

Capital Budget Expenditure On Administration and Public Investment in Nigeria

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Abstract- This study examined the effects of capital budget expenditure on administration on public investment in Nigeria between 1986 and 2023. Data for the study were gleaned from the publications of the Central Bank of Nigeria (CBN) Statistical Bulletin, Budget Office of the Federation and World Bank World Development Indicators (WDI). Public investment (proxied by government gross capital spending), capital budget expenditure on administration, capital budget expenditure on economic services and inflation were the variables of interest considered in the study. The Auto-regressive Distributed Lag (ARDL) and the Error Correction Model (ECM) diagnostics were utilized in the data estimation. Findings revealed capital expenditures on administration and economic services exhibited positive and statistically significant relationship with public investment in Nigeria. Conversely, inflation indicated positive but statistically insignificant relationship with public investment in Nigeria. The Error Correction Term (ECT) indicates that approximately 52.6% of the short-run disequilibrium is corrected each period, confirming the existence of a stable long-run equilibrium relationship among the variables. The study concludes that capital budgeting plays critical role in driving public investment in Nigeria. The study recommends that enhancing capital budget expenditure on administration and economic services is critical for stimulating public investment, as these sectors provide the institutional and infrastructural backbone necessary for sustained growth. While inflation exerts no significant long-run effect, prudent management is still recommended to safeguard the real value of investments, alongside stronger monitoring and accountability frameworks to ensure that capital allocations translate into tangible developmental outcomes.

Keywords: Capital Expenditure, Public Investment, Inflation, ARDL

I. INTRODUCTION

1.1 Background to the Study

Public capital expenditure (PCE) is the government's spending on long-lived assets (infrastructure, buildings, equipment) intended to expand the economy's productive capacity and deliver public

services. In Nigeria PCE is typically disaggregated by functions such as administration (general government capital outlays) and economic services (transport, energy, agriculture, industry, etc.), and these functional patterns matter because they determine where public investment is directed and how it affects growth, welfare and crowding-in of private investment (Ekpo, Achema & Waleke, 2025; Budget Office of the Federation, 2024).

Recent federal reports and central bank releases show that recurrent spending continues to dominate Nigeria's budget, while capital allocations and actual capital spending remain relatively low as a share of total expenditure - and where capital funds are released many Ministries Departments and Agencies (MDAs) fail to fully execute (low absorption/execution rates). For example, CBN monthly reports and 2024 budget documents show recurrent expenditure substantially exceeding capital in recent years. A recent Budget Office/press analysis also reported that many MDAs spent only a small fraction of their 2024 capital allocations (CBN, 2024; Punch Newspaper, 2024).

Capital budget allocations have fluctuated with oil revenue swings, exchange-rate and macro shocks, and fiscal consolidation efforts (notably post-2014 and during more recent reform episodes), creating an unstable environment for multi-year public investment planning. Multilaterals and local fiscal analyses highlight how revenue volatility and occasional policy shifts (e.g., subsidy removal, exchange-rate reforms) have changed capital budget priorities (World Bank, 2025; Pricewaterhouse Coopers, 2025).

Studies and government budget classifications show capital expenditure is routinely split across administration (e.g., government buildings, vehicles, ICT for governance) and economic services (roads, power, irrigation). The composition matters: capital directed to economic services is more likely (in

principle) to raise productive capacity, but poor project selection, cost overruns and maintenance gaps often blunt that effect. Recent Nigerian studies report mixed or limited growth impact from aggregated capital spending - pointing to implementation and governance as key mediators (Odetola, 2025; Ekpo, et al., 2025).

1.2 Statement of the Problem

Public investment plays a pivotal role in shaping the productive base of an economy, particularly in developing countries where infrastructure gaps and institutional weaknesses constrain growth. In Nigeria, government capital budget expenditure represents the main instrument through which the state undertakes public investment in physical and social infrastructure. However, the effectiveness of such expenditure has remained a subject of debate, as the country continues to face a paradox of rising budgetary allocations to capital projects with limited improvement in public investment outcomes.

A fundamental problem is the composition and execution of capital budgets. Over the years, Nigeria's capital budget has been divided into functional categories, with Administration and Economic Services accounting for significant shares. While capital spending on Economic Services (e.g., transport, power, agriculture) is theoretically expected to have stronger positive effects on public investment by expanding infrastructure and enhancing productivity, empirical evidence suggests that such potential is undermined by weak budget execution, cost overruns, and governance inefficiencies (World Bank, 2023; CABRI, 2022). Conversely, capital spending on Administration is often directed toward government offices, vehicles, ICT, and administrative infrastructure, which, though necessary for governance, may not directly translate into productive capital formation (Aregbeyen & Fasanya, 2023). The persistent imbalance between these two categories raises concerns about the efficiency of Nigeria's capital budgeting process.

Adding to this challenge is the persistent problem of inflationary pressures, which erode the real value of capital budgets and escalate the cost of public projects. Nigeria has experienced episodes of double-digit inflation, particularly since the mid-1990s and again

from 2016 onwards, which have significantly reduced the purchasing power of budgetary allocations (CBN, 2023). Inflation not only increases project costs but also delays completion and reduces the quality of public infrastructure delivered. Thus, any assessment of the effects of capital expenditure on public investment must incorporate inflation dynamics to avoid overstating the real impact of government spending.

Therefore, the problem this study addresses is the persistent disconnect between rising budgetary allocations for capital expenditure in Nigeria and the weak performance of public investment outcomes. Specifically, the study interrogates whether the functional allocation of capital budgets to Administration and Economic Services, in the context of high and volatile inflation, has enhanced or undermined public investment in Nigeria between 1986 and 2023.

1.3 Objectives of the Study

The broad objective of this study is to examine the effects of capital budget expenditure patterns in Administration and Economic Services, alongside inflation, on public investment in Nigeria between 1986 and 2023.

The specific objectives are to:

1. Examine the effect of capital budget expenditure on Administration on public investment in Nigeria.
2. Assess the impact of capital budget expenditure on Economic Services on public investment in Nigeria.
3. Investigate the influence of inflation on public investment in Nigeria.

1.4 Research Questions

The following research questions are posed to guide the direction of findings of this study.

1. To what extent has capital budget expenditure on Administration influenced public investment in Nigeria?
2. How has capital budget expenditure on Economic Services affected public investment in Nigeria?
3. What is the effect of inflation on public investment in Nigeria?

1.5 Research Hypotheses

The study will test the following null hypotheses (H_0)

1. H_{01} : Capital budget expenditure on Administration has no significant effect on public investment in Nigeria.
2. H_{02} : Capital budget expenditure on Economic Services has no significant effect on public investment in Nigeria.
3. H_{03} : Inflation has no significant effect on public investment in Nigeria.

1.6 Significance of the Study

This study is significant as it advances the understanding of how capital budget expenditure patterns affect public investment in Nigeria by disaggregating expenditure into Administration and Economic Services while accounting for inflation. Theoretically, it is anchored on Wagner's Law, which links rising government spending to development needs; and the new public management theory theory that advocates for importing private-sector management techniques and market-based competition into the public sector to enhance efficiency, reduce waste, and improve service quality. It also integrates the inflation tax and crowding-out effects, recognizing the erosive impact of inflation on fiscal effectiveness. Empirically, the findings will fill a gap in the literature, guide policymakers in restructuring capital budgets toward more productive investment and provide evidence for coordinated fiscal-monetary policies aimed at enhancing public investment outcomes in Nigeria.

1.7 Scope of the Study

This study focuses on examining the effects of capital budget expenditure on Administration and Economic Services, alongside inflation, on public investment in Nigeria over the period 1986 to 2023. The scope is limited to capital expenditure within the federal government budget, functionally classified into Administration and Economic Services, as reported by the Central Bank of Nigeria (CBN) and relevant government statistical sources. Public investment is measured in terms of government capital formation and related infrastructural spending, while inflation is captured using annual consumer price index data. Geographically, the study is confined to Nigeria, and methodologically, it adopts time-series econometric techniques to analyze both the individual and joint

effects of the explanatory variables on public investment outcomes.

II. LITERATURE REVIEW

2.1 Conceptual Literature

The conceptual foundation of this study rests on the relationship between the functional allocation of capital budget expenditure and public investment in Nigeria, taking into account the moderating role of macroeconomic instability, particularly inflation. Public investment, which in this study represents government capital formation and infrastructure stock, is conceived as the dependent variable. The explanatory variables are disaggregated capital budget expenditure on Administration, capital budget expenditure on Economic Services, and inflation. This framework builds on classical and modern theories of public expenditure while incorporating empirical realities that define Nigeria's fiscal space between 1986 and 2023.

2.1.1 Capital Budget Expenditure

Capital budget refers to the financial plan for acquiring or investing in long-term fixed assets or projects that involve significant monetary outlays. It focuses on expenditures related to purchasing land, buildings, machinery, equipment, or other capital assets that have useful lives extending beyond one year (Emerenini, 2005; Ajie, Akekere & Ewubare, 2014). Nigeria's capital budget - government spending on long-term assets like infrastructure and equipment - has experienced significant fluctuations and a notable decline as a percentage of GDP. According to data from CBN (2024), between 1986 and 2001, Nigeria's capital expenditure averaged about 4.33% of GDP, peaking at 9.1% in 1999. However, from 2002 to 2024, this share dropped sharply to an average of 1.58% of GDP, indicating a major reduction in capital investments over the last two decades. This decline suggests a shift away from infrastructure and development spending towards recurrent expenditures such as salaries and overheads, which could hamper sustainable economic growth and infrastructure development.

2.1.2 Capital Budget Expenditure on Administration

According to Mikesell (2022), Lee, Johnson & Joyce (2022), capital budget expenditure on administration refers to the funds allocated by a government or organization for long-term investments in administrative infrastructure, assets, or improvements. These expenditures are typically part of the capital budget, which focuses on long-term projects rather than day-to-day operational expenses. In Nigeria, capital budget expenditure on administration in Nigeria refers to government spending on long-term assets and infrastructure supporting administrative functions, such as government buildings, vehicles, and equipment, rather than on salaries or routine operations. This category is critical for maintaining and expanding the capacity of government institutions and supporting effective governance (John, 2017; Emerenini, 2005; Nnamocha, 2001). Recent data shows continued high allocations: ₦591.26 billion in 2019, ₦417.14 billion in 2020, and ₦635.73 billion in 2021, according to the Central Bank of Nigeria Statistical Bulletin (2022). The trend of substantial allocations to administrative capital expenditure has persisted in 2022 and 2023 with figures showing ₦789.806 billion and ₦1,130.643 billion respectively, reflecting ongoing investments in government infrastructure and modernization. This trend underscores the government's ongoing commitment to strengthening administrative infrastructure, which plays a vital role in national development and governance.

2.1.3 Capital Budget Expenditure on Economic Services

Capital budget expenditure on economic services according to Emerenini (2005); Ajie, et al (2014); Nnamocha (2001), refers to government spending on long-term physical assets and infrastructure that support economic development and growth. This type of expenditure creates or enhances productive capacity in the economy. Nigeria's capital budget expenditure on economic services has been a significant component of government spending aimed at fostering economic growth. According to Ikubor, Oladipo, Zakaree & Abraham (2022), capital expenditure on economic services includes spending on sectors such as agriculture, manufacturing, mining, housing, and natural resources. This expenditure is crucial for

infrastructural development like roads, storage, and stable electricity, which positively impact economic output. More recent data indicate that federal government capital expenditure on economic services has a robust positive correlation with GDP growth, confirming its role in economic development. Increased spending in this area is recommended for sustained growth. (Ukoh & Nwaoha, 2024; John, 2017). Quarterly data from 2005 to 2023 show that Nigeria's federal government capital expenditure (overall) averaged about ₦298 billion, peaking at ₦1.873 trillion in March 2022, reflecting increased budget allocations in recent years (CBN, 2024). Overall, Nigeria's capital budget expenditure on economic services from 1981 to 2023 has generally contributed positively to economic growth, though funding levels have varied over time. The government is encouraged to maintain and increase investments in these sectors for better economic outcomes.

2.1.4 Capital Budget and Public Investment

A capital budget is the government's plan for long-term investments in critical physical assets like roads, power grids, and railways, distinct from the recurrent budget for daily operational costs (Adu & Ajigbotoso, 2024; Lee, 2019). For Nigeria, effective capital budgeting is paramount to overcoming its severe infrastructure deficit, which constrains economic growth and productivity. The process involves rigorously evaluating and selecting high-impact projects that can diversify the economy away from oil, boost competitiveness, and generate future revenue. However, Nigeria's historical challenge has been the consistent under-execution of its capital budget due to revenue shortfalls, leading to a wide gap between planned public investment and actual disbursement (IMF, 2023).

The effectiveness of public investment in Nigeria is further hampered by structural issues, including a heavy reliance on volatile oil revenues for funding, significant project cost overruns, and weak governance in project implementation. Recent trends emphasize the need for Nigeria to align its capital budget with global challenges like climate adaptation and digitalization, while also tackling the maintenance of existing assets. Ultimately, improving the quality of capital budgeting and public investment management—through better governance, transparent

processes, and innovative financing—is crucial for Nigeria to build resilient infrastructure, catalyze private investment, and achieve sustainable and inclusive economic development (OECD, 2023; World Bank, 2023; Bova, et al. 2020).

2.2 Theoretical Literature Review

2.2.1 Wagner's Law

Wagner's Law of Increasing State Activity, propounded by the German economist Adolph Wagner in the late 19th century, posits that as an economy develops and per capita income rises, the relative size of the public sector will inevitably and necessarily grow. Wagner argued this expansion is driven by three fundamental forces: the increased administrative and protective role of the state (law and order); the desire for the state to provide and fund more cultural and welfare goods (education, health) which have high income elasticity of demand; and the need for the state to manage and finance large-scale natural monopolies and infrastructure projects, which become more complex with technological progress. In examining Nigeria's economy, Wagner's thesis finds strong empirical support in the long-term trend of growing public expenditure, particularly following the oil boom of the 1970s which significantly increased state revenue and capacity. The creation of new states, ministries, agencies, and ambitious public investment programs, alongside a rising population demanding more public services, aligns with Wagner's predictions of an expanding state apparatus. However, the Nigerian context also presents a critical caveat: the driver of this expansion has often been rent-seeking from oil revenues rather than organic, productivity-led economic development, leading to what scholars like Iyoha and Oriakhi (2008) describe as a "weak" version of the law. Consequently, the growth in Nigeria's public spending, frequently financed through volatile oil earnings and debt, has not always translated into a corresponding increase in the quality or efficiency of public services, highlighting the persistent challenge of misallocation and corruption that plagues the translation of fiscal expansion into tangible development outcomes (World Bank, 2022).

2.3 Empirical Review

Nteegah & Okwu (2023), examined how public investment on economic services, social and community services and administrative services had

affected economic development measured in terms of: standard of living, literacy rate and job creation, data were collected from CBN Statistical Bulletin and World Development Indicators for the period and analysed using the ARDL. From the findings of this study, the study concluded that: public investment in economic and administrative spurred economic development than public investment in social and community services over the period of this study. Based on these findings and conclusion, the study recommended: an improvement in investment/public spending on economic and administrative services in order to create more jobs, improve income level (standard of living) and improve human capital development in Nigeria. Akujuobi, Ndugbu and Akujuobi (2021), examined the relationship between public expenditure and capital formation in Nigeria, 1981-2018. Adopting the Ordinary Least Square Multiple Regression, the study revealed a significant relationship exists between public expenditure and capital formation in Nigeria. Based on the findings, the study concluded that public expenditure has positively contributed to the level of capital formation in Nigeria, thus the study recommended that proper monitoring should be placed on public expenditure on administration. This recommendation stems from the insignificant contribution of this component of public expenditure; that could be a pointer to misappropriation from this particular component. Overall, these results lend further credence to the Law of increasing state activities by Wagner and his contemporaries. Inyang, Bassey, Goodwill & Inah (2020), examined capital budgeting techniques and government capital projects in Nigeria. The study concluded that it is the ineffective use of capital budgeting techniques that has contributed to poor funding and abandonment of capital projects in Nigeria. Olanipekun and David (2020) look into how government spending affects poverty and unemployment in Nigeria. Using the ARDL methodology, government spending was broken down into its capital and recurring functional components (economic service, administration, social service, and transfer). The result shows that component of administrative and transfer expenditure impact on poverty reduction in short- and long-term periods, expenditure on capital economic services has weak effect on poverty but contribute significantly to minimize unemployment rate.

2.4 Literature Gap

A considerable body of research has examined the relationship between government expenditure and public investment in Nigeria, with most studies highlighting the role of fiscal policy in stimulating growth and infrastructure development. For instance, Olayungbo and Akinlo (2018) investigated government expenditure and investment dynamics in Nigeria but treated capital expenditure as an aggregate variable, without disaggregating by functional classification. Similarly, Adedokun (2020) focused on the growth effects of capital and recurrent expenditure, leaving unanswered questions on the relative effectiveness of expenditure on Administration versus Economic Services. More recent works, such as Aregbeyen and Fasanya (2023), have emphasized the functional breakdown of expenditure and its growth effects. However, while these studies provide insights into how expenditure categories contribute differently to economic performance, they largely focus on economic growth or aggregate output rather than public investment outcomes specifically. Moreover, the interaction of macroeconomic instability - particularly inflation - with capital budget expenditure and public investment has not received sufficient attention, despite persistent inflationary episodes in Nigeria since the late 1980s.

Thus, this study addresses these gaps by providing a disaggregated analysis of capital budget expenditure on Administration and Economic Services, while integrating inflation as a key explanatory factor, to assess their effects on public investment in Nigeria from 1986 to 2023.

3.3 Model Specification

The study adopts a functional econometric model that links public investment to capital expenditure patterns and inflation. The general form of the model is specified as:

$$PINV_t = f(CBA_t, CBE_t, INF_t) \quad (1)$$

The econometric form of the model is specified as:

III. METHODOLOGY

3.1 Research Design

This study adopts an ex-post facto research design, which is appropriate because it investigates the causal relationship between capital budget expenditure and public investment using already published secondary data over the period 1986–2023. The choice of this design is justified by the impossibility of manipulating fiscal expenditure variables retrospectively, and it allows for robust econometric analysis of historical data trends (Gujarati & Porter, 2009; Brooks, 2019). The population of the study covers all federal government capital budget expenditures in Nigeria, while the scope is restricted to disaggregated functional classifications of capital expenditure on Administration and Economic Services, as well as the macroeconomic variable inflation. The dependent variable is public investment, measured by government gross capital and related infrastructural spending. The period 1986–2023 is selected to capture both structural adjustment era fiscal reforms, democratic governance cycles, oil boom-bust episodes, and recent fiscal reforms.

3.2 Sources of Data

The study relies exclusively on secondary time-series data obtained from credible national and international sources. Specifically, data on public investment and capital budget expenditure by function (Administration and Economic Services) will be sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the Budget Office of the Federation. Inflation data (annual percentage change in consumer price index) will be obtained from the World Bank World Development Indicators (WDI) and validated with CBN publications. Where discrepancies exist, preference will be given to CBN as the primary national source.

$$PINV_t = \beta_0 + \beta_1 CBA_t + \beta_2 CBE_t + \beta_3 INF_t + \mu_t \quad (2)$$

The model is standardized by transforming the variables – with the exception of inflation - into natural logarithm to curtail the effects of spurious regression. Thus:

$$LN PINV_t = \beta_0 + \beta_1 LNCBA_t + \beta_2 LNCBE_t + \beta_3 INF_t + \mu_t \quad (3)$$

Where:

PINV = Public Investment at time t (proxied by government gross capital spending)

CBA = Capital budget expenditure on Administration at time t

CBE = Capital budget expenditure on Economic Services at time t

INF = Inflation rate at time t

β_0 = Intercept term

$\beta_1 - \beta_3$ = Coefficients of explanatory variables to be estimated

μ_t = Error term

LN = Natural logarithm

3.4 Estimation Technique

Given the time-series nature of the data, the study will begin with descriptive statistics to explore the distribution and relationships among variables. Stationarity of the variables will be tested using the Augmented Dickey-Fuller (ADF) test. The work adopted an Auto-Regressive Distributed Lag (ARDL) model. Therefore, equation (3) is modified into conventional ARDL form as in equation (4) below.

$$LN PINV_t = \beta_0 + \sum_{i=1}^k \beta_1 CBA_t + \sum_{i=1}^k \beta_2 CBE_t + \sum_{i=1}^k \beta_3 INF_t + \mu_t \quad (4)$$

To obtain the co-integrating equation, equation (4) is transformed into equation (5) as follows:

$$LN PINV_t = \beta_0 + \sum_{i=1}^k \beta_1 CBA_t + \sum_{i=1}^k \beta_2 CBE_t + \sum_{i=1}^k \beta_3 INF_t + \phi ECT + \mu_t \quad (5)$$

Where:

$$ECT_t = Y_t - \beta_0 - \sum_{i=1}^p \gamma_1 \Delta Y_{t-1} - \sum_{i=1}^p \beta_1 \Delta X_{t-1} \text{ and } \phi = 1 - \sum_{i=1}^p \gamma_1 \Delta Y_{t-1} \quad (6)$$

3.5 Justification of the ARDL Model

The ARDL model is justified because it can be applied regardless of whether the underlying variables are purely I(0), purely I(1), or a mix of both, making it suitable for small-sample time series studies. It also provides both short-run and long-run dynamics simultaneously, allowing for a comprehensive analysis of the relationship among variables.

3.6 Test of Significance

The significance was tested at 5% level of significance using the coefficients of the independent variables and following the Rule: Reject the Null hypothesis if the t-prob is less than 0.05, otherwise accept the Null hypothesis when t-prob is greater than 0.05, i.e. Reject if t-prob <0.05, Accept if t-prob > 0.05.

IV. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Data Presentation

YEAR	LNPINV	LNCBA	LNCBE	INF
1986	8.5268	0.2648	1.0999	5.7
1987	6.3725	1.8162	2.1597	11.3
1988	8.3401	1.8986	2.1287	54.5
1989	15.0341	2.6175	3.9263	50
1990	24.0486	2.9199	3.4857	7.4
1991	28.3409	3.345	3.145	13
1992	39.7633	5.1185	2.3367	44.6
1993	54.5018	8.0817	18.3447	57.2
1994	70.9183	8.7851	27.1028	57
1995	121.1383	13.3378	43.1492	72.8
1996	212.9263	14.8636	117.8291	29.3
1997	269.6517	49.549	169.6131	8.5
1998	309.0156	35.2704	200.8619	10
1999	498.0276	42.7372	323.5808	6.6
2000	239.4509	53.2795	111.5086	6.9
2001	438.6965	49.2549	259.7578	18.9
2002	321.3781	73.5774	215.3334	12.9
2003	241.6883	87.9589	97.9821	14
2004	351.25	137.7659	167.7218	15
2005	519.47	171.5741	265.0347	17.9
2006	552.3858	185.2243	262.2073	8.2
2007	759.2812	226.9744	358.3756	5.4
2008	960.8901	287.1036	504.2869	11.6
2009	1152.797	291.66	506.01	12.5
2010	883.8745	260.2	412.2	13.7
2011	918.5489	231.8	386.4	10.8
2012	874.7	190.5	320.9	12.2

2013	1108.386	283.6494	505.765	8.5
2014	783.1194	229.6322	393.445	8
2015	818.3525	226.8058	348.7469	9
2016	653.609	147.7208	278.9489	15.7
2017	1242.296	328.9355	542.1924	16.5
2018	1682.099	446.2462	753.4925	12.1
2019	2288.996	591.2642	994.1862	11.4
2020	1614.889	417.1375	701.3994	13.2
2021	2522.468	635.7288	1102.465	17
2022	3133.821	789.806	1369.662	18.8
2023	4486.206	1130.643	1960.733	29

Sources: Central Bank of Nigeria (CBN) Statistical Bulletin, Budget Office of the Federation and World Bank World Development Indicators (WDI)

Table 4.2: Descriptive Statistics for capital budget expenditure on administration, capital budget expenditure on economic services, inflation and public investment in Nigeria (1986-2023)

	LNPINV	LNCBA	LNCBE	INF
Mean	5.736995	4.118072	4.78009	19.66053
Median	6.231732	4.96044	5.574498	12.95
Maximum	8.408763	7.030542	7.581073	72.8
Minimum	1.851992	-1.32878	0.095219	5.4
Std. Dev.	1.752049	2.0673	2.107286	17.1425
Skewness	-0.79063	-0.79319	-1.0012	1.726987
Kurtosis	2.667188	2.678069	2.702598	4.792861
Jarque-Bera	4.134303	4.148689	6.488593	23.97845
Probability	0.126546	0.125639	0.038996	0.000006
Sum	218.0058	156.4867	181.6434	747.1
Sum Sq. Dev.	113.5779	158.128	164.3042	10873.01
Observations	38	38	38	38

Source: Eviews 13 output

The descriptive statistics in table 4.2 show that public investment, capital expenditure on administration, and capital expenditure on economic services all display moderate fluctuations over the period 1986–2023, with averages of 5.74, 4.12, and 4.78 respectively, while inflation is highly volatile with an average of 19.66% and a peak of 72.8%. The fiscal variables are negatively skewed and approximately normally distributed, whereas inflation is positively skewed, leptokurtic, and significantly non-normal, reflecting

Nigeria’s recurrent inflationary shocks. These results suggest relative stability in fiscal expenditure patterns compared to the extreme volatility of inflation, highlighting the importance of controlling for inflation when examining the effect of capital budget expenditure on public investment.

The diagnostic tests indicate that public investment, capital expenditure on administration, and economic services expenditure are approximately normally

distributed, while inflation significantly deviates from normality due to extreme price shocks. The skewness and kurtosis values further suggest that the fiscal variables follow relatively stable distributions, whereas inflation is highly volatile and prone to outliers. These findings justify the application of econometric techniques that account for non-normality and volatility, ensuring robust estimation of the expenditure–investment relationship.

4.2 Data Analysis

4.2.1 Unit Root Test Result

The Augmented Dickey Fuller (ADF) unit root test is summarized in the Table 4.3 below. This test was carried out on each of the variables at 5% critical value.

Table 4.3: Summary of the Unit Root Test Result

Variable		ADF Test statistics		Decision	Order of Integration
		At Level	1 st Difference		
LNPINV		-1.474704	-6.891725	Stationary at 1st difference	I(1)
LNCBA		-3.012547	-	Stationary at level	I(0)
LNCBE		-1.923132	-6.889707	Stationary at 1st difference	I(1)
INF		-3.517815	-	Stationary at level	I(0)
Critical Values	1%	-3.621023	-3.626784		
	5%	-2.943427	-2.945842		
	10%	-2.610263	-2.611531		

Source: Eviews 13 output

The Augmented Dickey-Fuller (ADF) test results in table 4.3 reveal a mixed order of integration among the variables. LNPINV and LNCBE are non-stationary at level but become stationary after first differencing, implying they are integrated of order one, I(1). Conversely, LNCBA and INF are stationary at level,

indicating they are integrated of order zero, I(0). This mixture of I(0) and I(1) variables, with none integrated at order two, justifies the application of the ARDL bounds testing framework for further empirical analysis.

Table 4.4: ARDL Bounds Cointegration Test Result (@ 5% critical value)

Model	F-Statistics	K	Significance level	Critical Bound Value	
				10 (Lower Bound)	11 (Upper Bound)
	6.787432	3	5%	3.164	4.194

Source: Author's Computation using E-views 13 output (2026)

The ARDL bounds test in table 4.4 indicates evidence of a long-run relationship among the variables. The computed F-statistic (6.787) is above the 5% lower bound critical value (I(0)=3.164; and upper value I(1)=4.194) for k=3. We therefore reject the null of no long run relationship and focus on both the short-run and long run dynamics using an ARDL model.

4.3 Short run ARDL Test

Table 4.5: Parsimonious Short-run Error Correction Term (ECT) Confirming Long-Run Equilibrium in the Capital Budget Expenditure Patterns and Public Investment Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.526207	0.113585	-4.632722	0.0001

Source: Eviews 13 output

The estimated error correction term (COINTEQ*) in table 4.5 is negative and statistically significant, with a coefficient of -0.526207 (p = 0.0001). This indicates that approximately 52.6% of the short-run disequilibrium is corrected each period, confirming the existence of a stable long-run equilibrium relationship among the variables. The significance and magnitude of the adjustment speed suggest that deviations from equilibrium are relatively quickly

restored, supporting the validity of the specified model.

4.4 Test for Long Run Relationship

It's imperative to ascertain the long run relationship that exists between capital budget expenditure patterns in administration, economic services and inflation on Nigeria's public investment.

Table 4.6: Summary of long run relationship between capital budget expenditure patterns in administration, economic services and inflation on Nigeria's public investment.

$$CE = LNPINV(-1) - (0.495438 * LNCBA(-1) + 0.365318 * LNCBE(-1) + 0.003836 * INF + 1.986879)$$

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
LNCBA(-1)	0.495438	0.148731	3.331093	0.0021
LNCBE(-1)	0.365318	0.144843	2.522164	0.0167
INF	0.003836	0.005477	0.700432	0.4886
C	1.986879	0.310889	6.390964	0.0000

Source: Eviews 13 output

The long-run estimates in table 4.6 show that the lagged capital budget expenditure on administration (LNCBA(-1)) has a positive and statistically significant effect on public investment in current period, with a coefficient of 0.495438 ($p = 0.0021$). This implies that public investment increases by 0.495438 units as capital budget expenditure on administration increases by 1 unit.

Similarly, lagged capital budget expenditure on economic services (LNCBE(-1)) also exerts a positive and significant impact on current public investment, with a coefficient of 0.365318 ($p = 0.0167$), indicating 0.365318% increase for 1% increase on the explanatory variable.

In contrast, inflation (INF) has a positive but statistically insignificant effect (coefficient = 0.003836, $p = 0.4886$), suggesting that price changes do not significantly influence public investment within the model.

The constant term (C) is positive and highly significant (1.986879, $p = 0.0000$), indicating the presence of other underlying factors that contribute to the baseline level of public investment.

Overall, the results highlight the critical role of capital budgeting in driving public investment, while inflation appears not to be a major determinant in the long run.

4.5 Post-Estimation Tests

The post-estimation results show other tests that are necessary in order to ascertain the statistical robustness and predictive ability of the model. They comprise the Breusch-Godfrey serial correlation LM test, Harvey Heteroskedasticity test, Fisher's test, Durbin Watson test for autocorrelation, Normality test, CUSUM test, RAMSEY RESET test and the Coefficient of determination (R-squared and Adjusted R-squared), These tests are summarized as follows:

Table 4.7: Post-Estimation Diagnostic Results

S/N	Test	Probability	Decision
		Model 1	
1.	Breusch-Godfrey serial correlation LM test	F-stat = 0.634809 <i>p-value = 0.5375</i>	No serial correlation.
2.	Durbin Watson Statistic	1.722701	No Autocorrelation
3.	Fisher's Test	F-stat = 8.161422 <i>p-value = 0.000028</i>	The explanatory variables are jointly significant on the dependent variable
4.	Harvey Heteroskedasticity Test	F-stat = 1.504579 <i>p-value = 0.2105</i>	No Heteroskedasticity in the model
5.	Normality (Residual) Test	Skewness = 0.228353 Kurtosis = 2.851296 Jarque-Bera = 0.353652 <i>p-value = 0.837088</i>	Model is normally distributed
6.	CUSUM Test	Within the bounds of 5% significance level	Model is stable
7.	RAMSEY RESET Test	F-stat = 0.544304 <i>p-value = 0.4666</i>	Model is free from specification bias
8.	R-squared and Adjusted R-squared	0.620102 (62.01%) 0.544122 (54.41%)	Good explanatory coefficient

Source: Extracted from E-Views 13 output

The post-estimation results in Table 4.7 show that the joint relationship coefficient of the model is significant given the p-value of 0.000028 which is less than 0.05 critical value. The Durbin-Watson coefficient of

1.722701 is within the bounds of 2 than to 0. The normality test shows that the model is normally distributed. The serial correlation and heteroscedasticity tests show that the model is free

from serial correlation and heteroscedasticity. The CUSUM graph indicates that the model is stable and converges within the bounds of 5% significance level, while the Ramsey Reset test indicates that the model is free from specification bias. The adjusted R-squared is most suitable for gauging the overall fitness of the model and it has a value of 0.544122 indicating that 54.417% variations on public investment in Nigeria are accounted for by capital budget expenditure on administration and economic services patterns for the period 1986-2023.

4.6 Discussion of Findings

1. Capital budget expenditure on administration shows positive and statistically significant effect on public investment in Nigeria. This aligns with studies by Nteegah & Okwu (2023) who found positive relationship between capital expenditure on administration and growth in Nigeria.

2. Capital budget expenditure on economic services posits positive and statistically significant impact on public investment in Nigeria. This finding is in consonance with the studies by Nteegah & Okwu (2023); Akujuobi, et al. (2021) which found positive relationship between capital expenditure on economic services and growth in Nigeria.

3. Inflation reveals positive but statistically insignificant influence on public investment in Nigeria.

4.7 Economic Implications

The results suggest that policies aimed at increasing capital budget allocation and expenditure can significantly enhance economic performance, underscoring the importance of sustained investment in infrastructure and development projects. Since inflation does not exert a significant long-run effect, policymakers should prioritize efficient budget implementation over short-term price fluctuations. Strengthening fiscal discipline and ensuring effective utilization of capital budgets will be crucial for sustaining long-run growth.

V. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study examined the effects of capital budget expenditure patterns in administration and economic

services, alongside inflation, on public investment as a proxy of government gross capital spending in Nigeria between 1986 and 2023. The following summarizes the research work:

- Capital budget expenditure on administration shows positive and statistically significant effect on public investment in Nigeria.
- Capital budget expenditure on economic services posits positive and statistically significant impact on public investment in Nigeria.
- Inflation reveals positive but statistically insignificant influence on public investment in Nigeria.

5.2 Conclusion

The study examined the effects of capital budget expenditure on public investment in Nigeria between 1986 and 2023. Data for the study were gleaned from the publications of the Central Bank of Nigeria (CBN) Statistical Bulletin, Budget Office of the Federation and World Bank World Development Indicators (WDI). Public investment, capital budget expenditure on administration, capital budget expenditure on economic services and inflation were the variables of interest considered in the study. The Auto-regressive Distributed Lag (ARDL) and the Error Correction Model (ECM) diagnostics were utilized in the data estimation. Findings revealed capital expenditures on administration and economic services exhibited positive and statistically significant relationship with public investment in Nigeria. Conversely, inflation indicated positive but statistically insignificant relationship with public investment in Nigeria. The Error Correction Term (ECT) indicates that approximately 52.6% of the short-run disequilibrium is corrected each period, confirming the existence of a stable long-run equilibrium relationship among the variables. The study concludes that capital budgeting plays critical role in driving public investment in Nigeria.

5.3 Recommendations

The findings of this study offer several policy insights for strengthening the nexus between capital budget expenditure and public investment in Nigeria. Below are policy recommendations tailored to the results:

- Since spending on administration significantly drives public investment, government should

ensure that allocations to administrative capital projects are well-targeted and efficient. This is akin to strengthening the “control room” of the economy - ensuring administrative structures are well-equipped to support and coordinate wider investment activities.

- The positive effect of expenditure on economic services highlights the need to channel more resources into infrastructure, transport, energy, and productive sectors. Just as roads and electricity are the “arteries and lifeblood” of economic activity, sustained investment in these areas will unlock higher levels of public investment and multiplier effects in the wider economy.
- Although inflation showed no significant effect on public investment in the model, policymakers should not neglect it entirely. Like background noise that doesn’t dominate the conversation but can still distract if too loud, unchecked inflation could erode the real value of capital spending and weaken investor confidence over time.
- To maximize the gains, capital budget allocations should be tied to clear investment outcomes, with robust monitoring mechanisms to minimize leakages. This ensures that every “drop” of public funds contributes to filling the “bucket” of national investment rather than being lost through inefficiency or corruption.

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