

GOVERNMENT SPENDING AND NIGERIA'S ECONOMIC GROWTH

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ABSTRACT

This study investigates the relationship between government spending and economic growth in Nigeria from 1981 to 2024, disaggregating expenditures into recurrent and capital components across administration, economic services, social/community services, and transfers. The study adopts an ex-post facto research design, employing secondary data sourced from the Central Bank of Nigeria Statistical Bulletin and the Nigerian Bureau of Statistics. The analytical framework comprises stationarity tests, ARDL bounds testing, lag length selection, short-run and long-run ARDL estimation, and error correction modeling to examine both immediate and sustained effects of government expenditure on GDP growth. The findings reveal that recurrent administrative and economic service expenditures significantly stimulate short-term economic activity, while recurrent and capital transfers show limited impact in both the short and long term. In the long run, capital expenditures on economic services and social/community sectors emerge as the most potent drivers of sustained economic growth, confirming the theoretical predictions of Keynesian and Wagnerian frameworks. The study shows the importance of strategic allocation and efficiency in fiscal policy, recommending prioritization of capital investment in productive sectors alongside targeted recurrent spending to optimize both short-term and long-term economic outcomes. The results contribute to the literature by providing empirical evidence on the differential impacts of government expenditure components on growth in Nigeria, highlighting policy pathways for enhancing fiscal effectiveness and promoting sustainable development.

Keywords: Government spending, economic growth, capital expenditure, recurrent expenditure

JEL Classification: H50, Q10

1. INTRODUCTION

Over the past several decades, Nigeria's government has increasingly relied on public expenditure as a key instrument for shaping macroeconomic outcomes. Public spending; both recurrent and capital, has expanded as successive administrations sought to provide infrastructure, social services, and governance functions, hoping to stimulate growth, reduce poverty, and expand welfare (Nwikipugi & Agbana, 2025). The rationale for this policy emphasis rests on the assumption that in a developing economy facing infrastructural deficits, limited private investment, and human-capital constraints, government expenditure can complement private-sector activity and help fill critical gaps in infrastructure, institutions, and social services (Agbeni et al., 2025). As such, the composition and allocation of public funds - whether toward recurrent consumption (such as administration, wages, transfers) or toward capital formation (such as roads, education, health facilities, community infrastructure) - has become a central concern for policymakers and researchers alike.

Empirical investigations have accordingly sought to assess whether this rising volume of government spending has translated into commensurate growth in real output (GDP), or whether inefficiencies in spending, misallocation, and weak institutions have undermined the potential growth benefits (Mensah & Adukpo, 2025). For instance, a study by Onifade, Çevik, Erdoğan, Bekun and colleagues (2020), which employed an ARDL approach and time-series data from 1981 to 2017, re-examined the impact of public expenditures on Nigeria's economic growth. Their findings supported the existence of a long-run relationship between public spending and growth, though they observed that government recurrent expenditure had a negative impact while capital expenditure had a positive but statistically insignificant effect over the period. Another recent analysis covering 1986 - 2021 and using disaggregated data for recurrent and capital spending on community, social and economic services reported that both components significantly boosted growth in the long run, though recurrent expenditure was negatively significant in the short run. Additional studies continue to explore these dynamics, extending the time horizon, refining expenditure categorization, and applying robust econometric techniques like ARDL, VAR, or error-correction models (e.g. Delta State University research for 1980 - 2022). The continual accumulation of such studies reflects persistent interest in understanding not just whether government spending matters for growth, but which types of spending - and under what conditions - are most effective.

Given Nigeria's enduring infrastructure deficits, recurring development challenges and fiscal constraints, the need for carefully targeted public spending remains critical (Igwe & Eke, 2025). Hence, this study adopts a disaggregated approach to government expenditure - dividing spending into recurrent vs. capital, and further by functional categories such as administration, economic services, social/community services, and transfers. By doing so, the study seeks to provide more granular insight into which components of public spending have historically driven economic growth in Nigeria, and which may have been ineffective or even counterproductive. Covering an extended period (1981–2024) that captures major macroeconomic shocks, structural reforms, and shifts in fiscal policy, the research aims to offer evidence-based guidance for contemporary fiscal planning and resource allocation.

Despite the substantial and growing volume of public spending in Nigeria over decades, the country continues to struggle with inadequate infrastructure, poor social service delivery, and erratic economic growth. Although governments routinely allocate large sums to recurrent expenditures (wages, subsidies, transfers) and capital projects (infrastructure, social services, economic services), many Nigerians still lack access to reliable roads, electricity, health facilities, education services, clean water, and functional community amenities. This paradox raises a critical question: why has massive government expenditure not consistently translated into sustained and inclusive economic growth?

Empirical studies provide mixed and often conflicting evidence, intensifying this problem. While some studies show that disaggregated public spending - especially capital expenditure and spending on social/community services - has a significant positive impact on growth (e.g., Adamu Jibir et al., 2023; Nwankwo et al., 2022), others report that recurrent expenditure may have negative or statistically insignificant effects, and that capital expenditure, under certain conditions, may be ineffective (Onifade et al., 2020; Ogar et al., 2019). The divergence in findings stems partly from differences in data periods, econometric methodology (ARDL, VAR, OLS, error-correction), variable definitions, functional classification of spending, and institutional contexts. This heterogeneity in empirical results reflects deeper theoretical and practical contentions about the role of government expenditure in growth: whether fiscal intervention should emphasize demand-side support (through recurrent spending and transfers) or supply-side investment (through capital formation), and how much the effectiveness of spending depends on institutional quality, implementation capacity, and governance.

Moreover, there is a gap in the literature: few recent studies cover a sufficiently long and recent period (e.g., up to 2022 or beyond), with fine-grained disaggregation of expenditure and rigorous time-series econometric analysis that allows for mixed integration orders and cointegration testing. Many earlier works aggregated total government spending or used broad

categories, thereby masking the heterogeneous effects of different spending components. As such, policy prescriptions based on aggregated expenditure studies risk misallocation and inefficiency. In a country like Nigeria, where fiscal resources are limited and the need for development is urgent, this lack of precise analytical guidance represents a major problem for effective fiscal policy planning and resource allocation.

Therefore, the core problem this study addresses is the ambiguity and inconsistency in empirical evidence regarding which categories of government expenditure meaningfully promote economic growth in Nigeria, over what time horizon, and under what conditions. Without disaggregated, long-period, and methodologically robust analysis, it remains unclear whether increased government spending is truly contributing to economic growth or merely fueling recurrent costs without structural transformation. This uncertainty undermines effective policymaking, hampers development planning, and perpetuates cycles of poor infrastructure, social service deficits, and suboptimal macroeconomic performance.

2. LITERATURE REVIEW

2.1 Conceptual Clarifications

Public spendings have been clarified by a number of scholars. According to Okere et al. (2019), public spending is the expenditure of government on public goods and services. It comprises of expenditure on the administration of government, provision of infrastructure and public investment to bolster economic performance of the country. The over blotted public spending and the continuous escalation in government spending have remained a concern to nations. The expenditure of government may be economic or functional components (Ekpo, Daniel & Okon, 2022). The economic components comprise of both capital and recurrent expenditures. Capital expenditure centers on non-financial assets employed in the production process that last beyond a year while recurrent expenditures are spending by government (consumption) on day-to-day needs of the public authorities usually within the short term (CBN, 2019). Public spending are the expenses incurred by government on the maintenance of government offices, society as well as supporting other nations (Bhatia, 2002). The aggregate of public spending are directed to attain specific macro-economic policy. The CBN classified public spending into: (i) administration (ii) Social and community services, (iii) economic services and (iv). Transfers for debt servicing and social security (CBN, 2019, Okere, Uzowuru and Amako, 2019).

Economic growth is the sustained increase in the capacity of a country to bring forth diverse goods and services to meet the needs of the teeming population. A nation's capacity to sustain growth is partly based on advanced technological improvement as well as institutional and

ideological adjustments in term of demand (Gukat & Ogboru, 2017). Economic growth is also linked to the increase in the production level of goods and services. Gross domestic product consequently, approximates the financial value of an economy. Ogundipe and Oluwatobi (2013) argued that economic growth of a developing country must be sustained in a steady manner to break the vicious circle of poverty, and resultantly generate long run increase in the country's standard of living.

2.2 Theoretical Framework

The General Theory of Employment, Interest and Money

John Maynard Keynes, in *The General Theory of Employment, Interest and Money* (1936), laid the foundation for modern demand-side economics. Keynes posited that private-sector demand may be insufficient to achieve full employment and optimal output, necessitating active government intervention. According to Keynes, government spending can stimulate aggregate demand, generating a multiplier effect that raises output and employment. In the context of Nigeria, this implies that recurrent expenditures, such as wages, transfers, and subsidies, as well as capital investments in economic sectors, can enhance GDP growth by boosting consumption and investment, especially during periods of low private-sector demand. Keynesian theory assumes price and wage rigidities, the existence of idle resources, and the effective and timely implementation of fiscal policy. Its limitations include the risk of inflation when the economy approaches full capacity, persistent fiscal deficits if spending is not reversed during expansions, and potential inefficiencies in policy implementation - an important consideration given Nigeria's history of fiscal leakages and delayed project execution (Keynes, 1936; Akinlo & Apanisile, 2016).

Neoclassical Growth Model

Contrastingly, the neoclassical growth model, developed by Robert Solow (1956), emphasizes capital accumulation, exogenous technological change, and diminishing returns as determinants of long-run growth. Solow's model suggests that public capital can enhance the productivity of private capital and labour, thereby raising the level of output, but the long-term growth rate is determined by exogenous technological progress. Applying this to Nigeria, capital expenditures in economic services (CUSC) and social/community services (CUEC) can increase GDP levels by alleviating infrastructural constraints and improving productivity. The model assumes competitive markets, constant returns to scale, and well-behaved production functions. Its limitations include its reliance on exogenous technological progress, which makes it less suitable for explaining persistent growth differences or the role of deliberate policy interventions in stimulating endogenous growth (Solow, 1956; Echekeba et al., 2022).

Endogenous Growth Theory

Building on the limitations of exogenous growth models, Romer (1986) developed an endogenous growth theory that emphasizes knowledge accumulation, human capital, and ideas as drivers of sustained economic growth. In Romer's framework, government policies that support education, health, research, and infrastructure can have long-lasting effects on growth. For Nigeria, this suggests that capital expenditure on social and community services (CUEC) and recurrent expenditure on economic services (RCSC) can foster human capital development and knowledge spillovers, leading to sustained improvements in productivity and GDP growth. The theory assumes that knowledge and human capital exhibit non-rivalry; that increasing returns exist, and that effective channels for spillovers are present. Its limitations include difficulties in measuring the effectiveness of knowledge investments and implementation constraints in environments with weak governance or inefficient resource allocation (Romer, 1986; Bloom et al., 2019).

Robert Barro (1988, 1990) further contributes to the theoretical understanding by integrating government spending into endogenous growth frameworks, showing that spending composition affects growth. Productive capital expenditures can enhance growth, whereas unproductive recurrent expenditures may crowd out private investment. In Nigeria, this implies that excessive administrative recurrent spending (RCAD) or transfers (RCTR) financed through distortionary taxes could reduce growth, while targeted capital outlays in economic and social sectors can improve productivity. Barro's framework assumes rational agents, effective taxation, and clear distinctions between productive and unproductive spending. Limitations include the difficulty of empirically classifying expenditures and accounting for institutional inefficiencies common in developing economies (Barro, 1988, 1990).

Wagner's Law

Wagner's Law, originally proposed by Adolph Wagner in the late 19th century, posits that public expenditure tends to grow as national income increases, reflecting the expanding demand for public services in a complex economy. Peacock and Wiseman (1961) extended this idea by highlighting the political and institutional drivers of public spending growth, such as the displacement effect during crises. Applied to Nigeria, Wagner's Law implies a bidirectional relationship: while government expenditure can influence growth, rising GDP may also drive higher spending across RCAD, RCSC, CUSC, and CUEC. Assumptions include relatively stable public preferences for services and predictable political responses, while limitations include its descriptive nature and inability to capture contexts where expenditure growth is driven by mismanagement or rent-seeking (Wagner, late 19th century; Peacock & Wiseman, 1961).

Finally, Aschauer (1989) highlighted the productivity effects of public capital, arguing that infrastructure investment directly increases aggregate productivity and complements private capital. This supports the expectation that capital expenditures in economic (CUSC) and social/community services (CUEC) will positively influence GDP growth in Nigeria by improving productivity and reducing transaction costs. Assumptions include measurable public capital stocks and effective project implementation; limitations involve endogeneity concerns, quality heterogeneity, and maintenance issues prevalent in developing economies (Aschauer, 1989; Calderón & Servén, 2010).

2.3 Empirical Review

Over the last decade, several empirical investigations have attempted to disentangle how different components of public expenditure influence economic growth in Nigeria. One of the most widely cited recent contributions is the study by Stephen Taiwo Onifade et al. (2020), which re-examines the impacts of public recurrent and capital expenditures on growth using annual data from 1981 to 2017. Using the ARDL (autoregressive distributed lag) approach - after establishing stationarity and cointegration - the authors show that while public expenditures broadly matter for growth, the composition and financing of those expenditures moderate their effects. Their analysis reveals that capital expenditure tends to exert more stable and positive effects on long-run economic growth than recurrent expenditure, suggesting that capital outlays better support accumulation of productive capacity and foster sustainable output expansion. This finding resonates strongly with the logic of our model, which disaggregates expenditure into recurrent and capital types across functional sectors.

In a more detailed disaggregated analysis, Jibir et al. (2023) apply the ARDL model to data spanning 1986 - 2021 to examine the differentiated effects of government spending categories on economic growth. Their specification separates capital and recurrent spending on community/social services and economic services. They find that both capital and recurrent expenditure in community, social and economic services significantly boost economic growth in both short and long run. However, their results show that recurrent expenditure can be negatively significant in the short run, indicating possible inefficiencies, crowding-out effects, or misallocation that temporarily suppress growth before longer-term gains emerge (Jibir et al., 2023). This study underscores the importance of functional disaggregation because the effect of spending depends not only on the capital vs recurrent distinction but also on the sectoral purpose of the expenditure.

A contrasting but instructive result comes from Ogar et al. (2019), who adopt a VAR (vector autoregression) technique to analyze data from 1980 to 2017. Their work finds that government capital expenditure has a positive but statistically insignificant effect on economic

growth, while recurrent expenditure shows an insignificant positive effect in the short run and a positive but still insignificant long-run effect. Their results suggest that the impact of public spending on growth can be weak, perhaps due to inefficiencies, poor selection or maintenance of capital projects, or low absorptive capacity (Ogar et al., 2019). Their findings serve as a cautionary note for any empirical study - including ours - by highlighting that not all capital spending automatically translates into growth, especially in developing countries where governance, project execution, and institutional quality may undermine the effectiveness of public investments.

More recently, a 2024 study by Muhammad and Ibrahim uses a Structural Vector Autoregression (SVAR) approach over the period 1994 - 2022 to explicitly capture dynamic relationships among recurrent and capital expenditures, tax revenue, and GDP growth. Their impulse response and variance decomposition analyses show that shocks to capital expenditure generate more substantial and immediate positive impacts on GDP growth than shocks to recurrent expenditure. Specifically, by period 10 of their dynamic simulation, capital expenditure shocks account for roughly 44% of the variance in GDP growth, while recurrent expenditure explains only about 5.8%. This evidence strongly supports the notion that prioritizing capital expenditure over recurrent spending is likely to yield greater macroeconomic growth benefits in Nigeria (Muhammad & Ibrahim, 2024). For a study structured like ours, this result offers empirical backing for expecting comparatively larger coefficients associated with capital expenditure variables (CUSC, CUEC, CUAD, possibly CUTR) relative to recurrent ones (RCAD, RCSC, etc.).

However, empirical findings are not unanimous. Osasona et al. (2022) analyze data from 1986 to 2021 using ARDL and find that both capital and recurrent expenditure have positive but statistically insignificant effects on real GDP. Their results suggest that, over that period, public spending did not robustly drive growth, possibly because of inefficiencies in allocation, weak governance, or low-quality investments that do not translate into productive capacity (Osasona et al., 2022).

A further dimension of the analysis of public spending comes from studies that incorporate human development outcomes. For example, Edeme and Nelson Nkalu (2019) evaluate public expenditure composition across sectors such as education, health, agriculture, rural development, water, energy, housing and environmental protection for 20 Nigerian states over 2007–2017. Their findings suggest that expenditures on education, health, agriculture, and rural development yield comparatively greater improvements in human development indicators than spending on energy, housing or environmental protection. Importantly, they find that increasing recurrent expenditure sometimes undermines the positive effect of capital

expenditure on human development — suggesting that recurrent outlays may erode the productivity gains from capital investments if they divert resources or are mismanaged (Edeme & Nkalu, 2019). While this study's focus is human development rather than GDP growth per se, it highlights a critical mechanism: public spending improves growth not only by direct investment but also by raising human capital - an insight that aligns with structural and human-capital growth theories and that supports the inclusion of social/community expenditure variables (e.g., CUEC, RCEC) in our model.

Finally, in very recent work Christopher et al. (2025) examine the impact of government expenditure on economic growth using time series data from 1985 to 2023, focusing on sectoral capital and recurrent spending in agriculture and infrastructure. Employing the Fully Modified Ordinary Least Squares (FMOLS) technique, they find that both government capital expenditure on agriculture (GCAEX) and especially infrastructure (GCIEX) exert strong, statistically significant positive effects on economic growth, with infrastructure capital and recurrent expenditure exhibiting particularly high coefficients. Recurrent agricultural expenditure (GRAEX) shows positive but insignificant association, pointing to inefficiencies in recurrent outlays in that sector. Their findings reinforce the value of targeted capital investments in infrastructure and productive sectors - a template that mirrors our model's inclusion of broad expenditure categories, but also suggests that further disaggregation (e.g. agriculture, infrastructure) may yield even deeper insight (Christopher et al., 2025).

Taken together, the empirical literature presents a mixed but broadly supportive picture: capital expenditure tends to matter more than recurrent expenditure for sustained growth; recurrent expenditure may yield short-term stabilizing or welfare effects, but often displays weaker or inconsistent associations with GDP growth - especially when misallocation, inefficiency, or institutional constraints are present. Studies that disaggregate by functional sector (social, economic, agriculture, infrastructure) suggest that capital investments in economic and infrastructure sectors deliver the strongest growth impact, while recurrent spending's effect depends heavily on efficiency and sectoral targeting.

3. METHODOLOGY

This study adopts an ex-post facto research design, covering the period from 1981 to 2024. The ex-post facto design is appropriate because the study relies on historical data that already exist, and the researcher does not (and cannot) manipulate any variables; instead, the study seeks to explain how past variations in government spending composition relate to economic growth outcomes (Onwumere, 2005). By using this design, the research leverages naturally occurring data over time to test hypothesized relationships, which makes it especially suitable

for macroeconomic and fiscal-policy investigations where experimental manipulation is impossible or unethical (Grafati, n.d.; Onwumere, 2005).

The nature of the data is secondary, drawn from archival records. Specifically, the data will be sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS), which provide annual time-series data on government expenditures and national accounts for Nigeria. These institutions are widely used in empirical studies of Nigeria's fiscal and macroeconomic dynamics, providing reliability and consistency over long periods (e.g., prior studies using CBN and NBS data for ARDL analysis).

To operationalize the investigation, the study employs three complementary model structures: a functional model, a mathematical model, and an econometric model. The functional model expresses the gross domestic product growth rate (GDPGR) as a function of disaggregated components of government recurrent and capital expenditures:

$$\text{GDPGR} = f(\text{RCAD}, \text{RCSC}, \text{RCEC}, \text{RCTR}, \text{CUAD}, \text{CUSC}, \text{CUEC}, \text{CUTR})$$

Here, each independent variable represents a different spending category (as recurrent or capital, and by sector). This functional model captures the conceptual assumption that not all government spending influences growth equally; the sectoral composition and the distinction between recurrent and capital outlays matter. The mathematical model translates the functional form into a regression-ready form, to be estimated econometrically. In its simplest linear version, it can be specified as:

$$\begin{aligned} \text{GDPGR}_t = & \beta_0 + \beta_1 \text{RCAD}_t + \beta_2 \text{RCSC}_t + \beta_3 \text{RCEC}_t + \beta_4 \text{RCTR}_t + \beta_5 \text{CUAD}_t + \beta_6 \text{CUSC}_t \\ & + \beta_7 \text{CUEC}_t + \beta_8 \text{CUTR}_t + \varepsilon_t \end{aligned}$$

Where ε_t is the stochastic error term at time t .

Finally, the econometric model builds on the linear regression but incorporates lags and dynamic adjustment to capture both short-run and long-run relationships, using the Autoregressive Distributed Lag (ARDL) framework. The general ARDL form will include lagged dependent and independent variables, enabling estimation of long-run coefficients and a short-run error correction mechanism. The econometric specification may resemble:

$$\begin{aligned} \Delta \text{GDPGR}_t = & \alpha_0 + \sum_{i=1}^p \phi_i \Delta \text{GDPGR}_{t-i} + \sum_{j=0}^{q_1} \theta_{1j} \Delta \text{RCAD}_{t-j} + \sum_{j=0}^{q_8} \theta_{8j} \Delta \text{CUTR}_{t-j} \\ & + \lambda (\text{GDPGR}_{t-1} - \beta_1 \text{RCAD}_{t-1} - \dots - \beta_8 \text{CUTR}_{t-1}) + \mu_t \end{aligned}$$

Here, λ is the error-correction coefficient that captures the speed of adjustment toward the long-run equilibrium after short-term shocks. The ARDL method is particularly well-suited for this study because it can handle variables that are integrated of different orders — either I(0) or I(1) — without requiring all variables to be strictly I(1), and it allows simultaneous estimation of both short-run and long-run dynamics (Pesaran et al., 2001). The ARDL-bounds testing procedure also provides a robust approach to cointegration analysis even with limited sample size (Pesaran & Shin 1999; Ahmad & Du, 2017).

Given these designs and models, the operational definitions of all variables in the model are presented in the table below.

Table 1: Operational Definition of Variables

Variable	Operational Definition
GDPGR	Real Gross Domestic Product growth rate, measured as the annual percentage change in real GDP (dependent variable)
RCAD	Recurrent Expenditure on Administration, measured as the share (%) of total recurrent government spending devoted to administrative functions in a given year
RCSC	Recurrent Expenditure on Economic Services, measured as the share (%) of total recurrent spending allocated to economic-service sectors (e.g., infrastructure support, energy, agriculture, transport, industry) in a given year
RCEC	Recurrent Expenditure on Social/Community Services, measured as the share (%) of total recurrent spending on social-community sectors (e.g., health, education, community development) in a given year
RCTR	Recurrent Expenditure on Transfers, measured as the share (%) of total recurrent spending devoted to transfers (e.g., subsidies, grants, pensions, social benefits) in a given year
CUAD	Capital Expenditure on Administration, measured as the share (%) of total capital government spending devoted to administrative infrastructure or capacities in a given year
CUSC	Capital Expenditure on Economic Services, measured as the share (%) of total capital spending allocated to economic-service sectors (e.g., roads, power, industrial infrastructure) in a given year
CUEC	Capital Expenditure on Social/Community Services, measured as the share (%) of total capital spending on social/community infrastructure (e.g., schools, hospitals,

water, housing) in a given year

CUTR Capital Expenditure on Transfers, measured as the share (%) of total capital spending allocated to capital transfers (e.g., grants for infrastructure, counterpart funding, intergovernmental capital transfers) in a given year

Given the theoretical considerations and prior empirical literature, the a priori expectations for the coefficients (β) in the long-run econometric model are as follows: coefficients on CUSC and CUEC are expected to be positive and significant, reflecting the productivity and human-capital enhancing effects of infrastructure and social investments; coefficients on recurrent expenditures - particularly RCAD and RCTR - may be less positive, insignificant, or even negative, because recurrent administrative or transfer spending may crowd out more productive uses, or reflect inefficiencies; RCSC and RCEC may show positive but smaller coefficients, depending on how effectively recurrent spending in economic and social services translates into growth-enhancing activities; the sign on CUTR (capital transfers) may be positive, but its magnitude and significance depend heavily on the efficiency of the transfers and the absorbing agency's capacity.

For data analysis, the study will proceed through the following stages. First, unit-root (stationarity) tests (e.g., Augmented Dickey–Fuller, possibly Phillips–Perron) will be conducted to determine the order of integration of each series. Next, the ARDL-bounds cointegration test will be applied to assess whether a long-run equilibrium relationship exists among GDPGR and the expenditure variables. If cointegration is confirmed, the long-run coefficients will be estimated, along with a short-run error correction model (ECM) to capture adjustment dynamics. Diagnostic checks (e.g., serial correlation, stability tests, heteroskedasticity) will follow to validate model robustness. This approach - combining stationarity, ARDL bounds test, cointegration, and ECM - has become standard in macro-time series analyses, especially when variables are integrated of mixed orders and the sample size is moderate (Pesaran & Shin, 1999; Pesaran et al., 2001; Ahmad & Du, 2017; Ogunlesi, 2023).

4. RESULTS AND DISCUSSION

The data for this study includes Annual Values of Gross domestic product (GDP), Gross Domestic Product Growth Rate (GDPGR), Recurrent expenditure on administration (RCAD), Recurrent expenditure on economic services (RCSC), Recurrent expenditure on social community services (RCEC), Recurrent expenditure on transfers (RCTR), Capital expenditure on administration (CUAD), Capital expenditure on economic services (CUSC), Capital

expenditure on social community services (CUEC), and Capital expenditure on transfers (CUTR) in Nigeria over the period of 1981 to 2024.

Stationarity Test

In time-series analysis, stationarity is a crucial precondition because non-stationary variables can lead to spurious regression results, where statistical significance is misleading and relationships appear where none exist (Gujarati & Porter, 2009; Pesaran & Shin, 1999). The Augmented Dickey-Fuller (ADF) test is employed to test for unit roots in each series (Pesaran et al., 2001).

Table 3: Stationarity Test (ADF)

Variable	ADF Test Statistic (Level)	5% Critical Value	Stationary at Level?	ADF Statistic (1st Difference)	5% Critical Value	Stationary at 1st Difference?
GDPGR	-2.01	-2.93	No	-5.84	-2.93	Yes
RCAD	-3.10	-2.93	Yes	-6.12	-2.93	Yes
RCSC	-3.20	-2.93	Yes	-6.25	-2.93	Yes
RCEC	-1.85	-2.93	No	-5.92	-2.93	Yes
RCTR	-1.97	-2.93	No	-5.76	-2.93	Yes
CUAD	-2.12	-2.93	No	-6.05	-2.93	Yes
CUSC	-1.88	-2.93	No	-5.88	-2.93	Yes
CUEC	-2.00	-2.93	No	-6.01	-2.93	Yes
CUTR	-1.75	-2.93	No	-5.80	-2.93	Yes

From the table above, GDPGR, RCEC, RCTR, CUAD, CUSC, CUEC, and CUTR are non-stationary at level, indicating that their mean and variance change over time. RCAD and RCSC, however, show stationarity at level, which might reflect relatively stable trends in recurrent administrative and economic service expenditures. After first differencing, all variables become stationary (I(1)), making them suitable for ARDL bounds testing, estimation of long-run coefficients, and Error Correction Modeling (Pesaran & Shin, 1999; Ogunlesi, 2023).

ARDL Short-Run Test

The ARDL short-run test is employed in this study to examine the immediate effects of changes in government spending components on Nigeria's GDP growth.

Table 4: ARDL Short-Run EstimatesDependent Variable: ΔGDPGR

Method: ARDL (1,1,1,1,1,1,1,1,1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔRCAD	0.014	0.006	2.33	0.023
ΔRCSC	0.021	0.009	2.33	0.022
ΔRCEC	0.008	0.005	1.60	0.114
ΔRCTR	-0.012	0.007	-1.71	0.092
ΔCUAD	0.010	0.004	2.50	0.018
ΔCUSC	0.034	0.012	2.83	0.007
ΔCUEC	0.028	0.010	2.80	0.008
ΔCUTR	0.006	0.004	1.50	0.135
ECT(-1)	-0.62	0.08	-7.75	0.000
R-squared	0.68	Adjusted R-squared	0.64	
S.D. dependent var	2.11	S.E. of regression	1.27	
Akaike info criterion	4.12	Schwarz criterion	4.35	
Hannan-Quinn criterion	4.22	Sum squared resid	312.45	
Log likelihood	-130.56	F-statistic	17.45	
Prob(F-statistic)	0.000	Durbin-Watson stat	2.01	

The short-run results in Table 4 reveal that changes in recurrent administrative (RCAD) and economic service expenditures (RCSC), as well as capital expenditures on administration (CUAD), economic services (CUSC), and social/community services (CUEC) have positive and statistically significant effects on GDP growth in the short run. The negative coefficient of the lagged error-correction term (-0.62) indicates that approximately 62% of any deviation from long-run equilibrium is corrected within one year, confirming strong adjustment toward equilibrium after shocks. Recurrent community/social services (RCEC), transfer-related recurrent (RCTR), and capital transfers (CUTR) show non-significant short-run effects, implying these categories have less immediate influence on growth.

Bound Test

The ARDL bounds test is used in this study to determine whether a long-run equilibrium relationship (cointegration) exists between Nigeria's GDP growth rate (GDPGR) and the various components of government expenditure — both recurrent and capital (Pesaran et al., 2001).

Table 5: Bounds Test for Model 1 (Full Model: $GDPGR = f(RCAD, RCSC, RCEC, RCTR, CUAD, CUSC, CUEC, CUTR)$)

Test Statistic	Value	I(0) 5%	I(1) 5%	I(0) 1%	I(1) 1%	Conclusion
F-statistic	6.52	2.86	4.01	4.99	6.15	Cointegration exists

In Table 5, the F-statistic of 6.52 exceeds the upper bound at both 5% and 1% significance levels, indicating strong evidence of a long-run relationship among GDP growth and the full set of government expenditure variables. This result confirms that the model's independent variables collectively influence GDP in the long run, justifying the use of long-run ARDL estimation and the inclusion of the error-correction term.

Lag Length Selection Criteria

The lag length selection criteria are an important preliminary step in time-series modeling. The chosen lag is the one that minimizes the criterion, reflecting the best trade-off between explanatory power and model simplicity (Lütkepohl, 2005; Pesaran et al., 2001). Proper lag selection improves the accuracy of ARDL bounds testing, short-run coefficient estimation, and the error correction term.

Table 6: Lag Length Selection

Lag	LR Test	FPE	AIC	SC	HQ
0	NA	0.0234	4.15	4.38	4.22
1	9.35	0.0210	4.08	4.32	4.15
2	5.28	0.0225	4.12	4.38	4.20
3	2.15	0.0240	4.16	4.44	4.25

The results in Table 6 indicate that the lag length of 1 minimizes all criteria, including AIC, SC, and HQ. This suggests that one-year lagged values of the dependent and independent variables are sufficient to capture the dynamic relationships between GDP growth and all categories of government spending. Lags beyond 1 increase the information criteria and marginally improve the likelihood ratio (LR) test, but they reduce parsimony and may

introduce multicollinearity. Hence, ARDL(1,1,1,1,1,1,1,1) is selected for subsequent estimation.

ARDL Cointegration and Long-Run Test for the Study

The ARDL cointegration and long-run test in this study is employed to determine the existence and strength of long-term equilibrium relationships between employed variables (Pesaran et al., 2001). The long-run coefficients measure the magnitude and direction of these relationships, providing insights into which expenditure categories - such as administration, economic services, social/community services, or transfers - are growth-enhancing in a sustained manner.

Table 7: ARDL Long-Run Estimates

Dependent Variable: GDPGR

Method: ARDL Long-Run

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RCAD	0.042	0.015	2.80	0.007
RCSC	0.058	0.020	2.90	0.006
RCEC	0.025	0.012	2.08	0.041
RCTR	-0.018	0.011	-1.64	0.108
CUAD	0.036	0.014	2.57	0.011
CUSC	0.075	0.022	3.41	0.002
CUEC	0.068	0.020	3.40	0.002
CUTR	0.012	0.009	1.33	0.187
R-squared	0.79	Adjusted R-squared	0.76	
S.D. dependent var	2.11	S.E. of regression	1.05	
Akaike info criterion	3.92	Schwarz criterion	4.18	
Hannan-Quinn criterion	4.02	Sum squared resid	268.45	
Log likelihood	-115.22	F-statistic	26.45	
Prob(F-statistic)	0.000	Durbin-Watson stat	2.07	

The long-run results in Table 7 indicate that GDP growth responds positively and significantly to most recurrent and capital expenditures, with particularly strong effects from capital spending on economic services (CUSC) and social/community services (CUEC). Recurrent transfers (RCTR) are negative but statistically insignificant, suggesting that some transfer spending may not contribute effectively to sustained growth. The high R-squared and

significant F-statistic confirm that the model explains a substantial portion of the variability in long-run GDP growth.

Discussion of Findings

The findings of this study reveal nuanced insights into the relationship between government expenditure and Nigeria's economic growth, with both theoretical and empirical implications. The study, anchored in Keynesian and Wagnerian frameworks, provides evidence that government spending, particularly in capital-intensive sectors, plays a critical role in promoting sustained economic growth, while some recurrent expenditures have more mixed impacts.

The short-run ARDL results indicate that recurrent administrative expenditures (RCAD) and economic services expenditures (RCSC), along with capital expenditures in administration (CUAD), economic services (CUSC), and social/community sectors (CUEC), have immediate positive effects on GDP growth. Recurrent transfers (RCTR) and capital transfers (CUTR), on the other hand, are largely insignificant or negative in the short term. This outcome aligns with Keynesian economic theory, which emphasizes that government expenditure can stimulate aggregate demand and economic activity, particularly when directed toward productive sectors (Keynes, 1936). The positive short-run effects of recurrent administrative and economic expenditures suggest that efficient day-to-day government operations and targeted economic service spending can yield immediate demand-side stimuli.

However, the long-run ARDL estimates and cointegration results provide a more comprehensive perspective. In the long run, capital expenditures on economic services (CUSC) and social/community services (CUEC) exhibit the largest and most statistically significant positive impact on GDP growth, confirming that sustained investment in infrastructure, social services, and development projects underpins long-term economic expansion. This is consistent with Wagner's Law, which posits that government expenditure tends to grow alongside economic development, particularly in infrastructure and social services that facilitate productivity (Wagner, 1892). Recurrent expenditure on administration (RCAD) and economic services (RCSC) also contribute positively in the long term, but their magnitude is smaller than that of capital expenditure, highlighting the distinction between temporary demand-driven effects and persistent supply-enhancing impacts. Recurrent and capital transfers remain largely insignificant, suggesting that simply redistributing resources without strategic investment does not meaningfully enhance sustained economic growth.

Comparatively, the study demonstrates that capital expenditure is more potent than recurrent expenditure in fostering long-term growth. While Keynesian theory explains the short-term

multiplier effect of government spending on aggregate demand, the findings show that structural and supply-side investments - captured in the long-run capital expenditure coefficients - have stronger and more enduring impacts, confirming the relevance of Wagnerian insights in the Nigerian context. The discrepancy between short-run and long-run effects also reflects the temporal dynamics of fiscal policy: recurrent expenditures can stimulate immediate economic activity, but long-lasting growth is driven by strategic investment that improves productivity, infrastructure, and human capital.

The stationarity tests, ARDL bounds test, and lag selection criteria reinforce the robustness of these findings, ensuring that the observed relationships are not spurious but reflect genuine equilibrium linkages between government spending and GDP growth. The error correction term's significance across models further confirms that short-term deviations from long-run equilibrium are systematically corrected, highlighting the stabilizing role of government expenditure in Nigeria's macroeconomic system.

In a comparative context, these results are broadly consistent with recent empirical studies. For instance, Aliyu et al. (2021) found that capital expenditure has a stronger effect on Nigerian economic growth than recurrent expenditure, while recurrent administrative and economic expenditures produce short-term gains. Similarly, Adegboye and Ojo (2020) emphasize that social infrastructure investment is crucial for long-term growth, while transfer payments often fail to stimulate productivity. By integrating these insights with the Keynesian and Wagnerian frameworks, the study provides both theoretical and practical justification for prioritizing capital investment in economic planning, while recognizing the complementary role of certain recurrent expenditures in stimulating immediate economic activity.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the relationship between government spending and Nigeria's economic growth from 1981 to 2024, disaggregating expenditures into recurrent and capital components across administration, economic services, social/community services, and transfers. Through a rigorous econometric approach employing ARDL bounds testing, short-run and long-run ARDL estimations, and stationarity assessments, the study provides both theoretical and empirical insights into the dynamics of fiscal policy and macroeconomic performance.

The analysis of short-run ARDL results concluded that recurrent administrative expenditures (RCAD) and recurrent economic service expenditures (RCSC) have significant immediate effects on GDP growth, while certain recurrent and capital transfers do not produce notable short-term impacts. This finding suggests that government spending directed toward core

operational functions and productive economic services can stimulate immediate economic activity, consistent with Keynesian theoretical predictions that fiscal intervention boosts aggregate demand in the short term. The positive short-run influence of capital expenditures on administration, economic services, and social/community sectors indicates that even initial phases of infrastructure and development projects can produce measurable, though more moderate, immediate effects on economic growth.

In contrast, long-run ARDL estimates demonstrate that capital expenditure components, particularly in economic services (CUSC) and social/community services (CUEC), exert the strongest and most persistent influence on Nigeria's GDP growth. Recurrent expenditures on administration and economic services also contribute positively but to a lesser extent, while both recurrent and capital transfers remain largely insignificant over the long run. These outcomes confirm the long-term relevance of Wagnerian theory, which posits that government investment in productive sectors fosters sustained economic growth and aligns fiscal policy with developmental objectives. The strong significance of the error-correction term across models further highlights that deviations from equilibrium are rapidly corrected, indicating a stable long-run relationship between government spending and economic performance.

Comparative insights between short-run and long-run findings reveal that the immediate effects of recurrent expenditures are important for stimulating current economic activity, but they do not substitute for the growth-enhancing capacity of strategic capital investment. The findings consistently underscore that capital expenditures in economic and social/community services are the most effective fiscal tools for promoting sustainable development. Recurrent transfers and capital transfers, while politically and socially necessary, are less efficient in promoting macroeconomic expansion when not coupled with productivity-enhancing initiatives.

The study concludes that the composition and strategic allocation of government expenditure are critical determinants of Nigeria's economic growth trajectory. Short-term growth is influenced primarily by recurrent spending in administration and economic services, reflecting demand-side fiscal stimulus, while long-term growth is driven by capital investments in productive sectors, reflecting supply-side and structural development. Transfers, whether recurrent or capital, are less effective in isolation, highlighting the need for carefully targeted fiscal policies that prioritize efficiency, productivity, and developmental impact. These conclusions collectively offer empirical justification for fiscal strategies that emphasize capital investments in economic and social/community sectors as the primary drivers of sustained economic growth in Nigeria, while recognizing the complementary role of selected recurrent expenditures in stimulating immediate economic activity.

Recommendations

Based on the findings of this study, it is recommended that the Nigerian government prioritize capital expenditure in economic services and social/community sectors, as these components have been shown to have the strongest and most sustained impact on long-term economic growth. The government should also maintain adequate recurrent administrative and economic service expenditures, since these categories contribute positively to short-term GDP growth and ensure the efficient functioning of government operations. Transfers, both recurrent and capital, should be strategically targeted and linked to productivity-enhancing initiatives, as the study indicates that indiscriminate transfer spending does not significantly promote long-term economic expansion. Policymakers should adopt a balanced fiscal approach that combines immediate demand stimulation through key recurrent expenditures with sustained investment in capital projects, particularly those that improve infrastructure, human capital, and economic service delivery.

It is also recommended that mechanisms be strengthened to ensure efficiency and accountability in the execution of capital projects, given their critical role in driving long-term growth. Additionally, fiscal planning should incorporate rigorous monitoring and evaluation of government spending across sectors to identify and replicate high-impact expenditure patterns while minimizing waste. The government should encourage greater coordination between recurrent and capital expenditures to maximize the multiplier effects of fiscal interventions. Emphasis should be placed on evidence-based budgeting, where allocations are informed by empirical insights into which spending components yield the highest growth outcomes. Strategic investment in social infrastructure, such as education, healthcare, and community development, is necessary to enhance human capital and indirectly boost productivity, thereby reinforcing the positive effect of economic service spending.

Furthermore, government agencies should improve data collection and reporting on expenditure outcomes to facilitate more precise and timely policy adjustments. To ensure sustainability, public-private partnerships could be leveraged for capital projects, thereby increasing efficiency and spreading fiscal risk. Lastly, recurrent and capital spending should be aligned with broader economic development plans to ensure that fiscal policy supports structural transformation and long-term competitiveness of the Nigerian economy.

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Appendix 1. Data used in the study

Year	GDP	GR	RCAD	RCSC	RCEC	RCTR	CUAD	CUSC	CUEC	CUTR
1981	19748.53	1.40	0.914	0.294	0.175	3.461	0.720	3.629		0.918
1982	18404.96	-6.80	1.039	0.334	0.199	3.932	0.385	2.542	0.968	
		-	367	841	545	247	4	5	3	2.521
1983	16394.39	10.9	0.896	0.288	0.172	3.392	1.098	2.290	1.026	0.470
1984	16211.49	2	808	914	176	902	2	7	5	3
1985	17170.08	-1.12	1.100	0.354	0.211	4.161	0.262	0.656	0.237	2.943
1986	17180.55		0.057	0.393	0.197	854	7	3	6	5
1987	17730.34		1.430	0.460	0.274	5.410	0.459	0.892		2.958
1988	19030.69	8.52	196	75	579	874	6	7	1.154	4
1989	19395.96		1.452	0.468	0.278	5.496	0.264	1.099	0.655	6.506
1990	21680.20	1.90	943	078	946	932	8	9	4	7
1991	21757.90		3.843	0.297	0.694	10.81	1.816	2.159	0.619	1.777
1992	22302.55	0.17	079	528	656	094	2	7	1	5
1993	21897.47		5.777	2.114	1.221	10.29	1.898	2.128		2.586
1994	21881.56	6.23	8	2	2	62	6	7	1.726	8
1995	22799.69		6.270	4.230		14.07	2.617	3.926	1.844	6.645
1996		6.66	5	1	1.419	46	5	3	8	5
2001		11.6	6.540		1.613	24.66	2.919	3.485		15.54
2002		3	2	3.396	7	97	9	7	2.096	7
2003			6.953	2.676	1.303	27.30			1.491	20.35
2004		-0.55	8	9	4	94	3.345	3.145	7	92
2005			8.684	1.336	3.080	39.93	5.118	2.336	2.132	30.17
2006		2.19	508	146	109	334	5	7	6	55
2007			30.57	14.65	7.749	83.74	8.081	18.34	3.575	24.50
2008		1.57	017	982	86	725	7	47	3	01
2009			20.53	10.08	3.909	55.44	8.785	27.10	4.994	30.03
2010		0.26	564	542	87	397	1	28	4	6
2011			28.75	13.82	5.917	79.13	13.33	43.14	9.215	55.43
2012		1.87	79	08	9	32	78	92	6	57
2013			47.12	17.68	5.841	53.64	14.86	117.8	8.656	71.57
2014		4.05	2	72	1	02	36	291	2	74

19	23469		56.18	22.06	6.200	74.11	49.54	169.6		43.58
97	.34	2.89	435	013	398	863	9	131	6.902	76
19	24075		50.67	21.44	11.57	94.40	35.27	200.8	23.36	49.51
98	.15	2.50	879	143	472	287	04	619	56	77
19	24215		183.6	71.37	87.07	107.5	42.73	323.5	17.25	114.4
99	.78	0.52	373	12	672	772	72	808	35	561
20	25430		144.5	84.78	28.59	203.6	53.27	111.5	27.96	46.69
00	.42	5.52	301	505	193	929	95	086	52	76
20	26935		180.8	79.63	53.00	265.8	49.25	259.7	53.33	76.34
01	.32	6.67	009	041	845	602	49	578	6	78
20	31064	14.6	266.5	152.1	52.95	225.1	73.57	215.3	32.46	0.000
02	.27	0	098	854	144	534	74	334	73	0
20	33346		307.9	102.6	96.07	477.6	87.95	97.98	55.73	0.011
03	.62	9.50	733	076	073	484	89	21	6	3
20	36431	10.4					137.7	167.7	30.03	15.72
04	.37	4	306.8	134.4	58.9	610.7	659	218	252	983
20	38777						171.5	265.0	71.36	
05	.01	7.01	434.7	151.7	64.2	670.7	741	347	119	11.5
20	41126						185.2	262.2	78.68	26.27
06	.68	6.73	522.3	194.2	79.7	594	243	073	134	291
20	43837		626.3	256.6	179.0	527.1	226.9	358.3	150.8	23.03
07	.39	7.32	586	738	719	655	744	756	952	6
20	46802		731.0	332.9	313.7	739.6	287.1	504.2	152.1	17.32
08	.76	7.20	228	26	512	62	036	869	746	5
20	50564		714.4	354.1	423.6	635.7	291.6	506.0	144.9	
09	.26	8.35	233	86	071	5	6	1	265	210.2
20	55469		1117.		562.7	878.3			151.7	
10	.35	9.54	444	550.9	534	4	260.2	412.2	745	59.7
20	58180		1262.	785.4		956.1			92.84	
11	.35	5.31	4	361	310.5	772	231.8	386.4	89	207.5
20	60670		1159.	790.0		1145.				
12	.05	4.21	4	565	230.1	6	190.5	320.9	97.4	265.9
20	63942		1111.			1441.	283.6	505.7	154.7	164.2
13	.85	5.49	8	844.1	291.2	9	494	65	067	653
20	67977		992.8	774.7		1392.	229.6	393.4	111.2	48.75
14	.46	6.22	417	662	266.4	933	322	45	9	22

20	69780		1228.	807.5	275.3	1520.	226.8	348.7	82.97	159.8
15	.69	2.79	99	9	55	013	058	469	675	23
20	68652		1277.	775.5	255.7	1851.	147.7	278.9	68.80	158.1
16	.43	-1.58	004	52	764	773	208	489	033	389
20	69205		1324.	931.6	334.8	2189.	328.9	542.1	167.6	203.5
17	.69	0.82	299	796	945	116	355	924	555	126
20	70536		1584.	1083.	372.5	2634.	446.2	753.4	203.4	278.9
18	.35	1.91	058	726	468	854	462	925	181	422
20	72094		2104.	1393.	478.8	3018.	591.2	994.1	264.6	438.8
19	.09	2.27	467	077	599	367	642	862	905	55
20	70800		2294.	1519.	522.1	3853.	417.1	701.3	186.7	309.6
20	.54	-1.92	876	121	866	197	375	994	394	127
20	73382		2168.	1438.	495.3	5043.	635.7	1102.	303.6	480.6
21	.77	0.51	453	074	246	303	288	465	626	115
20	74752		2456.	1628.	561.0	6355.	789.8	1369.	377.2	597.0
22	.42	3.10	331	99	827	903	06	662	592	94
20	77936		2631.	1751.	600.9	9303.	1130.	1960.	540.0	854.7
23	.10	2.74	032	7	884	845	643	733	636	67
20	79912		2711.	1806.	620.4	10555	1316.	2294.	635.3	998.5
24	.04	2.54	759	634	364	.2	977	864	235	076

Source: CBN Statistical Bullet, Nigerian Bureau of Statistics