

IMPACT OF GOVERNMENT CAPITAL EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA (1983- 2025): EVIDENCE FROM ARDL MODEL.

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ABSTRACT

This study examined the impact of government capital expenditure on economic growth in Nigeria, with particular emphasis on capital expenditure on administration, economic services, and social and community services. The motivation for the study stemmed from the persistent increase in government capital spending over the years without a proportionate improvement in Nigeria's economic growth performance. Real Gross Domestic Product (RGDP) was used as a proxy for economic growth, while government capital expenditure on administration, economic services, and social and community services constituted the explanatory variables. Data analysis was conducted using descriptive statistics, correlation analysis, unit root tests, and the Autoregressive Distributed Lag (ARDL) model. The results of the unit root tests showed that the variables were combination of stationary at levels and at first difference. The correlation analysis revealed strong positive relationships between RGDP and capital expenditure across all the sectors considered. The ARDL bounds test confirmed the existence of a long-run equilibrium impact of government capital expenditure on economic growth in Nigeria. Furthermore, the ARDL estimation results indicated that capital expenditure on administration and economic services exerted a positive and statistically significant impact on economic growth, while capital expenditure on social and community services exhibited a positive but relatively weaker effect. The study concluded that government capital expenditure contributes significantly to economic growth in Nigeria, particularly through investments in administration and economic services. It was recommended that greater emphasis be placed on efficient allocation, effective implementation, and proper monitoring of capital projects to enhance their growth-promoting impact.

Keywords: Government Capital Expenditure, Economic Growth, ARDL, Nigeria.

J E L Classification: H51, H52, H53 and H75

1.0 INTRODUCTION

Government capital expenditure serves as a vital instrument for promoting economic growth and development, especially in economies where private investment alone cannot adequately provide essential public goods. Historically, market inefficiencies in delivering infrastructure, education, health, and administrative capacity have justified the interventionist role of the state. Capital expenditure, therefore, represents deliberate long-term investment in assets that enhance productivity, institutional efficiency, and social welfare. In this context, government spending on administration, economic services, and social and community services constitutes a key driver of structural transformation and inclusive growth (Udom & Felix, 2019; Chukwuma & Okorie, 2020). Globally, government capital expenditure has been recognized as a fundamental catalyst for sustainable development. In advanced economies, spending on administrative infrastructure enhances policy coordination and public sector efficiency, while investments in economic services such as transport, agriculture, and industry stimulate competitiveness and innovation. Similarly, expenditure on social and community services like education, housing, and healthcare underpins human development and social stability.

In Nigeria, the role of capital expenditure in fostering economic growth has been widely acknowledged but inconsistently realized. Despite significant allocations to key sectors, growth outcomes remain volatile and below expectations. The World Bank (2020) estimated that infrastructural inefficiencies in economic services, such as power and transport, cost the nation between 2% and 4% of GDP annually, while deficiencies in social and community services contribute to reduced productivity and human capital formation. Although capital spending has risen from ₦1.61 trillion in 2020 to ₦5.15 trillion in 2024 (CBN), these increases have not translated into proportional improvements in output or living standards due to weak implementation and policy misalignment.

Sectoral performance further reveals that capital expenditure outcomes differ across domains. Investment in administration enhances governance, accountability, and public service delivery but often suffers from low efficiency and poor institutional coordination. Spending on economic services such as agriculture, industry, and transport has the potential to drive growth through infrastructure and private sector development, yet results are weakened by corruption and budget delays. Similarly, investment in social and community services, including education and health, remains critical for long-term human development but is often undermined by underfunding and fragmented execution (Ojo & Ojo, 2022; Edet, Anyanwu & Ezu, 2024).

Theoretically, the relationship between government capital expenditure and economic growth aligns with both the Keynesian and Wagnerian frameworks. Keynesian theory posits that public spending stimulates aggregate demand and employment, particularly during economic downturns, while Wagner's Law suggests that economic growth naturally leads to an expansion in public expenditure. Nigeria's fiscal experience demonstrates a complex interaction between these perspectives, where growth and public spending influence each other in varying magnitudes.

Over the past four decades, Nigeria has consistently increased its capital expenditure across key sectors; administration, economic services, and social and community Services with the expectation of stimulating sustainable economic growth and enhancing public service delivery.

Between 1982 and 2025, total capital expenditure rose markedly from ₦6.57 billion to over ₦4.49 trillion, reflecting a clear expansion in fiscal commitment. Sectoral allocations equally grew; administration expenditure increased from ₦0.72 billion to ₦1.13 trillion, economic services from ₦3.63 billion to ₦1.96 trillion, and social and community services from ₦1.30 billion to ₦540.06 billion over the same period (CBN, 2023).

Despite these fiscal efforts, outcomes have remained largely unsatisfactory. The administration sector continues to grapple with inefficiencies, weak institutional capacity, and limited transparency, undermining the expected returns from governance-related investments (World Bank, 2020). Similarly, although the economic services sector encompassing transport, agriculture, and power has consistently attracted the largest share of capital expenditure, infrastructural bottlenecks and poor project execution persist (CBN, 2023; Edet, Anyanwu & Ezu, 2024). Studies such as Samuel and Oruta (2021) and Afolabi and Yusuf (2025) found that despite significant budgetary allocations, capital spending in economic services often fails to yield proportionate improvements in productivity or output growth due to mismanagement, corruption, and cost overruns. These challenges highlight a fundamental disconnect between fiscal allocations and economic performance, raising concerns about the efficiency and effectiveness of public capital expenditure in Nigeria.

Similarly, investment in social and community services covering education, health, and housing has been inconsistent and insufficient to improve human development outcomes. Although this sector accounted for 63.2% of total capital expenditure in 2022, its share fell to about 12% by 2023. Persistent challenges such as overcrowded schools, inadequate health facilities, and poor access to clean water underscore the inefficiency of these expenditures. For instance, despite ₦377.26 billion allocated to the sector in 2022, Nigeria's Human Development Index remains low, with over 60 million citizens lacking access to safe drinking water (UNICEF, 2022). These patterns reveal a fundamental disconnect between rising capital expenditure and actual economic outcomes. While spending has expanded, its effectiveness in stimulating economic growth remains questionable due to corruption, poor budget implementation, and weak institutional capacity (Edet, Anyanwu & Ezu, 2024; Samuel & Oruta, 2021). The persistence of high poverty rates estimated at 39% in 2023, alongside infrastructural decay and governance inefficiencies suggests that increased expenditure has not translated into meaningful development. Thus, the core problem of this study lies in the persistent disparity between rising government capital expenditure and Nigeria's weak growth and development outcomes. Despite substantial investments in Administration, Economic Services, and Social and Community Services, the nation continues to face challenges of infrastructural decay, institutional weakness, and low human development. The study therefore sought to investigate whether capital expenditure in these sectors has had any significant impact on economic growth in Nigeria, and to what extent fiscal policy has been effective in driving sustainable development.

Therefore, this study sought to examine the impact of government capital expenditure on economic growth in Nigeria, with a specific focus on three major sectors; administration, economic services, and social and community services.

2.0 LITERATURE REVIEW

2.1. Concept of Economic Growth

Economic growth is widely regarded as a key indicator of a country's economic performance and development prospects. According to Balami (2006), it represents "a steady process of increasing the productive capacity of the economy, characterized by higher rates of increase in per capita output and total factor productivity."

The World Bank (2020) defines economic growth as "the increase in the value of goods and services produced by an economy over time, typically measured by real Gross Domestic Product (GDP)." Nyasha and Odhiambo (2019) describe economic growth as "a key indicator of national performance, reflecting improvements in income levels, employment, and living standards." Ojo and Ojo (2022) emphasize that economic growth is not just quantitative but also qualitative, involving structural transformation and inclusive development.

2.1.2 Concept of Government Capital Expenditure

Government capital expenditure represents one of the most important instruments of fiscal policy used to stimulate long-term economic growth and development. The Central Bank of Nigeria (CBN, 2019) defines capital expenditure as "payments for non-financial assets, including investments in infrastructure, education, health, and other long-term projects." Olayiwola et al. (2021) describe government capital expenditure as "public spending directed toward the acquisition or improvement of fixed assets that support economic development." Edet, Anyanwu & Ezu (2024) note that capital expenditure includes "spending on transport, electricity, telecommunications, and administrative infrastructure aimed at enhancing service delivery." Nwobia et al. (2023) emphasize that capital expenditure is developmental in nature and distinct from recurrent expenditure, which covers operational costs.

2.1.3 Concept of Government Capital Expenditure on Key Sectors

Government capital expenditure is typically classified into major functional categories such as administration, economic services, and social and community Services.

Administration

Capital expenditure in the Administration sector refers to government investment in public institutions, administrative facilities, and systems that support governance and policy coordination. Administration sector expenditure refers to capital spending on government institutions, public service modernization, and administrative facilities (Nwobia et al., 2023).

According to Musgrave (1997), efficient allocation of public funds to administrative functions is essential for governance and policy implementation. Olayemi and Adebayo (2023) highlight that administrative capital expenditure supports institutional coordination and bureaucratic efficiency.

In developing economies such as Nigeria, capital expenditure on administration plays a vital role in modernizing the civil service, improving the coordination of public agencies, and ensuring that development plans are properly executed.

Economic Services

The Economic Services sector comprises capital expenditure directed toward productive and growth-enhancing activities, including agriculture, transport, energy, and industry. Economic services include capital expenditure on sectors such as agriculture, transport, industry, and energy (CBN, 2020).

According to Edet et al. (2024), economic services are critical for reducing production costs, improving competitiveness, and facilitating private sector growth. Nyasha & Odhiambo (2019) note that economic services are foundational for productivity and long-term development.

Social and Community Services

The Social and Community Services sector covers government capital spending on human development areas such as education, health, housing, water supply, and sanitation. Social and community services encompass capital spending on education, health, housing, water, and sanitation (World Bank, 2020). Ojo & Ojo (2022) define this sector as “a driver of human capital development and inclusive growth.” Jolaiya (2022) and Samuel & Oruta (2021) emphasize that investments in social services improve labor productivity and public welfare.

2.2 Theoretical Framework

This study is anchored on three major theories that explain the relationship between government capital expenditure and economic growth: Keynesian Theory of Public Expenditure, Wagner’s Law of Increasing State Activity, and Musgrave’s Theory of Public Expenditure.

2.2.1 Keynesian Theory of Public Expenditure

The Keynesian theory, propounded by John Maynard Keynes (1936), argues that government spending plays a vital role in stimulating economic activity, particularly during periods of low private investment or recession. Keynes posited that aggregate demand determines the overall level of output and employment in an economy, and that active fiscal policy through increased public expenditure can raise demand, create jobs, and promote growth.

In relation to this study, the Keynesian perspective emphasizes that capital expenditure in productive sectors such as economic services (transport, energy, and agriculture), administration (institutional infrastructure and governance facilities), and social and community services (education and health) injects money into the economy, thereby promoting employment and output.

2.2.2 Wagner’s Law of Increasing State Activity

Adolph Wagner (1890) proposed that as economies grow, the scope and scale of government expenditure naturally expand. Known as Wagner’s Law, this theory asserts that economic

development and modernization increase the demand for public services such as administration, education, infrastructure, and social welfare leading to higher public spending.

Applying this law to Nigeria, the rising trend in capital expenditure can be seen as both a response to economic growth and a requirement for sustaining it. As population, urbanization, and industrialization rise, the government must allocate more resources to administrative functions, transport infrastructure, energy supply, and human capital development. Wagner's Law thus provides a long-term explanation for the increasing role of the Nigerian government in economic management and public investment.

2.2.3 Musgrave's Theory of Public Expenditure

Richard Musgrave (1959) identified three key functions of public finance: allocation, distribution, and stabilization. The allocation function, which concerns the provision of public goods and the efficient use of resources, is most relevant to this study. Musgrave argued that the government must allocate resources efficiently to areas where the private sector fails to invest adequately such as public infrastructure, education, and health services.

In the context of this research, Musgrave's theory underscores that capital expenditure in administrative, economic, and social sectors serves to correct market failures, promote equitable development, and enhance institutional performance. Effective allocation of capital funds to these sectors improves governance capacity, supports productive investments, and builds human capital all of which contribute to sustainable economic growth.

2.3 Empirical Review

Ochieka (2025) examined the effects of government capital expenditure on economic growth in Nigeria, with a specific focus on the machinery, education, and power sectors from 1990 to 2023. Utilizing the Autoregressive Distributed Lag (ARDL) approach. The findings revealed that machinery expenditure produced a significant positive effect on economic growth in the short run, attributed to immediate gains in industrial capacity and productivity. However, its long-term impact turned negative, suggesting inefficiencies or overinvestment issues. On the other hand, education spending showed minimal short-term effects but exerted strong, positive influences over the long term, reflecting the gradual but transformative role of human capital development in economic progress. Power sector expenditure demonstrated a notable short-run contribution to growth, though its influence diminished over time, likely due to infrastructure aging or lack of sustained improvements.

Yerima et al. (2025) examined the impact of public expenditure on education, health, and debt servicing on economic growth in Nigeria using a Structural Vector Autoregression (SVAR) model for the period 1986–2020. The empirical findings indicated that government spending on education and health had a statistically insignificant effect on economic growth during the study period. Similarly, expenditure on debt servicing was found to be ineffective in promoting growth. Omolua and Chidum (2025) investigated the effects of government expenditure on education, health, and economic growth in Nigeria over the period 1990 to 2023. Applying the Johansen co-integration test, the study identified a long-run relationship among the variables, prompting the use of a Vector Error Correction Model (VECM). The empirical results revealed that in the short

run, government spending on education and health positively influenced real GDP, resulting in economic activity. However, the long-run impact of these expenditures turned negative, raising concerns about inefficiencies, poor implementation, or misalignment with sustainable development strategies.

Afolabi and Yusuf (2025) examined the impact of fiscal and monetary policy tools on Nigeria's real sector, focusing particularly on government capital expenditure over the period 1981 to 2023. Employing the Autoregressive Distributed Lag (ARDL) model and the bounds test for cointegration, the study revealed a significant positive correlation between capital expenditure and real sector output, while the Monetary Policy Rate (MPR) was found to have a positive short-run effect on manufacturing output but a negative long-run impact, highlighting its limited sustainability in driving growth. The study concluded that structured expansionary fiscal policy, accompanied by increased budgetary allocations to the real sector, regulation of interest rates, and strict monitoring of allocated funds, is essential for fostering productivity and achieving macroeconomic stability in Nigeria.

2.4 Gaps in Literature

A prominent gap in the empirical literature is that studies often examined government expenditure and economic growth using highly aggregated measures of capital spending, without clearly separating expenditure into functional categories such as administration, economic services, and social/community services, such as Bappah, Abiah and Bello (2020) combined both recurrent and capital expenditure without isolating the effects of sector-specific capital investment. As a result, it remains unclear which sectors of capital expenditure; administration, economic services, or social and community services contribute most effectively to economic growth. Existing findings on economic services remain inconsistent across studies. For instance, Afolabi and Yusuf (2025) found that capital expenditure on agriculture and manufacturing positively affects growth in the long run, whereas Edet et al. (2024) reported insignificant or negative effects for transport expenditure. These conflicting results create uncertainty regarding which components of economic services are most productive and under what conditions they effectively drive growth. Similarly, the literature on social and community services reveals limited attention to efficiency and equity considerations. Studies such as Nwobia et al. (2023) and Ojo and Ojo (2022) have examined education and health expenditure but often ignored variations in implementation quality, regional distribution, and infrastructure adequacy. Although these studies found positive long-run effects on growth, short-run outcomes were weak or negative, suggesting inefficiencies in capital spending. Despite that this study examines the impact of government capital expenditure on economic growth in Nigeria from 1982-2025, then focusing on three sectors; administration, economic services, and social and community Services.

3.0 METHODOLOGY

3.1 Research Design

This study adopted an ex-post facto research design. The design is appropriate for examining historical data and pre-existing variables that cannot be manipulated by the researcher. It enables

an objective analysis of the impact of government capital expenditure on economic growth over time using factual, secondary information.

3.2 Model Specification

This study adopted and modified the empirical work of scholars like Ochieka (2025). Theoretically, the modified model can be specified as:

$$Y = f(GCA, GCE, GCS) \quad (3.1)$$

This functional form reflects the theoretical relationship between capital investment in productive activities across key sectors; administrative, economic services, and social/community services which enhances national output through improved infrastructure, governance, and human development.

Based on the theoretical relationship above, the empirical model is expressed in econometric form as:

$$RGDP = \beta_0 + \beta_1 GCA_t + \beta_2 GCE_t + \beta_3 GCS_t + \mu_t \quad (3.2)$$

Where:

$RGDP_t$ = Real Gross Domestic Product, GCA_t = Government Capital Expenditure on Administration, GCE_t = Government Capital Expenditure on Economic Services, GCS_t = Government Capital Expenditure on Social and Community Services, all the variables are at time t , β_0 = Intercept term, $\beta_1, \beta_2, \beta_3$ = Coefficients measuring sectoral impacts, μ_t = Error term capturing unobserved factors

The expected signs of the coefficients ($\beta_1, \beta_2, \beta_3$) are positive, implying that increases in capital expenditure across the three sectors were expected to enhance economic growth.

3.2.1 ARDL Model

To capture both short-run and long-run dynamics, the study employs the Autoregressive Distributed Lag (ARDL) model developed by Pesaran, Shin, and Smith (2001). The ARDL representation of the empirical model was given as:

$$\begin{aligned} \Delta RGDP_t = & \alpha_0 + \lambda_1 RGDP_{t-1} + \lambda_2 GCA_{t-1} + \lambda_3 GCE_{t-1} + \lambda_4 GCS_{t-1} + \sum_{i=1}^p \alpha_1 \Delta RGDP_{t-i} \\ & + \sum_{i=0}^{q_1} \alpha_2 \Delta GCA_{t-i} + \sum_{i=0}^{q_2} \alpha_3 \Delta GCE_{t-i} + \sum_{i=0}^{q_3} \alpha_4 \Delta GCS_{t-i} + ECT_{t-1} + \epsilon_t \end{aligned} \quad (3.3)$$

Where:

Δ = First difference operator, α_0 = Constant term, $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ = Short-run dynamic coefficients, $\lambda_1, \lambda_2, \lambda_3, \lambda_4$ = Long-run coefficients, ϵ_t = Error term.

The ARDL approach was chosen because it performs efficiently with variables integrated at levels I(0), first difference I(1), or a mixture of both, but not I(2). It also provides reliable estimates in small sample sizes, making it suitable for the 1983–2025 periods under study.

3.2.2. Stationarity Test (Unit Root Test)

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test were used to determine whether each time series variable was stationary. Stationarity is essential in time series analysis to avoid spurious regression results. The ADF and PP test checks for the presence of a unit root in each variable at levels and first differences. If a variable is stationary at level and at first difference (I(0) & I(1)), it is suitable for ARDL modeling.

3.4 Nature and Sources of Data

The study relied entirely on secondary data, obtained from the World Development Indicator (WDI).

Table 1: contain the variables and their sources:

Table 3.1 Data, Sources

Variables	Sources
Real Gross Domestic Product	World Bank(WDI)
Capital Expenditure on Administration	World Bank(WDI)
Capital Expenditure on Economic Services	World Bank(WDI)
Capital Expenditure on Social and Community Services	World Bank(WDI)

Source: author's compilation.

4.0 RESULT/FINDING AND DISCUSSION

This section presents the results and interpretation of the empirical findings on the impact of government capital expenditure on economic growth in Nigeria.

4.1 Descriptive Statistics

A descriptive statistical analysis was undertaken to examine the fundamental characteristics and distributional behavior of the variables employed in this study.

Table 4.1: Descriptive Statistics Result

	RGDP	GCA	GCE	GCS
Mean	39926.18	178.3250	319.7100	85.81571
Median	31064.27	73.57740	215.3334	32.46730
Maximum	77936.10	1130.643	1960.733	540.0636
Minimum	16211.49	0.262700	0.656300	0.237600

Std. Dev.	21691.09	242.0298	409.6302	115.5787
Skewness	0.488053	2.041234	2.115769	2.001394
Kurtosis	1.597648	7.537892	8.019549	7.428082
Jarque-Bera	5.230546	66.75573	77.22402	63.83748
Probability	0.073148	0.000000	0.000000	0.000000
Observations	43	43	43	43

Source: Author's Computation Using EVIEWS10 (2025)

The descriptive results reveal that all the variables mean (RGDP), (GCE), (GCA) and (GCS) are above unity. The relatively high standard deviations, particularly for GCE (₦409.63 billion) and GCA (₦242.03 billion). Furthermore, the skewness and kurtosis coefficients for all expenditure variables exceed the conventional thresholds for normality, implying right-skewed and leptokurtic distributions. The Jarque-Bera test further confirms the rejection of the null hypothesis of normality at the 5% significance level for GCA, GCE, and GCS.

4.2 Correlation Matrix

Correlation analysis was conducted to assess the strength and direction of linear relationships between the dependent variable and the independent variables.

Table 4.2: Correlation Result

Correlation Probability	RGDP	GCA	GCE	GCS
RGDP	1.000000 -----			
GCA	0.833829 0.0000	1.000000 -----		
GCE	0.808434 0.0000	0.989722 0.0000	1.000000 -----	
GCS	0.824284 0.0000	0.993066 0.0000	0.985726 0.0000	1.000000 -----

Source: Author's Computation Using EVIEWS10 (2025).

The results revealed strong positive correlations between RGDP and all three categories of government capital expenditure. Specifically, RGDP and administration expenditure (GCA) were correlated at 0.834, economic services (GCE) at 0.808, and social and community services (GCS) at 0.824. These findings indicated that higher allocations to administration, economic services, and social/community services were generally associated with increased economic output.

4.3 Unit Root Test

Ensuring the stationarity of time series data was crucial for obtaining reliable regression results. This sub-section presents the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, which determine the order of integration of the study variables.

Table 4.3: Unit Root Test Result

Variables	T-Statistics	5% Critical Value	P-Value	Status	Order of Integration
ADF AT LEVEL					
<i>LRGDP</i>	-3.9307	-2.9369	0.0280	Stationary	I(0)
<i>LGCA</i>	-2.2285	-2.9389	0.1999	Non-Stationary	
<i>LGCE</i>	-0.6201	-2.9331	0.8552	Non-Stationary	
<i>LGCS</i>	-0.4113	-2.9350	0.8977	Non-Stationary	
ADF AT FIRST DIFFERENCE					
<i>LGCA</i>	-5.2915	-2.9389	0.0001	Stationary	I(1)
<i>LGCE</i>	-6.9362	-2.9350	0.0000	Stationary	I(1)
<i>LGCS</i>	-10.084	-2.9350	0.0000	Stationary	I(1)
P-P AT LEVEL					
<i>LRGDP</i>	-3.5321	-2.9331	0.0287	Stationary	I(0)
<i>LGCA</i>	-0.7744	-2.9331	0.8160	Non-Stationary	
<i>LGCE</i>	-0.5906	-2.9331	0.8619	Non-Stationary	
<i>LGCS</i>	-0.2892	-2.9331	0.9179	Non-Stationary	
P-P AT FIRST DIFFERENCE					
<i>LGCA</i>	-10.801	-2.9350	0.0000	Stationary	I(1)
<i>LGCE</i>	-6.9386	-2.9350	0.0000	Stationary	I(1)
<i>LGCS</i>	-10.477	-2.9350	0.0000	Stationary	I(1)

Source: Author's Computation Using EVIEWS10 (2025)

The ADF and PP test results indicate that RGDP variable is stationary at level, while GCA, GCE, GCS were not-stationary at level, but become stationary after first differencing. This confirms that the variables were integrated of order one, I(1), thereby validating the use of the ARDL model, which accommodates variables with mixed integration orders, I(0) and I(1).

4.4. ARDL Bound Test

The ARDL bounds cointegration test was applied to examine whether a long-run equilibrium relationship exists among the variables.

Table 4.4. Bound test for Cointegration Result

Test Statistic	Value	K
F-statistic	15.17963	2
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.45	3.52
5%	2.79	3.67
1%	3.74	5.06

Source: Author's Computation Using EVIEWS10 (2025)

The bounds test yielded an F-statistic of 15.18, which exceeds the upper critical bound value of 3.67 at the 5% significance level. This result confirmed the presence of a long-run cointegrating relationship between real GDP and government capital expenditure across administration, economic services, and social/community services.

4.4.1 Long Run ARDL

The long-run ARDL estimation evaluates the sustained impact of government capital expenditure across different sectors on economic growth.

Table 4.5: Long Run ARDL Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGCA	-0.079287	0.136445	-0.581094	0.5662
LGCE	-0.247311	0.073371	-3.370697	0.0024
LGCS	0.621366	0.148691	4.178903	0.0003
C	4.424881	0.043922	100.7435	0.0000

Source: Author's Computation Using EVIEWS10 (2025)

The results reveal sector-specific effects. Capital expenditure on administration (LGCA) has a coefficient of -0.079 ($p = 0.5662$), indicating a negative and statistically insignificant impact on RGDP. Expenditure on economic services (LGCE) shows a coefficient of -0.247 ($p = 0.0024$), which is statistically significant but negative. In contrast, capital expenditure on social and community services (LGCS) has a coefficient of 0.621 ($p = 0.0003$), demonstrating a statistically significant positive impact on RGDP.

4.4.2 ARDL Short Run

The short-run ARDL estimation examined the immediate impacts of government capital expenditure across sectors on economic growth, while the error correction term measures the speed at which deviations from the long-run equilibrium are adjusted.

Table 4.6: ARDL Short Run Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGCA)	0.022818	0.012185	1.872664	0.0724
D(LGCA(-1))	0.016343	0.010162	1.608208	0.1199
D(LGCE)	-0.032279	0.010089	-3.199332	0.0036
D(LGCE(-1))	-0.000227	0.008975	-0.025347	0.9800
D(LGCE(-2))	-0.014259	0.006953	-2.050742	0.0505
D(LGCE(-3))	0.014022	0.007180	1.952873	0.0617
D(LGCS)	0.031263	0.009729	3.213289	0.0035
D(LGCS(-1))	-0.031355	0.011985	-2.616129	0.0146
ECT(-1)*	-0.637147	0.014655	-9.358140	0.0000

Source: Author's Computation Using EVIEWS10 (2025)

From the table above, the error correction term (ECT(-1)) has a coefficient of -0.637 ($p = 0.0000$), suggesting that approximately 63.7% of deviations from the long-run equilibrium are corrected annually. This indicates a stable long-run impact with a high speed of adjustment toward equilibrium.

4.5 Diagnostic Tests

This sub-section evaluates the reliability and robustness of the ARDL model using a series of diagnostic tests.

4.5.1 Serial Correlation Test

Table 4.7: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.225596	Prob. F(4,22)	0.9212
Obs*R-squared	1.536654	Prob. Chi-Square(4)	0.8201

Source: Author's Computation Using EVIEWS10 (2025)

The Breusch-Godfrey LM test indicating no evidence of serial correlation, based on the test yields a p-value of 0.9212.

4.5.2 Heteroskedasticity Test

Table 4.8: Heteroskedasticity Test

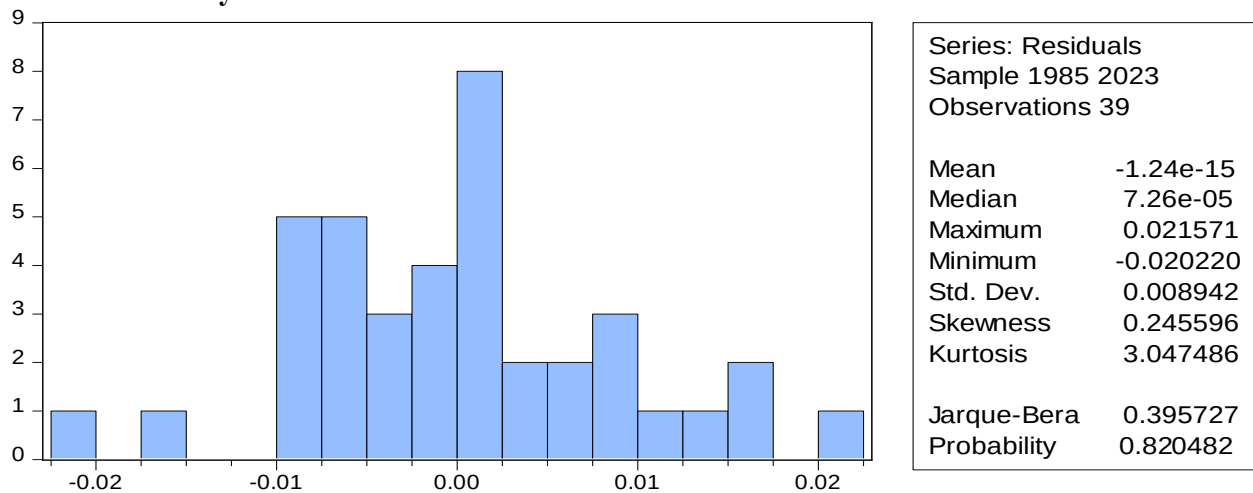
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.170674	Prob. F(12,26)	0.3524
Obs*R-squared	13.68044	Prob. Chi-Square(12)	0.3216
Scaled explained SS	6.224556	Prob. Chi-Square(12)	0.9043

Source: Author's Computation Using EVIEWS10 (2025)

Breusch-Pagan-Godfrey test. The p-value of 0.3524 suggests that the residuals are homoskedastic, meaning the variance of the error terms is constant across observations. This result supports the validity of standard errors and ensures reliable hypothesis testing.

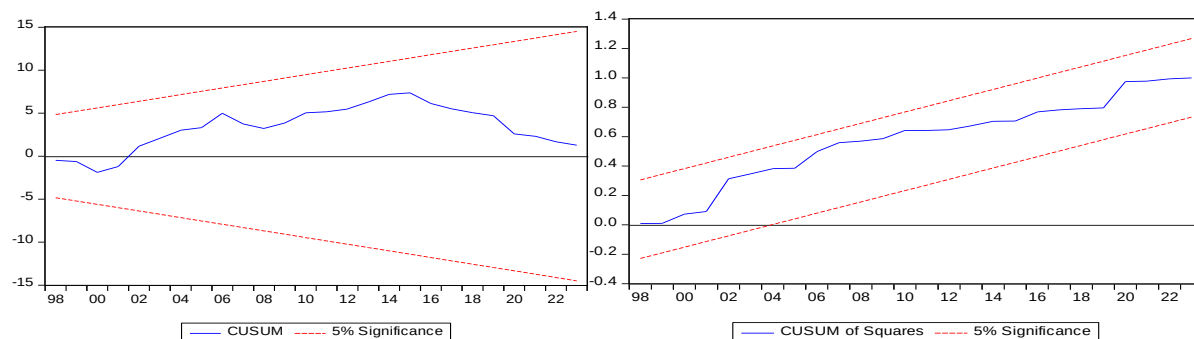
4.5.3: Normality Test



Source: Author's Computation Using EVIEWS10 (2025)

The Jarque-Bera test was employed to assess the normality of the residuals. The result shows a Jarque-Bera statistic of 0.395727 with an associated probability value of 0.820482, which exceeds the 5% significance level, indicating that the null hypothesis of normality cannot be rejected. This implies that the residuals are normally distributed.

4.5.4: Stability Tests (CUSUM and CUSUMSQ)



Source: Author's Computation Using EVIEWS10 (2025)

The stability of the ARDL model was examined using the CUSUM and CUSUMSQ tests. The plots for both tests lie entirely within the 5% critical bounds, indicating that the model is structurally stable throughout the sample period. This confirms that the estimated relationships remain consistent over time and that the model is robust for policy interpretation.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The findings of this study underscored the pivotal role of sectoral efficiency in determining the effectiveness of government capital expenditure. Capital investment in social and community

services which including education, healthcare, housing, and water supply demonstrates a consistent and positive contribution to economic growth. Conversely, the negative impact of economic services expenditure suggests that inefficiencies, corruption, and poor implementation have undermined its potential despite receiving the largest share of capital allocations. The insignificance of administrative spending points to systemic governance weaknesses and limited institutional capacity. These results were consistent with Keynesian theory, which emphasizes the stimulative role of productive public expenditure in aggregate demand, as well as Musgrave's theory, which advocates for government intervention in social welfare and human capital development. The confirmation of a long-run impact of capital expenditure on economic growth in Nigeria.

5.3 Policy Recommendations

Based on the empirical evidence, the study proposes the following policy recommendations:

- i. Prioritize Social and Community Services:** Government should sustain and increase capital investment in education, healthcare, housing, and water infrastructure, as these sectors have shown a significant positive impact on economic growth. Strengthened funding will enhance human capital, improve living standards, and promote inclusive and sustainable development.
- ii. Reform Economic Services Spending:** There is a need to improve transparency, accountability, and efficiency in the planning and execution of capital projects within the economic services sector. Enforcing anti-corruption measures, adopting performance-based budgeting, and ensuring regular project evaluation will enhance the effectiveness of public investments.
- iii. Strengthen Administrative Capacity:** Although administrative spending showed an insignificant effect on growth, it remains essential for efficient governance. Efforts should focus on digitizing public services, reducing bureaucratic inefficiencies, and building institutional capacity to improve coordination and policy implementation.

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