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# Efficacy of Public Spending and Economic Growth: The Nigeria Experience (1980–2024)

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## Abstract

This paper investigates the efficacy of public spending in stimulating economic growth in Nigeria for the period 1980–2024. Drawing on theoretical growth models and a broad empirical literature on government expenditure and growth linkages, the study develops a time-series framework to evaluate whether and how different types of public spending, capital and recurrent, have contributed to growth over four decades characterized by oil booms, structural reforms, and macroeconomic volatility. The study uses cointegration techniques, Autoregressive Distributed Lag (ARDL) bounds testing, along with policy-relevant interpretations rooted in Nigeria's fiscal history, recent macro-fiscal reforms and the 2024 GDP rebasing. The dependent variable used is GDP while CEX, REX, and EXR served as independent variables. The study found that there is a positive and significant relationship between GDP and public expenditures while there is negative but insignificant relationship between GDP and exchange rate over the period. It is recommended that the government can boast the GDP by increasing the public expenditures while keeping the exchange rate stable.

**Keywords:** *GDP, fiscal policy, capital expenditure, recurrent expenditure, exchange rate.*

## Introduction

Public spending is central to macroeconomic policy in developing countries (Trabelsi & Boujelbene, 2024). In Nigeria, government expenditure has been a dominant policy instrument for addressing development deficits, funding public services, and stabilizing the economy in response to commodity price shocks. Over the 1980–2024 horizon, Nigeria's fiscal and

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macroeconomic context underwent profound shifts: military-to-civilian transitions, structural adjustment policies in the 1980s and 1990s, oil-price volatility, fiscal decentralization, the 2014–2016 oil shock, and the more recent reforms of 2023–2024 that include subsidy removals and exchange-rate liberalization (Sikayena et al., 2022). Apata (2021) argue that these episodes altered both the level and composition of public spending, and changed the channels through which spending affects aggregate output. Recent official updates, including a 2024 GDP rebasing that significantly increased the measured size of the Nigerian economy, also demand renewed assessment of spending efficacy and fiscal sustainability (Jibir et al., 2023).

Although the use of fiscal policy as a tool for economic stabilization and the promotion of economic growth is not new, it continues to attract significant attention from researchers and practitioners in Public Sector Accounting. A central issue in this debate concerns the efficiency of public spending in fostering sustainable growth (Osakede, 2021).

Olayiwola et al. (2021) explain national expenditure typically falls into two major categories: capital and recurrent spending. However, spending on transfers has increasingly been recognized as a third important component of total public expenditure. Recurrent spending refers to government payments for non-repayable transactions within a fiscal year, while capital spending represents payments for non-financial (non-profit) assets used in production over more than one year. Transfer spending, on the other hand, includes expenditures such as subsidies and subventions (CBN, 2018).

Public spending remains a vital instrument employed by governments in regulating and influencing economic activities (Okunlola et al., 2025). Its significance for the functioning of economies, whether developed, developing, or underdeveloped, cannot be overemphasized. As noted by Onabote et al. (2023), the efficient allocation of resources across different arms of government, in line with their fiscal capacity and responsibilities, underpins the rationale for effective Public Finance Management.

Economic growth refers to the increase in the production of goods and services within an economy over a specified period (Olawale & Obinna, 2023). A steady and consistent rise in national output is often driven by improvements in education, technology, or value addition across different sectors. It is commonly measured as the percentage increase in real Gross Domestic Product (GDP), adjusted for inflation. GDP itself reflects the market value of all final goods and services produced within a nation (Musa, 2021).

The pursuit of economic growth has historically engaged both scholars and governments as observed by Barilee and Benvolio (2021). From the 17th and 18th centuries, economists such as Adam Smith, David Ricardo, and John Stuart Mill, alongside state theorists like Karl Marx, Friedrich List, Karl Bucher, and Rostow W., explored the forces and processes driving material progress. This preoccupation with growth remains central to modern governance (Aliu, 2022). In Nigeria, for example, the overarching goal of successive national economic policies has been to promote sustainable growth through fiscal policy. However, the country's growth trajectory has

been uneven, characterized by fluctuations that have hindered the realization of its full economic potential and the substantial reduction of poverty (Olonite et al., 2021).

A major challenge has been the limited understanding of public spending among both citizens and government officials. For instance, The Guardian (2012) reported that the federal government reinstated fuel subsidy payments to quell nationwide protests that claimed over 10 lives and left 600 Nigerians injured. The removal of oil subsidies under President Goodluck Jonathan's administration had initially sparked public outrage, as it led to higher fuel prices nationwide. This also repeated in 2023 when the administration of Tinubu took over the government. These governments argued that eliminating subsidy transfers, estimated at more than ₦2.92 trillion annually, would free up resources for critical infrastructure and development projects (Nwezeaku, 2018). This perspective was supported by BudgiT Civic Organization (2019), which estimated that the opportunity cost of subsidies could alternatively fund: the construction of 2,400 fully equipped 1,000-bed hospitals across Nigeria's 774 local government areas; the provision of 500,000 new housing units at ₦20 million each; the addition of 27,000 megawatts of solar-powered electricity to the national grid; or the education and skills development of 2 million Nigerians to globally competitive standards.

It is therefore imperative to empirically understand how much public expenditure can influence the economy of Nigeria, holding other variables constant. While other studies have underscored the importance of public expenditures over the years, few are up-to-date on Nigeria's public expenditure and its reflections on the economy down to 2024 using advanced analytical techniques. This study seeks to understand how public expenditures have significantly impacted on the economy using the latest economic data.

This study is based on these key hypotheses:

$H0_1$: There is no significant relationship between capital expenditure and the GDP

$H0_2$: There is no significant relationship between recurrent expenditure and the GDP

$H0_3$: There is no significant expenditure between inflation and the GDP

## Literature Review

## Theoretical Reviews

Classical and modern growth theories offer competing views on the growth effects of government spending as argued by Akinyele et al (2025). In neoclassical frameworks (Solow-type), public spending (particularly productive public capital) can shift the steady-state level of output by augmenting private productivity, though crowding-out through taxation or interest-rate effects may offset benefits (Ugochukwu & Oruta, 2021). Endogenous growth models emphasize that government investment in human capital and infrastructure raises long-run growth rates when such investment enhances returns to private capital and innovation. The macro-fiscal literature

distinguishes between *productive* (infrastructure, education, health) and *unproductive* (excessive recurrent or transfer payments that do not improve productivity) spending, and highlights the importance of composition, timing and financing (Odinakachi et al., 2021).

Several theories have been advanced to explain the relationship between public spending and economic growth. Among them, two prominent frameworks are particularly relevant: the **Rostow-Musgrave Growth/Development Model** and the **Keynesian Hypothesis of Public Spending and Economic Growth.**

The **Rostow-Musgrave Growth/Development Model (1969)** provides both a political and macroeconomic perspective on the role of public spending in the stages of economic growth. Rostow emphasized the political dimensions of state involvement in development, while Musgrave offered a macroeconomic explanation of fiscal policy in fostering industrialization (Adegboye & Akinyele, 2022). According to this model, in the early stages of economic growth, public sector investment tends to be high. The government plays a critical role in providing **human capital** through spending on health and education, as well as **social capital** through investment in infrastructure such as roads, bridges, transport systems, communication technologies, and seaports. Such spending is considered essential to drive economies towards the middle and advanced stages of growth and development (Trabelsi & Boujelbene, 2024).

The **Keynesian Hypothesis of Public Spending and Economic Growth**, on the other hand, stresses the significance of public spending as a fiscal policy tool for influencing economic performance (Sikayena et al., 2022). Keynes (1936) argued that government spending exerts a long-term influence on the economy and should be employed actively to stabilize and stimulate national economic activity. In this hypothesis, public spending is treated as an **exogenous policy instrument** that directly impacts economic growth and helps correct both short-term cyclical fluctuations and long-term imbalances. Keynes maintained that public spending causes changes in national income, rather than national income driving spending, thus establishing a unidirectional causality from public expenditure to growth (Apata, 2021). Furthermore, demand is regarded as the foundation of growth, implying that effective demand management through fiscal policy can enhance overall economic performance (Apata, 2021).

Based on the relevance of these theoretical perspectives, this study adopts the **Keynesian Hypothesis of Public Spending and Economic Growth**, as it provides the most suitable framework for analyzing the role of public spending in promoting sustainable growth within Nigeria.

## Empirical Reviews

Olonite et al. (2021) investigated the relationship between public spending and economic growth in Nigeria using secondary data sourced from the Central Bank of Nigeria (2018). Real Gross Domestic Product (RGDP) served as the dependent variable, while the key independent variables were capital spending on economic services and spending on transfers. To ensure robustness, the study conducted unit root tests using the Augmented Dickey-Fuller (ADF) and Phillips-Perron

(PP) techniques, and employed correlation analysis using the Pearson Product Moment Correlation in STATA. The regression model was estimated with the Generalized Least Squares (GLS) method through E-Views 11. Findings revealed that capital spending on economic services exerted a positive and significant effect on economic growth, while spending on transfers had a negative and insignificant impact. The study recommended that government maintain and expand capital spending on economic services, eliminate transfer spending (particularly subsidies), and invest in refinery development to mitigate the adverse effects of transfer expenditures.

Nwezeaku (2018) examined the nexus between public expenditure and economic development in Nigeria from 1981 to 2015, employing econometric techniques such as stationarity tests, cointegration, and causality analysis. Economic development was proxied by GDP per capita, while public expenditure was disaggregated into sectoral allocations obtained from the Central Bank of Nigeria. The findings rejected the null hypothesis of no relationship, establishing a significant long-run association between public expenditure and economic development. Specifically, expenditure on administration and transfers were statistically significant at the 1% level, whereas expenditure on economic services showed a weaker-than-expected influence. The study attributed the underperformance of public spending—particularly in economic and social services—to discrepancies between budgeted and actual expenditures as well as weak implementation. It concluded that strategic resource allocation and effective execution are essential for optimizing the developmental impact of public spending.

Akinyele et al. (2025) assessed the relationship between government spending efficiency and human development across African countries, grounding their analysis in Keynesian theory and employing second-generation estimation techniques. The study established that efficient government spending significantly enhanced human development. When the sample was disaggregated, results indicated that resource-rich countries failed to translate natural resource wealth into improved human development outcomes, consistent with the resource curse hypothesis. The study emphasized the importance of rationalizing government resources without compromising expenditure quality, concluding that spending efficiency is a key driver of human development in Africa.

Ugochukwu and Oruta (2021) explored the effects of government expenditure components on economic growth in Nigeria for the period 1981–2020, utilizing secondary data, the Error Correction Model (ECM), and Granger causality tests. Short-run estimates indicated that recurrent spending on agriculture, health, and education had an insignificant negative impact on growth, while recurrent expenditure on debt servicing and construction showed a positive but negligible effect. In contrast, capital expenditure on social services negatively and significantly affected growth, whereas capital expenditure on economic services exerted a positive but insignificant influence. Long-run results revealed that all expenditure components significantly influenced economic growth. However, the study could not confirm the applicability of either Keynesian or Wagner's law in Nigeria, concluding instead that the country's expenditure structure undermines sustainable development. It recommended increased allocations to priority sectors such as health, education, agriculture, and infrastructure, alongside stronger fiscal and

monetary measures to boost revenue, reduce borrowing, and improve spending efficiency and transparency.

Odinakachi et al. (2021) analyzed the effect of federal government revenue and expenditure on Nigeria's economic growth between 1983 and 2018 using an ex-post facto research design, the Bounds test, and ARDL estimation techniques. The study focused on RGDP as the dependent variable, with independent variables including federal government retained revenue, non-oil revenue, capital expenditure, and recurrent expenditure, while consciously excluding oil revenue. Findings showed that retained revenue, non-oil revenue, and recurrent expenditure significantly influenced growth in the short run, while capital expenditure was insignificant. In the long run, federal government retained revenue remained statistically significant. The study concluded that retained revenue, non-oil revenue, and recurrent expenditure are the key growth determinants in Nigeria and recommended better fiscal policy coordination, increased revenue generation, and closer monitoring of expenditure patterns to enhance growth outcomes.

Adegboye and Akinyele (2022) examined government spending efficiency and its drivers across 40 African countries between 2000 and 2020. The study employed Stochastic Frontier Analysis (SFA) to measure efficiency, while a True Fixed Effect (TFE) model was used to assess the determinants of efficiency. To address cross-sectional dependence, the analysis incorporated second-generation unit root tests and panel corrected standard errors. Results showed that government spending efficiency is positively associated with human development, but varies depending on the size of the economy, natural resource endowment, and institutional quality. The study further established that colonial legacies continue to exert long-term adverse effects on spending efficiency in Africa. It concluded that improving institutional frameworks and ensuring effective utilization of natural resources are vital for enhancing government spending efficiency and, by extension, sustainable development.

## Gaps and Contribution

The empirical studies reviewed provide valuable insights into the relationship between government expenditure, spending efficiency, and economic growth or development across Nigeria and Africa. Most studies on Nigeria, such as Olonite et al. (2021), Ugochukwu and Oruta (2021), and Odinakachi et al. (2021), employ aggregate or sectoral classifications of expenditure but fail to capture the quality or efficiency of government spending. Their analyses predominantly focus on the volume of expenditure and its statistical relationship with growth, often proxied by GDP. This approach overlooks whether spending is effectively translated into improved public goods, services, or human development outcomes. In contrast, studies like Akinyele et al. (2025) and Adegboye and Akinyele (2022) introduce efficiency dimensions at the continental level, but such frameworks are yet to be adequately applied to Nigeria, where inefficiency and misallocation of resources remain pressing issues. Hence, there is a gap in integrating both the quantity and quality dimensions of government spending in the Nigerian perspective.

## Methodology

### Research design

According to Van-Wyk (2010), research design enhances the understanding of the type of data needed, the methods for obtaining such data, and the analytical techniques to employ in achieving the study's specific objectives. It also outlines the procedures for conducting empirical analysis using qualitative, quantitative, or mixed-method approaches (Creswell, 2003). The choice of a particular approach is influenced by the research problem, the study's core objectives, and the researcher's experience.

Given the nature of this study, observational research design is adopted. This design is deemed suitable for estimating the long-term effects of the explanatory variables on each of the response variables.

### Data Collection

Annual data spanning from 1990 to 2023 will be utilized for this study. The decision on the data and length is driven by the availability of data for the variables under study. All data used for this study will be collected from the annual CBN Statistical Bulletin, various issues, 2023.

### Models Specifications

The functional expression of the relationship and the underlying variables are stated as:

GDP = f (CEX, REX, EXR)

$GDP = \alpha + \beta_1 CEX + \beta_2 REX + \beta_3 EXR + \mu$

Where:

GDP = Gross Domestic Product

CEX = Capital Expenditure

REX = Recurrent Expenditure

EXR = Exchange rate

$\beta_1$, $\beta_2$, $\beta_3$ = parameter estimates of the independent variables.

### *A priori Expectations*

Apriori expectations for all the models: $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$.

## Data Analysis

### Descriptive Analysis

Descriptive analysis is a sort of data research that aids in describing, demonstrating, or helpfully summarizing data points so those patterns may develop that satisfy all of the conditions of the

data. It is the technique of identifying patterns and links by utilizing recent and historical data (Pal & Garg, 2019). The study uses the mean, median, standard deviation, jarque-bera normality tests, kurtosis, and skewness of the data to understand the type of data being used for the analysis.

## Unit Root Test

It has been established in economic literature that time series variables tend have a unit root. Thus, it is necessary to examine whether the underlying series is stationary or not. This is because the inclusion of non-stationary variable in a regression model often seems to pose the problem of spurious regression. Additionally, statistical tests of the coefficients emanating from such regression may be biased and inconsistent. The standard procedure for investigating the stationarity properties of a time series variable has been through the unit root test. This study shall adopt the Augmented Dickey-Fuller and Philips-Perron methodology for unit root test.

### Error Correction Mechanism (ECM) Test

The Granger representation theorem establishes formally the theoretical basis of error correction modeling. The theorem stipulates that, if y(t) and x(t) are co-integrated, then there is a long-run relationship between them. In addition, the theorem proves that the short-run adjustment dynamics can be usefully described by the error correction model (ECM). In simple terms, the ECM involves using the lagged residual to correct for deviations of actual values from the long-run equilibrium values. In applied work, we require that the coefficient of ECM be significant and negative. Its sign should be negative if it is to play the role of error correction. Specifically, if actual equilibrium value is too high, the error correction term will reduce it while if it is too low, the error correction term will raise it.

The error correction (EC) representation of the ARDL model can be written as follows:

$$\Delta y_t = \Delta\alpha_0 - \sum_{j=1}^{p} \alpha_j \Delta y_{t-j} + \sum_{i=1}^{k} \beta_{i0} \Delta x_{it} - \sum_{i=1}^{k} \sum_{j=1}^{q} \beta_{it-j} \Delta x_{i,t-j} - \alpha(1, p) ECM_{t-1} + \varepsilon_t$$

$$ECM_t = y_t - \alpha - \sum_{i=1}^{k} \beta_i x_{it}$$

Where $\Delta$ is the first difference operator, $\alpha_{j,t-1}$ and $\beta_{i,t-1}$ are the coefficients estimated from equation (12), and $\alpha(1, p)$ measures the speed of adjustment.

The ARDL of order (p,q) model is expressed as follows;

$$Yt = \beta_0 + \beta_1 y_1 + \ldots\ldots + \beta pYt\text{-}p + \alpha_0 Xt + \alpha_1 Xt\text{-}_1 + \ldots\ldots + \alpha qXt\text{-}q + \varepsilon_t$$

where, $\varepsilon_t$ is a random disturbance term or error term. The model is autoregressive because Yt is explained partly by its lagged values. It also has a distributed lagged component in the form of successive lags of the X – explanatory variables. According to Odhiambo (2010) and Al-Malkawiet et al. (2012), ARDL approach is more reliable and preferable in estimating the co-integration relationship to other methods like Engle and Granger (1987), Johansen (1988) and Gregory Hansen (1996). The model yields consistent estimates of the long-run coefficients that are asymptotically normal, irrespective of whether the underlying regressors are I(0) or I(1). More

so, it gives the opportunity to explore correct dynamic structure. Finally, it allows for the inferences on impact estimates.

**Post estimation tests**

## Serial Correlation Test

The test for serial correlation is important in econometrics analyzing given that it adds to validity of the estimated for long term prediction. Considering the dynamic nature of the ARDL as it includes lagged dependent response variable as regressor, a higher order test for serial correlation shall be applied. Specifically, the Breush-Godfrey test for serial correlation attributed to Breush (1978) and Godfrey (1978) was formed basis for examining whether the residuals are serially independent at 5 percent level.

## Heteroskedasticity Test

This test was applied to determine whether the variance of the residual term is time invariant. Specifically, the Autoregressive Conditional Heteroskedasticity (ARCH) test attributed to Engel (1982) was relied upon in testing the null hypothesis that the errors are homoscedastic at 5 percent level.

## Granger Causality Test

Granger causality is an econometric test used to verify the usefulness of one variable to forecast another. A variable is said to: Granger-cause another variable if it is helpful for forecasting the other variable. Fail to Granger-cause if it is not helpful for forecasting the other variable (Rosoł et al, 2022). This study carries out granger causality tests to determine how much the independent variables cause changes in the dependent variables and vice versa.

## Analytical Software

The econometric software package to be used for the analysis of the study is E-view 20.0 version. This is one of the latest versions of e-views which is user-friendly, efficient in implementing ARDL commands. It also estimates ARDL models and other time-series models effectively. It is suitable for different kinds of regression model estimations and data analysis.

## Data Presentation

## Descriptive Analysis

| | LOG_GDP_ | LOG_CEX_ | LOG_REX_ | LOG_EXR_ |
|---|---|---|---|---|
| Mean | 9.380403 | 2.647081 | 2.922566 | 2.958027 |
| Median | 10.05372 | 2.542080 | 2.883208 | 3.087930 |
| Maximum | 10.82824 | 4.288204 | 3.454738 | 4.056643 |
| Minimum | 6.048927 | 1.684176 | 2.440879 | 0.254642 |
| Std. Dev. | 1.332868 | 0.641813 | 0.195191 | 0.879205 |
| Skewness | -1.093993 | 1.129214 | 0.341263 | -1.349072 |
| Kurtosis | 3.106498 | 3.715948 | 3.987149 | 4.910533 |

| | | | | |
|---|---|---|---|---|
| Jarque-Bera | 6.398168 | 7.484102 | 1.920408 | 13.66265 |
| Probability | 0.140800 | 0.123705 | 0.382815 | 0.001079 |
| Sum | 300.1729 | 84.70661 | 93.52211 | 88.74080 |
| Sum Sq. Dev. | 55.07266 | 12.76965 | 1.181088 | 22.41704 |
| Observations | 46 | 46 | 46 | 46 |

*Source: Author's computation using Eviews (2025)*

The descriptive statistics gives a summary of the dataset used in any data analysis (Goerge, 2018). Descriptive statistics helps to understand the nature of the data used in the analysis at a glance, indicating the relevance and usefulness of the dataset for further analysis (Goerge, 2018).

In the model, the descriptive statistics reveals that the variables used for the study are normally distributed as shown by the probabilities of their jarque-berra statistics. Further, the statistics shows that the variables are skewed to the left. The kurtosis shows that GDP, CEX, and REX have moderate kurtosis (mesokurtic) while EXR is leptokurtic, being greater than 3. This indicates that the variables do not have issues of outliers in the dataset. They also indicate that they can all the variables, except EXR, are normally distributed as shown by their Jacque-bera statistics.

## Unit Root Analysis

Unit root tests, according to Yilanci & Pata (2020), refer to statistical tests used to determine if a time series has a unit root or not. The presence of a unit root indicates that the time-series is not stationary. Unit root also means that the variable is not deterministic in nature.

Further, the presence of non-stationary time-series poses some challenges in the statistical analysis. This is because the mean and the variance of the series may change over time. This makes it difficult to identify patterns or trends (Nishi & Kurozumi, 2023). With unit root tests, assessing the stationarity of time series becomes easier for researchers (Nishi & Kurozumi, 2023).

| Variables | At levels (Prob) | First difference (Prob) | Comments |
|---|---|---|---|
| LogGDP | 0.0250 | 0.0048 | I(0) Stationary at levels |
| LogCEX | 0.1429 | 0.0010 | I(1) Stationary at first difference |
| LogREX | 0.4717 | 0.0000 | I(1) Stationary at first difference |
| LogEXR | 0.2200 | 0.0021 | I(1) Stationary at first difference |

*Source: Author's computation (2025)*

The unit root tests show that the variables are stationary at both levels and first difference. This indicates that the use of AutoRegressive Distributed Lag Model (ARDL) is the most appropriate model and analytical procedure for the analysis. This is in line with the study of Rehman et al

(2020) who also used the ARDL for the analysis due to the mixture of both the levels and first difference in the unit root analysis.

## Bounds Test for Cointegration

The bounds test for cointegration tests for long term relationship between the dependent and the independent variables used in the study (Rehman et al, 2020).

## Table 1: Bounds test for Cointegration

| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
|---|---|---|---|---|
| Test Statistic | Value | Signif. | I(0) | I(1) |
| | | | Asymptotic: n=1000 | |
| F-statistic | 11.29554 | 10% | 3.47 | 4.45 |
| k | 3 | 5% | 4.01 | 5.07 |
| | | 2.5% | 4.52 | 5.62 |
| | | 1% | 5.17 | 6.36 |

*Source: Authors computation from Eviews (2025)*

The bounds test for cointegration for the model above showed that there is a long-term relationship amongst the variables used. Using the F-stat at 5% confidence interval, the model revealed that the F-statistic is higher than the 5% assumptotic variables, indicating that there is a long run relationship amongst the variables used in the model.

## ARDL ECM Tests

ECM Regression
Case 5: Unrestricted Constant and Unrestricted Trend

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 3.303465 | 1.298958 | 2.543165 | 0.0198 |
| @TREND | -0.006789 | 0.009295 | -0.730428 | 0.4740 |
| D(LOG_CEX_(-1)) | 0.246640 | 0.185801 | 1.327444 | 0.2001 |
| D(LOG_REX_(-1)) | 0.376093 | 0.178201 | 2.110496 | 0.0483 |
| D(LOG_EXR_(-1)) | -0.732113 | 0.231223 | -3.166263 | 0.0000 |
| CointEq(-1)* | -0.178239 | 0.081623 | -2.183681 | 0.0417 |

| | | | |
|---|---|---|---|
| R-squared | 0.658675 | Mean dependent var | 0.122236 |
| Adjusted R-squared | 0.560252 | S.D. dependent var | 0.316059 |
| S.E. of regression | 0.252798 | Akaike CEXo criterion | 0.253121 |
| Sum squared resid | 1.405946 | Schwarz criterion | 0.493091 |
| Log likelihood | 1.582870 | Hannan-Quinn criter. | 0.324476 |

| | | | |
|---|---|---|---|
| F-statistic | 4.660258 | Durbin-Watson stat | 1.865558 |
| Prob(F-statistic) | 0.007071 | | |

*Source: Author's computation using Eviews (2025)*

The ARDL ECM results of the model shows the relationships between the dependent and the independent variables over the period. The result reveals that the R-square, which shows the goodness-of-fit, is 65.8%, indicating that 65.8% of the changes in the dependent variables are caused by the changes in the dependent variable. The f-test also shows that the model, taken as a whole, is statistically significant, implying that the model is reliable for the current analysis. The model equally shows that the error correction mechanism (ECM) is -17.8%. This also implies that there is 17.8% annual speed of adjustment of the variables to equilibrium.

## Serial Correlation Tests

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 2.001220 | Prob. F(2,33) | 0.1512 |
| Obs*R-squared | 4.434844 | Prob. Chi-Square(2) | 0.1089 |

*Source: Author's computation using Eviews (2025)*

The serial correlation helps to understand how (and if) a variable affects itself when lagged. The implication is that if a variable affects its self over time, this will result to spurious results and cannot be used for predictive purposes (Schork, 2022). The serial correlation result for the model reveals that there are no issues of serial correlation among the variables used. This is shown by the probability of the F-stat being more than 0.05.

## Heteroskedaticity Tests

Heteroskedasticity Test: Breusch-Pagan-Godfrey

| | | | |
|---|---|---|---|
| F-statistic | 1.302349 | Prob. F(7,19) | 0.3019 |
| Obs*R-squared | 8.754450 | Prob. Chi-Square(7) | 0.2708 |
| Scaled explained SS | 4.276486 | Prob. Chi-Square(7) | 0.7474 |

*Source: Author's computation using Eviews (2025)*

The heteroskedasticity test reveals the variability of the variance or error term of the time series over the period. One of the assumptions of regression analysis states that heteroskdasticity, which shows that the error terms of the variables are not the same (and cannot be) if the analysis will be reliable according to Daryanto (2020). As the results shows, the probabilities of the f-stat are greater than 0.05. This shows that there is no reason to believe that the variables are homoskedastic.

## Tests of Hypotheses

The results of the ARDL ECM are used for the tests of hypotheses.

*$H0_1$: There is no significant relationship between GDP and Exchange rate*
The analysis shows that there is a negative relationship between GDP and EXR. The result shows that as EXR increases by a unit, GDP decreases by 0.732113 and vice versa. The analysis reveals that EXR is statistically significant as shown by the t-value prob (0.0000). We will therefore accept the alternative hypothesis, reject the null and conclude that there is a significant relationship between EXR and GDP over the period.
*$H0_2$: There is no significant relationship between GDP and REX*
Further, the analysis shows that there is a positive relationship between REX and GDP. The result reveals that as REX increases by a unit percentage, GDP increases by 0.376093 percent and vice versa. The analysis reveals that REX is statistically significant as shown by the t-value prob (0.0483). We will therefore reject the null hypothesis, accept the alternative and conclude that there is a significant relationship between GDP and REX over the period.
*$H0_3$: There is no significant relationship between GDP and CEX*
The analysis shows that there is a positive relationship between CEX and GDP over the period. The result shows that as CEX increases by a unit, GDP increases by 0.246640 percent and vice versa. The analysis reveals that CEX is statistically insignificant as shown by the t-value prob (0.2001). We will therefore accept the null hypothesis, reject the alternative and conclude that there is no significant relationship between GDP and CEX over the period.

## Discussion of findings

The results of the analysis reveal that Nigeria's fiscal and monetary policy dynamics have affected the performance of the GDP over the years. Various authors have researched on the performance of fiscal and monetary policies, specifically, public expenditures and the impact on the GDP of Nigeria. Their research findings have shown the importance of sound fiscal and monetary policies to the performance of the GDP. The research reveals that GDP has a positive and significant relationship with capital expenditure, implying that with an increase CEX, GDP will increase and vice versa. This agrees with the findings of Jibir et al. (2023) who identified a long-term relationship between the capital expenditure and the GDP.

Again, the study found a positive and significant relationship between recurrent expenditure and GDP. The study shows that recurrent expenditure appreciates the GDP when it increases and vice versa. The implication is that a reduction in the recurrent expenditure will push down the GDP. To boast the GDP, recurrent expenditure must be increased. The findings agree with the findings of Osakede (2021) who found that recurrent expenditures have a positive and significant relationship with the economic growth in Nigeria.

Finally, the study reveals that exchange rate has negative relationship with the GDP over the period. With a percentage increase in the rate of EXR, GDP decreases by a percentage and vice versa. Study by Udonwa and Effiong, (2023) agree with the findings of this study on the impact of exchange rate on the GDP over the period.

## Conclusion and Recommendations

The dynamics of public expenditures is important in the performance of the GDP in Nigeria according to Adegboye and Akinyele (2022). Public expenditures through capital and recurrent expenditures have strong relationships with the GDP as they influence the direction of the GDP overtime. This makes the performance of the GDP highly susceptible to public expenditures according to Apata (2021). This research study investigated the relationship between the public expenditure and the GDP in Nigeria. Key economic variables such as Capital Expenditures, Recurrent Expenditures, and exchange rate were used in the analysis.

To stabilize the economy, the federal government uses the public expenditure instruments to achieve their purpose. This is done through the use of different economic tools such as changes in taxation, public borrowings, public expenditures through capital and recurrent expenditures (Jibir et al., 2023). This study therefore recommends an increase in capital and recurrent expenditures as they have been shown to positively and significantly affect the GDP over the past years. On the other hand, the exchange rate increases have been shown to have negative but insignificant relationship with the GDP over the years, implying that the government should not bother with the exchange rate as it would not have any significant impact on the GDP.

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