ARDL methodology for analysing the relationship between defence expenditure and economic development in Nigeria.

4.1.4. Lag Length Selection Criteria

Table 4.3: VAR Lag Selection Result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-73.12991	NA	6.64e-06	5.105155	5.382701	5.195628
1	96.45858	262.5886	1.26e-09	-3.513457	-1.570635*	-2.880145
2	144.8263	56.16895*	7.52e-10*	-4.311373	-0.703276	-3.135224
3	189.4530	34.54974	1.04e-09	-4.867937*	0.405435	-3.148949*

Sources: Authors' Computation using EVIEWS

The optimal lag length selection result is presented in Table 4.3. The Lag length 3 was selected by the Akaike Information Criterion (AIC), with the lowest AIC value of -4.867937. HQ selected lag 3 as well; however, LR selected lag 2. Given that the Akaike Information Criterion is widely regarded as more efficient in small samples, lag three was adopted as the optimal lag structure for the study. This lag length was subsequently used in estimating the ARDL model.

4.1.5. Cointegration Test

Table 4.4: ARDL Bounds Test of Cointegration

Test Statistic	Value	K
F-statistic	5.127360	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Authors' Computation using EVIEWS

The ARDL Bounds Cointegration Test was conducted to ascertain the existence of a long-run relationship among the variables. The result reveals an F-statistic of 5.1274, which exceeds the upper bound critical value of 3.79 at the 5 per cent level of significance and 4.68

at the 1 per cent level. This implies the rejection of the null hypothesis of no cointegration and confirms the existence of a long-run equilibrium relationship among economic development, defence expenditure, foreign direct investment, inflation, public debt, and ICT in Nigeria. Consequently, both the long-run and short-run ARDL estimates can be validly interpreted.

4.2. Estimation Tests

Table 4.5: Result of Parsimonious Long-Run ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	0.824040	0.168643	4.886292	0.0002
HDI(-2)	0.324430	0.239956	1.352039	0.1964
HDI(-3)	-0.284083	0.145716	-1.949564	0.0702
DEX	0.001157	0.003273	0.353545	0.7286
DEX(-1)	0.004264	0.003334	1.278901	0.2204
FDI	-0.000971	0.000935	-1.038578	0.3155
FDI(-1)	-0.000682	0.000962	-0.708288	0.4896
FDI(-2)	0.000153	0.000752	0.203439	0.8415
FDI(-3)	0.002285	0.000784	2.915939	0.0106
INF	-0.000217	6.93E-05	-3.126924	0.0069
LOGDEBT	0.014134	0.005878	2.404456	0.0296
LOGICT	0.003798	0.001587	2.393027	0.0302
LOGICT(-1)	0.002523	0.001494	1.689046	0.1119
LOGICT(-2)	-0.002314	0.001344	-1.721441	0.1057
LOGICT(-3)	-0.001354	0.001130	-1.198127	0.2495
C	-0.082560	0.060282	-1.369551	0.1910
R-squared	0.999420	Mean dependent var		0.485194
Adjusted R-squared	0.998839	S.D. dependent var		0.053313

Sources: Authors' Computation using EVIEWS

The long-run ARDL estimates indicate that defence expenditure (DEX) has a positive coefficient of 0.001157, but the coefficient is statistically insignificant at the 5 per cent level (p = 0.7286). This implies that there is insufficient statistical evidence to establish a significant long-run relationship between defence expenditure and economic development, as measured by the Human Development Index (HDI), in Nigeria. It seems defence spending might not have been effectively channelled toward development and well-being. Foreign direct investment (FDI) appears to have a mixed set of results. Contemporary and early lag values are not significant; the third lag of FDI has a positive and significant coefficient (0.002285; p=0.0106). This means that FDI has a positive influence on economic development, but it is manifested with a lagged response. The response may arise through job creation, knowledge spillover, and enhanced productivity.

The inflationary tendency of prices has a negative and significant effect on economic development (-0.000217; p=0.0069). Rising prices result in a declining standard of living, consequently diminishing the quality of life,

and hence, human development outcomes in Nigeria. The result corroborates economic reasoning, which asserts that rapid price increases reduce purchasing power and weaken economic welfare. Log of public debt (LOGDEBT) had a positive and significant coefficient (0.014134; p=0.0296), which means that the accumulation of public debt had enhanced economic development over time in the study period. The results indicate that borrowed resources had been spent on profitable development projects and public investments that could improve the quality of life. Likewise, ICT(LOGICT) has a positive and significant effect on the economic development (0.003798; p=0.0302) in Nigeria. The effect means that improvement in ICT infrastructure and connectivity has enhanced access to information, the educational delivery system, innovation, and economic opportunities. R-squared (R^2) implies that about 99.94 per cent of the total variation in the economic development is attributed to explanatory variables included in the model, meaning that the model had explanatory power.

Table 4.6: Result of Parsimonious Short Run ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001715	0.001089	1.575416	0.1294
D(HDI(-1))	0.708176	0.179948	3.935449	0.0007
D(DEX(-3))	0.003579	0.003152	1.135302	0.2685
D(FDI(-3))	0.000986	0.000749	1.316429	0.2016
D(INF(-3))	2.22E-05	4.93E-05	0.449556	0.6574
D(LOGDEBT(-3))	-0.004506	0.006482	-0.695151	0.4942
D(LOGICT(-3))	-0.000723	0.001410	-0.512872	0.6132
ECM(-1)	-1.269908	0.412334	-3.079801	0.0055
R-squared	0.490330	Mean dependent var		0.005567
Adjusted R-squared	0.328162	S.D. dependent var		0.003137

Sources: Authors' Computation using EVIEWS

Short-run ARDL showed a significant positive effect of lagged HDI (= 0.7082; p = 0.0007), reflecting the persistence of the characteristic of the development process (current level reflects the previous advancements in human development). The short-run coefficients of defence expenditure, foreign direct investment, inflation, public debt, and ICT are statistically insignificant, suggesting that these variables do not exert immediate effects on economic development within the period under consideration. Their impacts appear to manifest mainly in the long run rather than in the short run. The error correction coefficient, ECM(-1), is negative and statistically significant (β = -1.2699; p = 0.0055), satisfying the theoretical expectation. This supports the idea that there is a long-run stationary relationship between the variables. In terms of magnitude, this coefficient suggests that roughly 126.99% of short-run disequilibrium is adjusted within

one year, implying quite a quick adjustment to the long run.

4.3. Post-Estimation Tests

Table 4.7: Result of Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.767217	Prob. F(3,12)	0.5341
Obs*R-squared	4.989015	Prob. Chi-Square(3)	0.1726

Sources: Authors' Computation using EVIEWS

Under the Breusch-Godfrey Serial Correlation LM Test, since the probability value (0.1726) is higher than the five per cent level, the null hypothesis of no serial correlation cannot be rejected. and concluded that the residuals do not exhibit serial correlation.

Table 4.8: Result of Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.615329	Prob. F(15,15)	0.8213
Obs*R-squared	11.80886	Prob. Chi-Square(15)	0.6934
Scaled explained SS	2.036716	Prob. Chi-Square(15)	1.0000

Sources: Authors' Computation using EVIEWS

Breusch-Pagan-Godfrey heteroskedasticity test results in the probability value of 0.6934, indicating there is no heteroskedasticity in the model. The error term has constant variance, so the classical regression assumption of constant variance of the error term is fulfilled

.

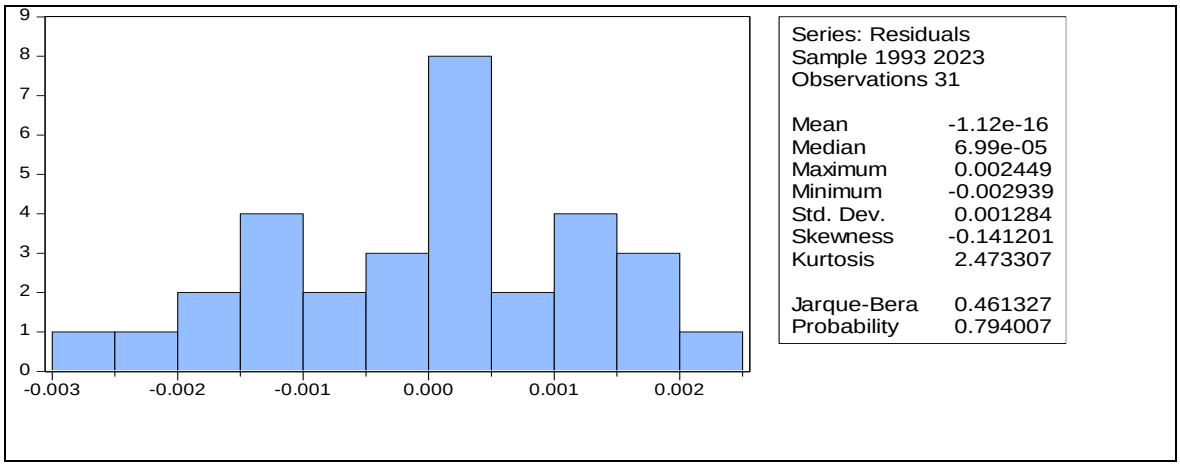

Figure 4.2: Normality Test
Source: Authors' Computation using EVIEWS

With regards to the test of normality, the Jarque-Bera test, the p-value is (0.7940) > 0.05. We thus do not reject the null hypothesis that error is normally distributed. This indicates to us that errors are normal and are one of the standard regression assumptions that have been fulfilled, and the estimated model is reliable for whatever

inference and hypothesis testing we wish to undertake.

Stability Test

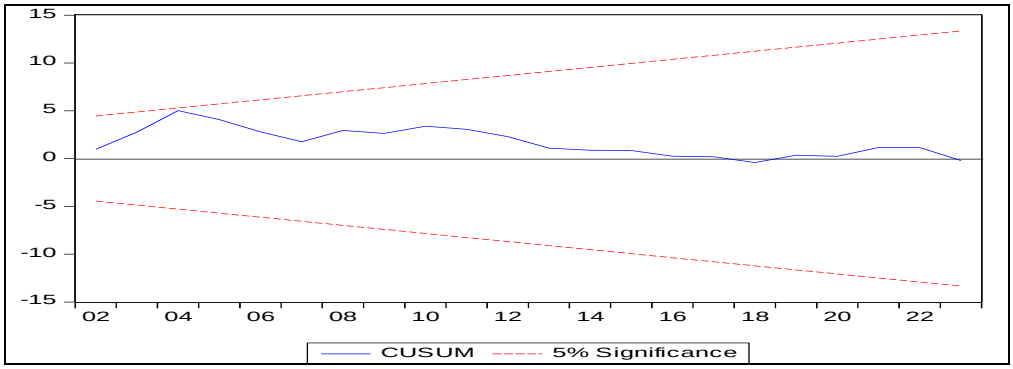

Figure 4.3: Cumulative Sum Test
Source: Authors' Computation using EVIEWS

The stability test results based on the CUSUM statistics indicate that the estimated model is stable over the study period. This conclusion is drawn from the fact that the cumulative sum plot blue line remains within the 5 per cent critical boundaries red lines. The result suggests the absence of structural instability and confirms that the estimated coefficients are stable and reliable for policy analysis and forecasting.

4.4. Discussion of Findings

The findings of this study reveal that public expenditure on defence exerts a positive but statistically insignificant impact on economic development in Nigeria. This suggests that although increased defence spending may contribute to improved security and stability, its effect on human development remains limited. The result is consistent with the findings of Akume and Akadiri (2025), who reported that positive military expenditure had a positive but insignificant effect on economic performance in Nigeria. Similarly, Imafidor and Quadri (2018) found that defence expenditure exerted a positive but insignificant influence on human capital development. However, the finding contradicts Ezeala et al. (2022) and Ajala and Laniran (2021), who reported a significant positive relationship between defence expenditure and economic performance. The implication is that defence expenditure alone may not be sufficient to significantly improve human development unless it is efficiently managed and complemented by investments in critical social sectors. Consequently, the null hypothesis that public expenditure on defence has no significant impact on economic development in Nigeria cannot be rejected.

This further proves that FDIs have a positive and significant effect on economic development in the long run. This may imply

that FDI contributes to the improvement of human welfare in the form of an increase in job opportunities, transfer of technology, capital accumulation and an increase in productivity. The finding is supported by Raymond and Ibyingibo (2021). Hence, the need to make continuous FDI flows to Nigeria is important for the enhancement of its economic development. The study found that inflation has a negative and significant impact on economic development in the long run. The negative and significant coefficient of inflation means that a continued increase in the price level leads to a loss in purchasing power, a decline in living conditions and hence, a reduction in human welfare. The finding is in line with economic theory stating that high levels of inflation could lead to a detrimental impact on economic growth and development, as it leads to a decline in real income, a decrease in investment, inability for households to provide for their health needs, education and food needs.

The study found that public debt has a positive and significant impact on economic development in Nigeria. The positive and significant coefficient of public debt means that the existence of public debt may lead to economic development through the productive and purposeful utilisation of funds acquired via debt acquisition. This result suggests that the financing of infrastructure, development and social programmes through public debt accumulation could lead to improvement in human welfare. Nevertheless, effective utilisation of funds acquired through borrowing is crucial for the continuation of such a positive association. Furthermore, the study found that ICT has a positive and significant effect on economic development in Nigeria. It means that ICT increases access to information and education, promotes innovation and entrepreneurship, facilitates access to financial services and also provides economic opportunities for people to better their living standards and hence human welfare.

Lastly, the ARDL Bounds Test confirms the existence of a long-run relationship between economic development, public expenditure on defence, foreign direct investment, inflation, public debt, and ICT. The negative and statistically significant ECT value shows that there is a tendency to restore a long-run equilibrium among the variables of study. The implication is that any deviations from a long-run equilibrium relationship are corrected over time by the adjustment of endogenous variables, and these explanatory variables jointly influence economic development in the short-run and long-run simultaneously. We therefore reject the null hypothesis that there is no long-run relationship between variables in this model, which supports the endogenous growth theory that says that long-run growth is endogenous to government expenditure, investment, technology, and the existing

macroeconomic environment. The conclusions and policy recommendations are drawn from these results and discussion and consequently presented in the following chapter, therefore fulfilling the aims of this study.

5.0. Conclusion and Policy Recommendations

5.1 Conclusion

It is concluded that defence spending had a complex and ambiguous effect on Nigeria's economic development. It enhances security and political stability but fails due to persistent insecurity. A large amount of defence spending reduces human capital investment and the well-being of citizens, which is crucial for sustained development. It's vital for sovereignty and facilitates economic transactions, but the development impact of spending is based on efficiency, transparency and a trade-off between security spending and developmental spending. In Nigeria, a positive contribution of defence spending is not guaranteed unless supported by institutional reform, transparency, corruption control and appropriate management of resources.

5.2. Policy Recommendations

Given the objectives and empirical findings of the study, the following recommendations are made:

i. Defence expenditure should be more efficiently managed and prioritised: Although defence expenditure has a positive coefficient, its effect on economic development is statistically insignificant. Therefore, increases in defence spending should be guided by efficiency and clear developmental priorities rather than simply increasing defence allocations.
ii. The government should strengthen measures that promote productive foreign direct investment (FDI): These should include improving the ease of doing business, ensuring a stable and predictable investment environment, strengthening infrastructure, simplifying investment and business registration procedures, and reducing unnecessary regulatory barriers. This is justified by the finding that FDI has a positive and statistically significant effect on economic development in Nigeria.
iii. Inflation should be effectively controlled to promote economic development: Given the negative and statistically significant effect of inflation on economic development, efforts to maintain price stability should be strengthened to protect household purchasing power and support improvements in human welfare.
iv. Public borrowing should be directed towards development-enhancing

investments: Given the positive and statistically significant effect of public debt on economic development, borrowed funds should be channelled into productive areas such as education, healthcare, and essential infrastructure that directly contribute to improvements in human welfare and living standards.

v. Investment in ICT should be strengthened: The positive and statistically significant effect of ICT on economic development suggests that the government should promote ICT infrastructure, digital access, technological adoption, and ICT-related human capacity development to support improvements in education, productivity, access to information, and living standards.

References

African Development Bank. (2023). *African Development Bank Group strategy for addressing fragility and building resilience in Africa, 2022–2026*. https://www.afdb.org/sites/default/files/2023/04/27/en-afdb-fragility-strategy_1.pdf?utm

African Development Bank. (2025). *African Economic Outlook 2025*. https://vcda.afdb.org/en/system/files/report/afdb25-01_aeo_main_report_english_.pdf?utm

Ajala, O., & Laniran, T. (2021). Military Expenditure and Economic Growth: Evidence from Nigeria. *American Journal of Economics, 11*(1), 10-18. https://doi.org/10.5923/j.economics.20211101.02

Alugbuo, J. C., & Uremadu, S. O. (2020). Effect of military expenditure on human capital development in Nigeria: An ARDL model approach. *Journal of Multidisciplinary Engineering Science and Technology, 7*(6), 12067–12083.

Akume, M. A., & Akadiri, S. S. (2025). Unpacking the impact of military spending on economic growth in resource-rich nations. *International Journal of Economic Policy Studies, 19*(1), 275–298. https://doi.org/10.1007/s42495-025-00151-9

Asongu, S. A., Le Roux, S., & Singh, P. (2021). Fighting terrorism in Africa: Complementarity between inclusive development, military expenditure and political stability. *Journal of Policy Modeling, 43*(5), 897–922. https://doi.org/10.1016/j.jpolmod.2020.01.014

Budget Office of the Federation. (2015). *2015 Appropriation Act*. Federal Republic of Nigeria. https://budgetoffice.gov.ng/pdfs/201

5appropriation/11.%20Defence%20Revised.pdf

Budget Office of the Federation. (2025). *2025 Appropriation Act*. Federal Republic of Nigeria. https://budgetoffice.gov.ng/index.php/2025-appropriation-act

Dimitraki, O., & Emmanouilidis, K. (2024). Interactional Impact of Defence Expenditure and Political Instability on Economic Growth in Nigeria: Revisited. *Defence and Peace Economics, 36*(1), 533-554 . https://doi.org/10.1080/10242694.2024.2354992

Ezeala, G., Obi, J. O., & Afolalu, A. B. (2022). Government expenditure and security requirement for achieving sustainable economic growth and development (1994-2020). *International Journal of Research Publication and Reviews, 3*(6), 1265-1273.

Ezenwajiobi, C. C., & Ishaka, D. (2025). *Impact of defence spending on national security in Nigeria: Areas for legislative intervention*. National Institute for Legislative and Democratic Studies. https://ir.nilds.gov.ng/handle/123456789/1726

Fatuase, P. O., Aiyedogbon, J. O., & Ogwuche, D. D. (2025). Impact of Military Expenditures on Human Development outcome in Nigeria: 1999-2024. *International Journal of Modern Science and Research Technology, 3*(9), 240-257. https://doi.org/10.5281/zenodo.17199039

Haller, A. P. (2012). Concepts of economic growth and development: Challenges of crisis and of knowledge. *Economy Transdisciplinarity Cognition, 15*(1), 66–71.

Human Rights Watch. (2026). *World report 2026: Nigeria*. https://www.hrw.org/world-report/2026/country-chapters/nigeria

Imafidor, O. M., & Quadri, U. F. . (2018). Defence Expenditure and Human Capital Development Nexus: Empirical Evidence from Nigeria. *Amity Journal of Training and Development, 3*(2), 17-34. https://www.researchgate.net/publication/337860015_Defence_Expenditure_and_Human_Capital_Development_Nexus_Empirical_Evidence_from_Nigeria_Omokhagbo_Mike_Imafidor?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImhvbWUiLCJwYWdlIjoic2VhcmNoIiwicG9zaXRpb24iOiJwYWdlSGVh

International Monetary Fund. (2026). Chapter 2: Defence spending: Macroeconomic consequences and trade-offs. In World Economic Outlook, April 2026: Global economy in the shadow of war. *International Monetary Fund*. https://www.imf.org/-/media/files/publications/weo/2026/april/english/ch2.pdf

International Monetary Fund. (2026). *Nigeria: 2026 Article IV consultation—Press release; staff report; and statement by the executive director for Nigeria*. IMF Staff Country Reports, 2026/125. https://doi.org/10.5089/9798229048286.002.A001

International Monetary Fund. (2026). *Military spending and crowding-out effects: Evidence from Sub-Saharan Africa* (IMF Working Paper No. 2026/069). https://doi.org/10.5089/9798229042444.001.A001

Lucas, R. E. Jr. (1988). On the mechanics of economic development. *Journal of Monetary Economics, 22*(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

Obasi, C. N., Asogwa, F. O., & Nwafee, F. I. (2018). Military expenditure and human capital development in Nigeria. *American Journal of Economics, 8*(5), 221–229. http://article.sapub.org/10.5923.j.economics.20180805.03.html

Okolie, A., & Nnamani, K. E. (2019). Government Defence Expenditure and Human Security Crisis in Nigeria, 2005-2017. *Conference: Governance, Security and Elections in NigeriaAt: University of Calabar, Cross River State* (pp. 1-27). Calabar: University of Calabar. https://www.researchgate.net/publication/353442889_Government_Defence_Expenditure_and_Human_Security_Crisis_in_Nigeria_2005-2017

Pérez-Cárceles, M. C. (2025). Is defence expenditure a guarantee of human development? A panel data approach in the group of twenty. *Applied Economics, 57*(20), 2569–2580. https://doi.org/10.1080/00036846.2024.2326531

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326. https://doi.org/10.1002/jae.616

Raymond, M., & Ibyingibo, S. (2021). National defence expenditure and its

implications on economic development in Nigeria. *African Journal of Economics and Sustainable Development, 4*(1), 17-31. https://doi.org/10.52589/AJESD-4IWKVNSI

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy, 94*(5), 1002–1037. https://doi.org/10.1086/261420

Smaldone, J. P. (2006). African military spending: Defence versus development? *African Security Review, 15*(4), 17–32. https://doi.org/10.1080/10246029.2006.9627618

SIPRI. (2025). *Trends in world military expenditure, 2024*. Stockholm International Peace Research Institute. https://doi.org/10.55163/AVEC8366

Stockholm International Peace Research Institute. (2023). *SIPRI military expenditure database*. https://www.sipri.org/databases/milex

United Nations. (2025). *Global* military spending. *United Nations News*. https://news.un.org/en/story/2025/09/1165809

United Nations Development Programme (UNDP). (2022). *Community Security: The Global Programme for Strengthening the Rule of Law, Human Rights, Justice, and Security for Sustainable Peace and Development, Phase IV (2022–2025)*. https://www.undp.org/rolhr/publications/community-security-global-programme-strengthening-rule-law-human-rights-justice-and-security-sustainable-peace-and-development?utm

U.S. Department of State. (2012). *Country reports on human rights practices: Nigeria*. Bureau of Democracy, Human Rights, and Labor. https://2009-2017.state.gov/j/drl/rls/hrrpt/2012/af/204153.htm

World Bank. (2017). *Nigeria: Multi-sectoral crisis recovery project*. World Bank. https://documents1.worldbank.org/curated/en/577861487889380249/pdf/113006-REVISED-EA-P160430-Box402908B-PUBLIC-Disclosed-5-8-2017.pdf

World Bank. (2021). *Strengthening recovery and peacebuilding in North-East Nigeria*. World Bank. https://www.worldbank.org/en/news/feature/2021/07/07/strengthening-recovery-and-peacebuilding-in-north-east-nigeria

World Bank. (2022). *Nigeria country economic memorandum: Charting a new course*. World Bank. https://documents1.worldbank.org/curated/en/099020012132216124/pdf/P176197-c33626dd-fea7-43ce-bd0e-ebd98a53275d.pdf