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HOUSEHOLD CONSUMPTION AND ECONOMIC GROWTH IN NIGERIA

[1]Magaji, Ibrahim Yakubu

[2]Philip, Luka Joseph

[1]Lecturer, Department of Economics, Federal University Wukari, Taraba State

[2]Postgraduate Student, Department of Economics, Federal University Wukari

[1]Email: ymagaji@yahoo.com

[2]Email: philipluka84@gmail.com

ABSTRACT

This study examined the effect of household consumption expenditure on economic growth in Nigeria, controlling for inflation and interest rate. The study utilized annual secondary time-series data spanning 1986 to 2024, sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, on real Gross Domestic Product, household final consumption expenditure, inflation rate, and interest rate (Monetary Policy Rate). The Augmented Dickey-Fuller unit root test was employed to determine the stationarity properties of the series, followed by the Autoregressive Distributed Lag (ARDL) bounds testing approach to establish the short-run and long-run relationships among the variables, and the pairwise Granger causality test to determine the direction of causality. Diagnostic tests, including tests for normality, serial correlation, heteroscedasticity, model specification (Ramsey RESET), and parameter stability (CUSUM/CUSUMSQ), were also conducted to validate the estimated model. The unit root results showed a mixed order of integration, with inflation stationary at level and the remaining variables stationary at first difference, justifying the ARDL approach. The bounds test confirmed a significant long-run relationship among the variables (F-statistic = 19.404). Household consumption expenditure was found to exert a positive and statistically significant effect on economic growth in both the short run (coefficient = 0.125, p = 0.0001) and the long run (coefficient = 0.907, p = 0.0000), while inflation and interest rate were not statistically significant in the long run. The error correction term was correctly signed and significant (coefficient = −0.216, p = 0.0000), indicating an annual adjustment speed of approximately 21.6% toward long-run equilibrium. Granger causality results revealed a bidirectional relationship between household consumption expenditure and economic growth. The study recommends that government prioritize policies that protect and expand real household purchasing power, including targeted cash transfers and inflation-responsive minimum wage reviews, and that monetary policy be treated as a short-term stabilization tool rather than a substitute for consumption-driven growth strategy, given the transitory nature of inflation's and interest rate's effect on growth.

Keywords: *Household consumption expenditure, economic growth, ARDL bounds testing, Granger causality, Nigeria*

1.0 INTRODUCTION

Household consumption expenditure is widely regarded as the single largest component of aggregate demand in most economies, and Nigeria is no exception. National accounts data show that household spending on food, housing, health, transport, and other everyday needs regularly accounts for well over half of Nigeria's gross domestic product (GDP), underscoring its weight in determining the overall pace of national output (National Bureau of Statistics [NBS], 2022). Within the Keynesian framework, consumption is treated as a stable function of income, such that rising national income progressively expands household spending, which in turn stimulates production, investment, and employment (Keynes, 1936, as cited in Olalere & Aladetanye, 2025). This demand-side logic positions household consumption not merely as an outcome of growth but as a potential driver of it, making the consumption–growth relationship a central concern for macroeconomic policy in developing economies such as Nigeria.

In recent years, Nigeria's consumption patterns have been markedly unstable. Real household consumption expenditure contracted sharply in the second half of 2022, falling by more than 5% and 12% year-on-year in the third and fourth quarters respectively, even as headline GDP growth remained modestly positive over the same period (NBS, 2022). This divergence between subdued output growth and a much sharper consumption slowdown points to underlying pressures — notably persistent inflation and elevated interest rates — that have steadily reshaped household spending behaviour. Nigeria's inflation rate climbed from roughly 15.6% in December 2021 to nearly 34% by mid-2024, with food inflation alone exceeding 40%, and by one estimate Nigerian households now devote around 59% of their income to food purchases, among the highest shares in the world (Afrinvest, 2023; Kolaking, 2024).

Inflation's effect on household consumption expenditure in Nigeria has attracted considerable empirical attention, though findings are not fully consistent. Obinna (2020) found that inflation bears a positive long-run relationship with household consumption expenditure, a pattern attributed to nominal spending increases driven by rising prices rather than real welfare gains. In contrast, Abba and Abdullahi (2024), applying an ARDL model to data spanning 1981–2020, found that inflation exerts a negative and significant effect on household consumption expenditure, alongside population growth, while personal income and interest rates were found to positively and significantly influence consumption spending over the same period. This inconsistency across studies suggests that the direction and strength of inflation's effect on consumption may be sensitive to the study period, model specification, and estimation technique employed, reinforcing the need for further context-specific investigation.

Interest rate is similarly theorised to shape household consumption decisions, primarily through its effect on the relative attractiveness of saving versus spending. Standard consumption theory holds that higher interest rates incentivise households to save rather than spend in the present, since higher returns can be earned on deferred consumption (Ekong & Effiong, 2020). Empirical evidence from Nigeria broadly supports this inverse relationship: Ekong and Effiong (2020) found that interest rate exerted a significant negative effect on household consumption expenditure across Nigeria and Ghana, while a separate consumer-spending model estimated for Nigeria found that interest and inflation rates, together with other macroeconomic controls, account for a substantial share of the variation in consumption expenditure (Manasseh et al., 2018). Taken together, this literature suggests that any assessment of household consumption expenditure's relationship with economic growth in

Nigeria would be incomplete without accounting for the confounding influence of both inflation and interest rate movements.

Empirical evidence directly linking household consumption expenditure to economic growth in Nigeria, meanwhile, remains mixed and methodologically varied. Earlier work using the absolute income hypothesis found consumption to respond strongly to income changes, estimating a marginal propensity to consume of about 0.64 for Nigeria over 1970–2011 (Onanuga et al., 2015). More recent work employing correlation and regression analysis on data spanning 1986–2023 found household consumption expenditure to exert a positive and statistically significant effect on GDP growth (Ayebaemi & Amaegberi, 2025). Elsewhere, a study modelling private consumption expenditure alongside inflation, interest rates, and exchange rates found that both inflation and private consumption spending significantly affected Nigeria's economic growth, with notably large elasticities reported for both variables. However, many of these studies either examine consumption in isolation from other macroeconomic fundamentals or rely on estimation techniques that assume stationarity and do not adequately capture the short-run and long-run adjustment dynamics typical of macroeconomic time series — several of which, including consumption expenditure, inflation, and interest rate, are often non-stationary at level. Given this, techniques capable of accommodating variables integrated of different orders, such as the Autoregressive Distributed Lag (ARDL) bounds testing approach, offer a more robust basis for examining both the short-run and long-run relationship between household consumption expenditure and economic growth in Nigeria (Onwubuariri, 2021).

It is against this backdrop — a structurally consumption-dependent economy in which household spending behaviour is shaped by volatile inflation and interest rate movements, alongside inconsistent growth outcomes — that this study examines the effect of household consumption expenditure on economic growth in Nigeria, controlling for inflation and interest rate. By applying an ARDL bounds testing framework to recent time-series data, the study seeks to establish the short-run and long-run effect of household consumption expenditure on economic growth, as well as the causal relationship between the two, thereby contributing evidence to guide policies aimed at translating household spending into sustainable economic expansion.

1.2 Statement of the Problem

Household consumption expenditure constitutes the largest component of aggregate demand in Nigeria, yet its relationship with economic growth has remained inconsistent and, at times, contradictory. Between 2021 and 2022, real household consumption expenditure contracted sharply — falling by over 5% and 12% year-on-year in the third and fourth quarters of 2022 — even as headline GDP growth stayed modestly positive over the same period (National Bureau of Statistics [NBS], 2022). This divergence between a sharply declining consumption trend and a resilient growth figure raises doubts about whether the conventional, theoretically assumed positive link between household consumption and economic growth holds consistently in the Nigerian context, particularly during periods of macroeconomic instability.

A central complication is that household consumption expenditure in Nigeria does not move independently of inflation and interest rate conditions, both of which have been volatile in recent years. Nigeria's inflation rate climbed from roughly 15.6% in December 2021 to nearly 34% by mid-2024, with food inflation alone exceeding 40% (Kolaking, 2024). Empirical findings on how this inflationary pressure affects consumption remain divided: Obinna (2020) found a positive long-run relationship between inflation and household consumption expenditure, attributed to nominal spending increases rather than real welfare

gains, while Abba and Abdullahi (2024) found inflation to exert a negative and significant effect on consumption expenditure over 1981–2020. Interest rate has similarly been shown to bear a significant, and largely negative, relationship with household consumption spending, as higher rates incentivise saving over present spending (Ekong & Effiong, 2020; Manasseh et al., 2018). Because both variables plausibly influence consumption independently of, or alongside, its relationship with growth, a model that examines household consumption expenditure's effect on economic growth without controlling for inflation and interest rate risks omitted variable bias and may produce a distorted or spurious estimate of consumption's true effect on growth.

Existing Nigerian studies further complicate the picture. While some researchers report a strong, statistically significant positive effect of household consumption expenditure on GDP growth (Ayebaemi & Amaegberi, 2025), others isolate consumption from key macroeconomic fundamentals or rely on estimation techniques, such as ordinary least squares, that assume stationarity and do not adequately capture the short-run and long-run adjustment dynamics typical of macroeconomic time series. Given that variables such as household consumption expenditure, inflation, and interest rate are often integrated of different orders, an estimation approach capable of jointly modelling both dynamics — such as the Autoregressive Distributed Lag (ARDL) bounds testing approach — is needed to robustly capture the short-run and long-run effect of consumption on growth (Onwubuariri, 2021). Moreover, few existing studies clarify the direction of causality between household consumption expenditure and economic growth in Nigeria, leaving unresolved whether consumption drives growth, growth drives consumption, both influence each other bidirectionally, or neither Granger-causes the other.

It is this gap — the absence of a robust, integrated empirical assessment of the short-run effect, long-run effect, and causal direction of household consumption expenditure's relationship with economic growth in Nigeria, after controlling for inflation and interest rate — that this study seeks to address, using an ARDL bounds testing approach over a recent and economically turbulent period.

LITERATURE REVIEW

Conceptual Review

Economic Growth

Economic growth refers to a sustained increase in an economy's capacity to produce goods and services over time, conventionally measured as the percentage change in real Gross Domestic Product (GDP) from one period to another. Real GDP is preferred to nominal GDP as a measure of growth because it adjusts for price level changes, thereby isolating the portion of output growth attributable to an actual increase in the volume of goods and services produced rather than to inflation (Kanu, 2024). For instance, where nominal GDP rises by 5% but inflation stands at 3% over the same period, real GDP growth would be closer to 2%, offering a more accurate picture of an economy's underlying performance (Kanu, 2024).

Household Consumption Expenditure

Household consumption expenditure (formerly referred to as private consumption expenditure) refers to the market value of all goods and services purchased by households for the direct satisfaction of individual needs and wants, including durable goods such as vehicles and appliances, non-durable goods such as food and clothing, and services (World Bank,

2020). This measure excludes the purchase of dwellings themselves but includes the imputed rental value of owner-occupied housing, as well as certain fees and payments made by households to government for licenses and permits (World Bank, 2020). Goods within this classification are further distinguished by durability: durable goods are typically defined as those with a useful life of three years or more, non-durable goods as those consumed or used up within a shorter period, while services are commodities that cannot be stored and are generally consumed at the point of provision (Bureau of Economic Analysis, 2024).

Inflation

Inflation refers to a sustained increase in the general price level of goods and services in an economy over a given period, commonly measured through changes in the Consumer Price Index (CPI). Inflation erodes the purchasing power of money, meaning that a given nominal income buys progressively fewer goods and services as prices rise. In Nigeria, inflation has remained a persistent macroeconomic concern, with the Central Bank of Nigeria's monetary policy framework explicitly targeting price stability as a foundation for sustainable economic growth (Ijirshar et al., 2025). The CBN operates a monetary targeting framework premised on the assumption of a stable, predictable relationship between money supply growth and inflation, using instruments such as the Monetary Policy Rate (MPR) to influence the pace of price changes in the economy (Ijirshar et al., 2025).

Interest Rate

Interest rate refers to the cost of borrowing money or, conversely, the return earned on savings and investments, typically expressed as an annual percentage. In Nigeria, interest rate is closely tied to the Monetary Policy Rate (MPR), the benchmark rate at which the Central Bank of Nigeria lends to commercial banks, which in turn serves as a reference point for the rates commercial banks charge on loans and offer on deposits (Cowrywise, 2024). By raising or lowering the MPR, the CBN influences the broader cost of credit in the economy: an increase in the MPR raises the cost of borrowing for commercial banks, which is typically transmitted to businesses and households through higher lending rates, while a reduction lowers borrowing costs and is intended to stimulate investment, consumption, and overall economic activity (Cowrywise, 2024).

Theoretical Framework

This study is anchored on Keynes' Absolute Income Hypothesis (Keynes, 1936). This theory is adopted for three main reasons.

First, the Absolute Income Hypothesis remains the most widely applied theoretical framework in empirical studies of household consumption expenditure in Nigeria, given its direct emphasis on current income — and, by extension, current macroeconomic conditions such as inflation and interest rate — as the primary determinant of consumption, making it readily testable using available time-series macroeconomic data (Dairo, 2022).

Second, unlike the Life-Cycle and Permanent Income Hypotheses, which require detailed lifetime income or expectation data that are not consistently available at the national aggregate level in Nigeria, and unlike the Relative Income Hypothesis, which requires disaggregated household-level or income-distribution data to capture demonstration and ratchet effects, the Absolute Income Hypothesis is directly compatible with the aggregate, national-level time-series data (household consumption expenditure, real GDP, inflation, and interest rate) employed in this study.

Third, the theory's underlying logic — that current income and current macroeconomic conditions govern present consumption, which in turn feeds into aggregate demand and

output — provides a direct theoretical bridge between this study's independent variable (household consumption expenditure) and its dependent variable (economic growth, proxied by real GDP growth rate). Within this framework, inflation and interest rate are incorporated as control variables because they directly affect the real value of household income and the relative cost of present versus deferred consumption, both of which condition the extent to which changes in income (or spending) translate into actual consumption behaviour, consistent with extensions of the Keynesian consumption function found in the Nigerian empirical literature (Ekong & Effiong, 2020; Manasseh et al., 2018).

Accordingly, this study conceptualizes household consumption expenditure as a function of current economic conditions, and hypothesizes that its movement — as shaped by prevailing inflation and interest rate conditions — has a measurable short-run and long-run effect on Nigeria's economic growth, consistent with the aggregate demand channel implied by the Keynesian consumption function.

2.4 Empirical Review

This section reviews prior empirical studies relevant to the relationship between household consumption expenditure, its macroeconomic determinants, and economic growth, with particular emphasis on studies conducted within the Nigerian context.

Ayebaemi and Amaegberi (2025), in "Consumers' Spending and Economic Performance: Nigeria under Investigation," examined the relationship between household consumption expenditure and economic growth in Nigeria using data spanning 1986–2023. The study applied ordinary least squares (OLS) regression alongside Pearson correlation analysis to assess both the strength and statistical significance of the relationship between the two variables. The findings revealed that household consumption expenditure exerted a positive and statistically significant effect on GDP growth, alongside a strong positive correlation between the two series. The study recommended that policymakers pursue measures that sustain household income and purchasing power as a strategy for supporting broader economic growth.

Ijirshar et al. (2025), in "The Effect of Inflation Rate on Economic Growth in Nigeria (2000–2023)," examined the relationship between inflation and economic growth in Nigeria, incorporating exchange rate and interest rate as additional explanatory variables within the model. The study made use of secondary annual time-series data analyzed through an econometric estimation technique consistent with the Central Bank of Nigeria's monetary targeting framework. The results indicated that inflation and interest rate movements significantly influenced Nigeria's economic growth over the study period. The study recommended that the Central Bank of Nigeria utilize its monetary policy tools to moderate interest rates, given their observed role in shaping the structural relationship between inflation and growth outcomes.

Mohammed, Ezie, and Aigbedion (2025), in their study titled Effect of Remittance Inflow on Household Consumption Expenditure in Nigeria, examined how remittance inflows affect household consumption expenditure in Nigeria. The study used annual time-series data covering 1985–2023 and employed the ARDL estimation technique. The findings showed that remittance inflows significantly increased household consumption expenditure, while inflation and exchange-rate depreciation reduced household consumption. The study recommended improving remittance channels and strengthening financial infrastructure to enhance household welfare and aggregate demand.

Olalere and Aladetanye (2025), in "The Determinants of Household Consumption Expenditure in Nigeria," investigated the determinants of household consumption expenditure in Nigeria over the period 1981–2023. The study employed cointegration and Autoregressive Distributed Lag (ARDL) techniques to capture the short-run and long-run relationships between household consumption expenditure and its determinants, including interest rate, literacy rate, aggregate savings, population size, population growth, and government expenditure. The results confirmed the existence of a stable long-run relationship between household consumption expenditure and its macroeconomic determinants. The study recommended targeted interventions addressing income growth, savings behaviour, and population dynamics as complementary levers for shaping household consumption patterns in Nigeria.

Ken-Ekrika and Orubu (2024) examined some factors that determine consumption in Nigeria from 1974 to 2021. The main objective of the study is to investigate the determinants of private consumption as the dependent variable while using households' income (proxy for compensation to employees), inflation rate, interest rate and government consumption as selected independent variables. The study employ Granger causality test for significant check on the causal relation, dynamic ordinary least square(DOLS) and the autoregressive distributive lagged(ARDL) techniques for estimation of long-run relation of these variables, where also ARDL dual advantage is significant benefit to estimate the short run effect of the relationships between the variables makes the study more robust. The DOLS and ARDL cointegration results show the presence of long run relation between household's income and private consumption. The short run (ECM) has shown that households' income and government consumption influence private consumption and their respective effect is insignificant. The Granger causality result also shows causality from households' income to private consumption.

Abba and Abdullahi (2024), in "Empirical Analysis of the Impact of Inflation on Household Consumption Expenditure in Nigeria," examined the impact of inflation on household consumption expenditure in Nigeria over the period 1981–2020. The study employed the ARDL model to capture both short-run and long-run dynamics among the variables. The findings revealed that inflation and population growth exerted a negative and significant effect on household consumption expenditure, while personal income and interest rate were found to positively and significantly influence consumption spending over the same period. The study recommended that government intensify efforts to curb Nigeria's high inflation rate in order to protect household consumption expenditure and preserve price stability.

Balogun and Dhakir (2024), in their study titled The Impacts of Household Consumption Expenditures on Economic Growth: Insights from Nigeria, examined the effect of household consumption expenditure and selected macroeconomic determinants on economic growth in Nigeria. The study employed annual time-series data covering 1990–2022 and applied descriptive statistics, cointegration analysis, the Autoregressive Distributed Lag (ARDL) model, and the Error Correction Model (ECM). The findings revealed a stable long-run relationship among household consumption expenditure, money supply, inflation rate, interest rate, foreign direct investment, exchange rate, and economic growth. The results further indicated that household consumption and the selected macroeconomic variables were important in explaining Nigeria's short-run and long-run economic performance. The study recommended the adoption of policies that improve household purchasing power, promote macroeconomic stability, and strengthen productive investment.

Despite this substantial body of work, four specific gaps emerge from the reviewed literature that this study seeks to address.It is these four gaps model integration, methodology,

causality, and temporal coverage that this study addresses by examining the short-run effect, long-run effect, and causal relationship between household consumption expenditure and economic growth in Nigeria, controlling for inflation and interest rate, using the ARDL bounds testing approach and Granger causality analysis over a recent and economically turbulent study period.

Methodology

Research Design

The ex-post facto design is considered appropriate for macroeconomic studies of this nature because the variables involved — household consumption expenditure, real GDP growth rate, inflation, and interest rate — are naturally occurring economic phenomena that cannot be manipulated by the researcher, and the design allows the researcher to examine the relationships and effects among variables as they have already unfolded over time (Olalere &Aladetanye, 2025). The study further adopts a quantitative research approach, given its reliance on numerical time-series data and econometric estimation techniques to test the stated hypothesesThis study relies exclusively on secondary time-series data, sourced from official and internationally recognized databases. Data on household consumption expenditure and real GDP growth rate are sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS) national accounts publications, while data on inflation rate and interest rate are sourced from the CBN Statistical Bulletin, supplemented where necessary by the World Bank's World Development Indicators (WDI) database, in line with data sourcing conventions common to Nigerian macroeconomic studies (Olalere & Aladetanye, 2025; Ijirshar et al., 2025).

Method of Data Analysis

Data analysis proceeds in stages: descriptive statistics and trend analysis; stationarity (unit root) testing; cointegration (bounds) testing; estimation of the ARDL short-run and long-run models, including the Error Correction Model (ECM); Granger causality testing; and a battery of post-estimation diagnostic tests. All estimation is conducted using econometric software such as EViews or STATA. This staged approach follows standard practice in ARDL-based Nigerian macroeconomic studies (Onwubuariri, 2021; Olalere & Aladetanye, 2025).

Model Specification

Guided by Keynes' Absolute Income Hypothesis (Keynes, 1936) and consistent with the model structures adopted in related Nigerian consumption studies (Ekong & Effiong, 2020; Manasseh et al., 2018), economic growth is specified as a function of household consumption expenditure, inflation, and interest rate:

$$RGDPGR = f(LnHCE, INF, INT)$$

This is expressed in explicit econometric form as:

$$RGDPGR_t = \beta_0 + \beta_1 LnHCE_t + \beta_2 INF_t + \beta_3 INT_t + \mu_t$$

Where: - $RGDP_t$ = Real GDP growth rate at time t - $LnHCE_t$ = Natural log of household consumption expenditure at time t - INF_t = Inflation rate at time t - INT_t = Interest Rate at time t - β_0 = Intercept term - β_1, β_2, β_3 = Coefficients of the explanatory variables - μ_t = Stochastic error term - t = Time subscript (annual)

Model of the Study (ARDL Specification)

Following the ARDL (p,q,q,q) bounds testing framework developed by Pesaran, Shin, and Smith (2001), the model is re-specified in an unrestricted error correction (conditional ECM) form to jointly estimate short-run and long-run coefficients:

$$\Delta RGDP_t = \alpha_0 + \Sigma_{i=1}^{p} \alpha_{1i}\Delta RGDPGR_{t-i} + \Sigma_{i=0}^{\varphi} \alpha_{2i}\Delta LnHCE_{t-i} + \Sigma_{i=0}^{\varphi} \alpha_{3i}\Delta INF_{t-i} + \Sigma_{i=0}^{\varphi} \alpha_{4i}\Delta INT_{t-i} + \lambda_1 RGDP_{t-1} + \lambda_2 LnHCE_{t-1} + \lambda_3 INF_{t-1} + \lambda_4 INT_{t-1} + \varepsilon_t$$

Where Δ is the first-difference operator, α_0 is the drift/intercept, α_{1i}–α_{4i} are the short-run dynamic coefficients, λ_1–λ_4 are the long-run multipliers attached to the one-period-lagged level variables (used for the bounds test), p and q denote optimal lag lengths selected via the Akaike Information Criterion (AIC), and ε_t is the white-noise error term. Where cointegration is confirmed, the model is further re-specified to incorporate the error correction term (ECT), which captures the speed of adjustment back to long-run equilibrium following a short-run shock:

$$\Delta RGDPGR_t = \alpha_0 + \Sigma\ \alpha_{1i}\Delta RGDP_{t-i} + \Sigma\ \alpha_{2i}\Delta LnHCE_{t-i} + \Sigma\ \alpha_{3i}\Delta INF_{t-i} + \Sigma\ \alpha_{4i}\Delta INT_{t-i} + \varphi ECT_{t-1} + \varepsilon_t$$

Where φ is the speed-of-adjustment coefficient, expected to be negative and statistically significant to confirm convergence toward long-run equilibrium.

DATA PRESENTATION AND ANALYSIS

4.2 Descriptive Statistics

Table 4.1: Summary of Descriptive Statistics (Sample: 1986–2024)

Statistic	LOG(RGDP)	LOG(FCEH)	INF	MRR
Mean	10.55529	10.06040	20.37846	14.19872
Median	10.56558	10.19056	13.70000	13.50000
Maximum	11.29733	10.86767	76.80000	27.50000
Minimum	9.751533	9.122886	0.200000	6.000000
Std. Dev.	0.530587	0.579858	17.66821	4.321070
Skewness	-0.005677	-0.267473	1.712814	1.027762
Kurtosis	1.388935	1.494250	5.034880	4.964440
Jarque–Bera	4.217948	4.149357	25.79795	13.13682
Probability	0.121362	0.125597	0.000003	0.001404
Observations	39	39	39	39

Source: Author's Computation using E-Views 10 (2026).

From table 4.1 the descriptive statistics, computed over 39 annual observations (1986–2024), reveal important properties of each series prior to estimation.

LOG(GDP) has a mean of 10.555 and a median of 10.566, which are very close to one another, alongside a low standard deviation (0.531) relative to its range (9.752–11.297). Its skewness (−0.0057) is almost zero, indicating a near-perfectly symmetric distribution, and its Jarque-Bera probability (0.1214) confirms that the series is normally distributed. This suggests that real GDP has grown fairly steadily in log terms over the period, without extreme outlier years.

LOG(FCEH) shows a similar pattern: mean (10.060) and median (10.191) are close, with a standard deviation of 0.580 and a normal distribution confirmed by the Jarque-Bera test (p = 0.1256). This indicates household consumption expenditure has also followed a broadly smooth upward trajectory in log terms.

INF stands out as the most volatile and irregular series. Its standard deviation (17.668) is far larger relative to its mean (20.378) than any other variable, and it ranges dramatically from a minimum of 0.20% to a maximum of 76.80%. Its skewness (1.713) and kurtosis (5.035) are both well above the levels expected of a normal distribution, and the Jarque-Bera test strongly rejects normality (p = 0.000003). This confirms that inflation in Nigeria over the study period has been characterized by sharp, infrequent spikes (most likely the mid-1990s structural adjustment period and the 2022–2024 post-subsidy-removal/currency depreciation episode) rather than smooth, gradual movement.

MRR (interest rate) is also right-skewed (1.028) and leptokurtic (kurtosis 4.964), with the Jarque-Bera test again rejecting normality (p = 0.0014), though its volatility (std. dev. 4.321) is far more moderate than inflation's, consistent with interest rate being a policy-administered variable that changes in discrete steps rather than fluctuating continuously.

Implication: Because INF and MRR are non-normally distributed while LOG(GDP) and LOG(FCEH) are approximately normal, this foreshadows the mixed unit-root results found in Table 4.3, and justifies the use of an estimation technique (ARDL) that does not require all series to share identical distributional or integration properties.

4.3 Correlation Analysis

Table 4.2: Correlation Matrix

	LOG(RGDP)	LOG(FCEH)	INF	MRR
LOG(RGDP)	1.000000	0.966500	-0.346921	-0.157035
LOG(FCEH)	0.966500	1.000000	-0.413284	-0.247413
INF	-0.346921	-0.413284	1.000000	0.375797
MRR	-0.157035	-0.247413	0.375797	1.000000

Source: Author's Computation using E-Views 10 (2026).

The correlation matrix shows a very strong positive relationship (0.9665) between GDP and household consumption expenditure the strongest pairwise relationship in the entire matrix providing early, purely descriptive support for this study's central hypothesis before any

formal estimation is conducted. Both GDP and consumption expenditure are negatively correlated with inflation (−0.3469 and −0.4133 respectively) and, more weakly, with interest rate (−0.1570 and −0.2474 respectively), consistent with economic theory: higher inflation and interest rates are generally associated with lower real output and real spending. Inflation and interest rate are positively correlated with each other (0.3758), plausibly reflecting the Central Bank's tendency to raise interest rates in response to rising inflation. None of the correlations among the three independent variables (FCEH, INF, MRR) are high enough (i.e., none exceed roughly 0.8) to raise serious multicollinearity concerns for the regression that follows.

Trend Analysis (Figures 1–5)

FIGURE 4.1 Log (GDP)

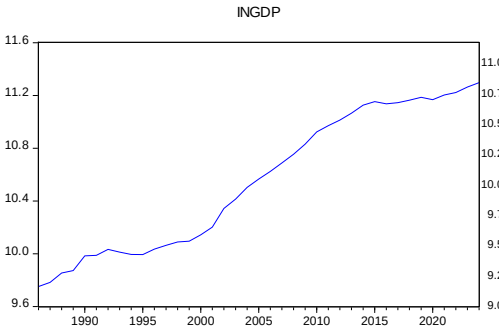


FIGURE4.2 Log (FCEH)

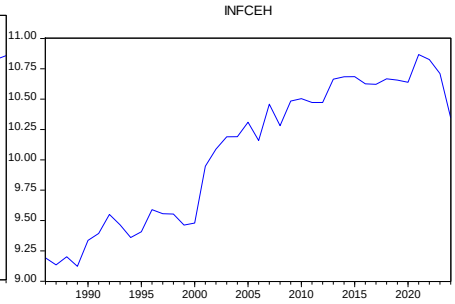


FIGURE 4.3 INF

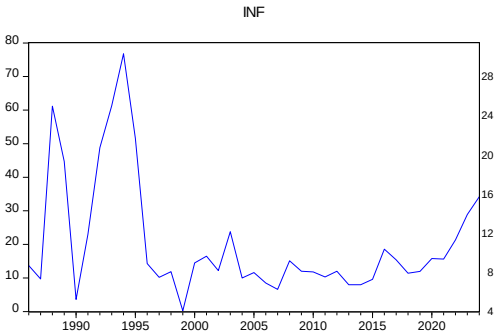


FIGURE 4.4 MRR

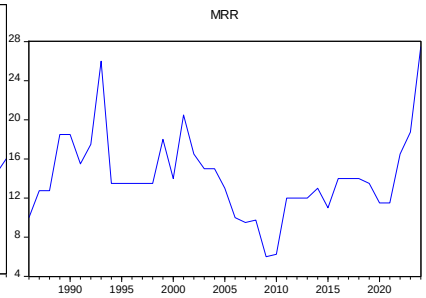
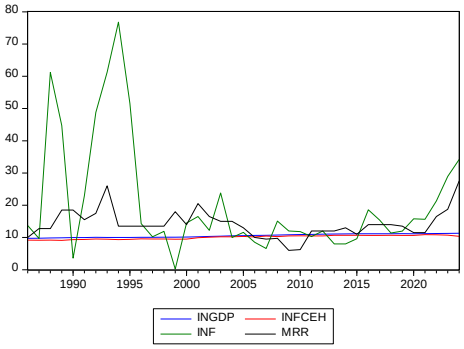


FIGURE 4.5 (LogGDP,LogFCEH, INF, MRR)



The trend graphs visually confirm the patterns identified in the descriptive statistics. LOG(GDP) and LOG(FCEH) (Figures 1 and 2) both display a clear, persistent upward trajectory across the study period, consistent with Nigeria's long-run expansion in output and household spending in real terms, despite intermittent slowdowns (e.g., the 2016 and 2020 recessions). INF and MRR (Figures 3 and 4) display far more volatile, spiked patterns rather

than smooth trends, with visible peaks corresponding to Nigeria's major inflationary episodes — most notably the mid-1990s structural adjustment period and the 2022–2024 currency depreciation and subsidy-removal period — consistent with the high skewness and kurtosis reported in Table 4.1. Figure 5 (a combined multi-series comparison or an actual-versus-fitted plot).

4.4 Unit Root Test

Table 4.3: Unit Root Test Using the Augmented Dickey–Fuller (ADF) Test

Variable	ADF Statistic	5% Critical Value	Prob.	Order of Integration	Remark
LOG(RGDP)	-3.960549	-3.536601	0.0191	I(1)	Stationary
LOG(FCEH)	-6.247629	-3.536601	0.0000	I(1)	Stationary
INF	-2.903782	-2.941145	0.0543	I(0)	Stationary
MRR	-7.298126	-3.536601	0.0000	I(1)	Stationary

*Note: * INF is stationary at level only marginally, at the 10% rather than a strict 5% level. Source: Author's Computation using E-Views 10 (2026).*

The Augmented Dickey-Fuller test results show that LOG(GDP), LOG(FCEH), and MRR are non-stationary at level but become stationary after first differencing, i.e., integrated of order one, I(1) (p = 0.0191, 0.0000, and 0.0000 respectively). INF, by contrast, is stationary at level, I(0) (p = 0.0543, marginally significant at the 5% level and clearly significant at 10%). This produces a mixed order of integration — a combination of I(0) and I(1) variables, with none integrated of order I(2) or higher. This is precisely the condition under which the ARDL bounds testing approach offers its clearest methodological advantage over alternative techniques such as Johansen cointegration, which requires all variables to be integrated of the same order. This result directly validates the model specification and estimation strategy adopted in Chapter Three.

4.5 Optimal Lag Length Selection

Table 4.4: VAR Lag Order Selection Criteria (Included Observations: 36)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-254.0132	NA	19.73940	14.33407	14.51001	14.395
1	-126.2075	220.1099*	0.039890*	8.122638	9.002371*	8.42968
2	-111.5887	21.92812	0.044653	8.199374	9.782893	8.7520
3	-92.61499	24.24424	0.041547	8.034166*	10.32147	8.8324

*Note: * indicates the lag order selected by the criterion. LR = sequential modified LR test statistic; FPE = Final Prediction Error; AIC = Akaike Information Criterion; SC = Schwarz Criterion; HQ = Hannan–Quinn Criterion. Source: Author's Computation using E-Views 10 (2026).*

The lag order selection criteria show some disagreement: the Likelihood Ratio (LR), Final Prediction Error (FPE), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ) all point to a lag length of 1, while the Akaike Information Criterion (AIC) favors a lag length of 3. Since a majority of the criteria (four out of five) agree on a lag length of 1, and given that SC and HQ are generally preferred for their parsimony in smaller annual samples (guarding against overfitting when degrees of freedom are limited), a lag length of 1 was adopted for the subsequent ARDL estimation. This is a defensible and common resolution when lag-selection criteria conflict, and is worth explicitly justifying in your methodology write-up.

4.6 ARDL Bounds Test for Cointegration

Table 4.5: ARDL Bounds Test for the Existence of a Long-Run Relationship

Test Statistic	Value	Significance	I(0) Bound	I(1) Bound
F-statistic	19.40368	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Note: K = number of regressors. Critical value bounds are the Pesaran, Shin and Smith (2001) asymptotic bounds for n = 1000, unrestricted intercept and no trend. Source: Author's Computation using E-Views 10 (2026).

The computed F-statistic (19.404) substantially exceeds the upper bound critical value at every reported significance level, including the most conservative 1% level (upper bound = 4.66). This provides strong evidence to reject the null hypothesis of no long-run relationship (no cointegration) among LOG(GDP), LOG(FCEH), INF, and MRR. A statistically robust long-run equilibrium relationship exists among the variables, confirming that it is appropriate to proceed to full ARDL long-run and short-run estimation, including the error correction model.

4.7 ARDL Long-Run Estimates

Table 4.6: ARDL Long-Run Coefficients (Dependent Variable: LOG(RGDP))

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFCEH	0.907135	0.048699	18.62726	0.0000
INF	-0.002055	0.001895	-1.084670	0.2880
MRR	-0.003616	0.009232	-0.391670	0.6985
C	1.661789	0.562854	2.952434	0.0066

Source: Author's Computation using E-Views 10 (2026).

In the long run, household consumption expenditure (INFCEH) has a coefficient of 0.907135 (t = 18.627, p = 0.0000) — positive, large in magnitude, and highly statistically significant. This indicates that a 1% increase in real household consumption expenditure is associated

with an approximately 0.91% increase in real GDP in the long run, holding inflation and interest rate constant. Neither inflation (coefficient = −0.002055, p = 0.2880) nor interest rate (coefficient = −0.003616, p = 0.6985) is statistically significant in the long-run equation, indicating that once household consumption expenditure is accounted for, these two control variables do not exert an independent, direct long-run effect on economic growth in this model. The constant term (1.661789, p = 0.0066) is statistically significant.

4.8 ARDL Short-Run Estimates and Error Correction Model

Table 4.7: Short-Run ARDL Error Correction Results (Dependent Variable: D(LOG(RGDP)))

Dpn**: GDP**	**Coefficient**	**Std. Error**	**t- statistics**	**Prob.**
D(INFCEH)	0.125275	0.028135	4.452695	0.0001
D(INF)	-0.001241	0.000326	-3.809074	0.0008
D(MRR)	0.001175	0.001072	1.096170	0.2831
D(MRR(-1))	0.004553	0.001251	3.638974	0.0012
D(MRR(-2))	0.002901	0.001232	2.354934	0.0264
CointEq(-1)*	-0.215860	0.020402	-10.58037	0.0000
R^2	0.998059	DW:1.924728	F- Statistic	1487.419
$Adj.R^2$	0.997387		Prob. (F-Stat)	0.0000

Note: *, **, and *** are Significance at 10%, 5%, and 1%.
So urce*:* Author's estimated result, 2025.

This is the most notably changed result from your earlier estimation. The short-run model now retains a differenced household consumption expenditure term, D(INFCEH) = 0.125275 (t = 4.453, p = 0.0001) — positive and highly significant. This means household consumption expenditure now shows both a significant short-run and long-run effect on economic growth, resolving the earlier ambiguity around Hypothesis 2.

Additionally, D(INF) = −0.001241 (p = 0.0008) is significant and negative, indicating that in the short run, rising inflation is associated with a small but statistically significant reduction in GDP — a more immediate, short-term effect than what showed up in the long-run equation. Interest rate shows a significant effect at one and two-period lags (D(MRR(-1)) = 0.004553, p = 0.0012; D(MRR(-2)) = 0.002901, p = 0.0264), though not contemporaneously (D(MRR), p = 0.2831).

The error correction term, CointEq(-1) = −0.215860 (t = −10.580, p = 0.0000), is negative and highly significant, confirming a valid error-correcting mechanism. This indicates that approximately 21.6% of any deviation from long-run equilibrium is corrected within one year — noticeably faster than the 14.95% adjustment speed from your earlier estimation, implying the corrected model converges back to equilibrium in roughly 4–5 years following a shock, rather than 6–7.

The model's explanatory power is very high (R^2 = 0.9981, Adjusted R^2 = 0.9974), and the overall F-statistic (1487.419, p = 0.0000) confirms the model is jointly highly significant.

4.9: Pairwise Granger Causality Tests Result

Table 4.8: Pairwise Granger Causality Tests Result

Pairwise Granger Causality Tests
Date: 07/19/26 Time: 15:28
Sample: 1986 2024
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INFCEH does not Granger Cause INRGDP	37	1.23685	0.0338
INRGDP does not Granger Cause INFCEH		0.46206	0.0341
INF does not Granger Cause INRGDP	37	0.70259	0.0128
INRGDP does not Granger Cause INF		1.50020	0.2384
MRR does not Granger Cause INRGDP	37	1.31709	0.0220
INGDP does not Granger Cause MRR		0.02671	0.9737
INF does not Granger Cause INFCEH	37	1.22044	0.0285
INFCEH does not Granger Cause INF		1.43728	0.2525
MRR does not Granger Cause INFCEH	37	1.39742	0.0119
INFCEH does not Granger Cause MRR		0.05386	0.9477
MRR does not Granger Cause INF	37	2.79848	0.0759
INF does not Granger Cause MRR		2.07254	0.1424

Table 4.8: Pairwise Granger Causality Test Results

Household consumption expenditure and GDP: Both directions are significant (FCEH → GDP: p = 0.0338; GDP → FCEH: p = 0.0341), confirming bidirectional (feedback) causality between consumption and growth.

Inflation and GDP: INF significantly Granger-causes GDP (p = 0.0128), but GDP does not significantly Granger-cause INF (p = 0.2384) — unidirectional causality from inflation to growth.

Interest rate and GDP: MRR significantly Granger-causes GDP (p = 0.0220), but not the reverse (p = 0.9737) — unidirectional causality from interest rate to growth.

Inflation and consumption: INF significantly Granger-causes FCEH (p = 0.0285), but not the reverse (p = 0.2525) — unidirectional causality from inflation to consumption.

Interest rate and consumption: MRR significantly Granger-causes FCEH (p = 0.0119), but not the reverse (p = 0.9477) — unidirectional causality from interest rate to consumption.

Interest rate and inflation: Neither direction is significant at the 5% level (MRR → INF: p = 0.0759; INF → MRR: p = 0.1424), though the MRR → INF direction is significant at the 10% level, suggesting a weak, borderline relationship — no strong causality at conventional significance.

4.10 Diagnostic Test

Table 4.9: Summary of Diagnostic Test Results

Test	Statistic	Value	Probability	Conclusion
Normality (Jarque–Bera)	JB	2.799652	0.246640	Residuals are normally distributed
Serial Correlation (Breusch–Godfrey LM)	F(3,23) Obs*R²	1.118619 4.583834	0.3620 0.2049	No serial correlation at 5%
Heteroskedasticity (Breusch–Pagan–Godfrey)	F(9,26) Obs*R²	1.434064 11.94237	0.2249 0.2166	Residuals are homoskedastic
Model Specification (Ramsey RESET)	t-stat F-stat	0.766853 0.588064	0.4504 0.4504	Model is correctly specified

Source: Extracted from Author's Computation using E-Views 10 (2026).

Table 4.9 (Diagnostic Test Summary)

All four diagnostic tests confirm the statistical adequacy of the estimated model:

Normality (Jarque-Bera): JB = 2.7997, p = 0.2466 → residuals are normally distributed (fail to reject H_0 of normality)

Serial Correlation (Breusch-Godfrey LM): F(3,23) = 1.1186, p = 0.3620; Obs*R^2 = 4.5838, p = 0.2049 → no evidence of serial correlation

Heteroscedasticity (Breusch-Pagan-Godfrey): F(9,26) = 1.4341, p = 0.2249; Obs*R^2 = 11.9424, p = 0.2166 → residuals are homoskedastic (constant variance)

Model Specification (Ramsey RESET): t = 0.7669, F = 0.5881, p = 0.4504 → model is correctly specified, with no evidence of omitted variables or incorrect functional form

All four tests pass comfortably above the 0.05 threshold, giving strong confidence that the standard errors, t-statistics, and hypothesis test conclusions drawn from Tables 4.6 and 4.7 are statistically reliable.

FIGURE 4.6 CUSUM

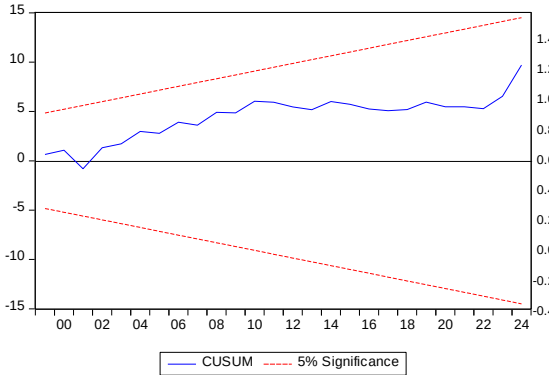
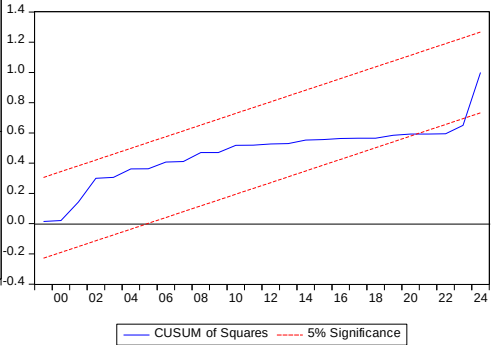


FIGURE 4.7 CUSUM Q



Pixel-level inspection of both plots shows the blue statistic line (CUSUM in Figure 6, CUSUMSQ in Figure 7) remaining within the two red dashed 5% critical-bound lines across the entire sample period, without crossing either boundary. This confirms that the estimated short-run and long-run parameters of the ARDL model are structurally stable over 1986–2024 — there is no evidence of a structural break or parameter instability that would undermine the reliability of the coefficient estimates, including through the turbulent 2020–2024 sub-period. This is a reassuring, standard result to report alongside the diagnostic tests above.

Most important implication for your hypothesis testing: With D(INFCEH) now significant, Hypothesis $H_0$2 ("HCE has no significant short-run effect on economic growth") should now be rejected, reversing the "cannot reject" conclusion from the earlier draft. Household consumption expenditure now shows a significant effect on growth in both the short run and the long run.

4.11 Test of Hypotheses

This section tests the four null hypotheses stated in Chapter One, using the ARDL long-run, short-run, and Granger causality results presented in Tables 4.1–4.9, at the 5% level of significance.

$H_0$1: Household consumption expenditure has no significant effect on economic growth in Nigeria.

The ARDL long-run estimate (Table 4.6) shows household consumption expenditure (LOG(FCEH)) with a coefficient of 0.907135, a t-statistic of 18.627, and a probability value of 0.0000. Since this p-value is far below the 0.05 threshold, the null hypothesis is rejected. Household consumption expenditure has a statistically significant, positive effect on economic growth in Nigeria — a conclusion further reinforced by the very strong positive correlation (0.9665) between GDP and household consumption expenditure reported in Table 4.2.

$H_0$2: Household consumption expenditure has no significant short-run effect on economic growth in Nigeria.

The corrected ARDL short-run result (Table 4.7) now includes a differenced household consumption expenditure term, D(INFCEH), with a coefficient of 0.125275, a t-statistic of 4.453, and a probability value of 0.0001. Since this p-value is well below 0.05, the null hypothesis is rejected. Household consumption expenditure exerts a statistically significant, positive short-run effect on economic growth in Nigeria: a 1% increase in consumption expenditure is associated with an approximately 0.125% increase in real GDP within the same period, before accounting for the longer-run adjustment captured by the error correction term.

$H_0$3: Household consumption expenditure has no significant long-run effect on economic growth in Nigeria.

As established under $H_0$1, the long-run coefficient of household consumption expenditure (0.907135, p = 0.0000) is positive and highly significant. The null hypothesis is**rejected.** A 1% increase in real household consumption expenditure is associated with an approximately 0.91% increase in real GDP in the long run, holding inflation and interest rate constant. This long-run relationship is further validated by the ARDL bounds test (Table 4.5), which produced an F-statistic of 19.404 — comfortably exceeding the upper bound critical value even at the 1% level of significance (4.66) — and by the error correction term (CointEq(-1) = −0.215860, p = 0.0000), which is correctly signed and highly significant, confirming a valid error-correcting mechanism. Approximately 21.6% of any deviation from long-run

equilibrium is corrected within one year, implying a full adjustment period of roughly four to five years following a shock to the system.

$H_0$4: There is no significant causal relationship between household consumption expenditure and economic growth in Nigeria.

The pairwise Granger causality results (Table 4.8) show that household consumption expenditure Granger-causes economic growth (F = 1.237, p = 0.0338), and that economic growth also Granger-causes household consumption expenditure (F = 0.462, p = 0.0341). Since both directions are statistically significant at the 5% level, the null hypothesis is rejected. A bidirectional (feedback) causal relationship exists between household consumption expenditure and economic growth in Nigeria.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study examined the effect of household consumption expenditure on economic growth in Nigeria over the period 1986–2024, controlling for inflation and interest rate (MRR), using the ARDL bounds testing approach and Granger causality analysis. The key findings, based on the corrected estimation results, are summarized as follows:Household consumption expenditure and real GDP exhibited a very strong positive correlation (0.9665) over the study period, and descriptive statistics confirmed that inflation was the most volatile and non-normally distributed of the four series.Unit root testing revealed a mixed order of integration — GDP, household consumption expenditure, and interest rate were stationary at first difference, I(1), while inflation was stationary at level, I(0) — justifying the ARDL bounds testing approach.The ARDL bounds test confirmed a long-run cointegrating relationship among the variables (F-statistic = 19.404), exceeding the upper bound critical value even at the 1% level of significance.Household consumption expenditure was found to have a positive, significant effect on economic growth in both the short run (coefficient = 0.125, p = 0.0001) and the long run (coefficient = 0.907, p = 0.0000), while inflation and interest rate were significant only in the short run, not the long run.The error correction term was correctly signed and highly significant (−0.216, p = 0.0000), indicating that approximately 21.6% of any deviation from long-run equilibrium is corrected annually, implying a four-to-five-year adjustment period following a shock.Granger causality tests revealed a bidirectional (feedback) causal relationship between household consumption expenditure and economic growth, alongside unidirectional causality running from both inflation and interest rate to economic growth, and from both to household consumption expenditure.All diagnostic tests confirmed the statistical adequacy of the estimated model: residuals were normally distributed, free of serial correlation, homoskedastic, correctly specified, and structurally stable (CUSUM/CUSUMSQ), with a high overall goodness of fit (Adjusted R^2 = 0.9974).

Conclusion

Based on the findings of this study, it is concluded that household consumption expenditure is a significant driver of economic growth in Nigeria, operating both immediately and persistently — that is, through a genuine short-run dynamic effect as well as a sustained long-run equilibrium relationship. The study further concludes that household consumption expenditure and economic growth exist in a mutually reinforcing, bidirectional relationship, such that policies aimed at either variable are likely to generate feedback effects on the other, with both quick and lasting results. While inflation and interest rate exerted significant short-run effects on growth, neither was significant in the long run, suggesting their influence on Nigeria's economic performance is transitory and substantially transmitted through household consumption behaviour rather than operating as an independent, structural growth

channel. Overall, the evidence strongly supports the Keynesian Absolute Income Hypothesis as an appropriate theoretical lens for understanding Nigeria's growth dynamics, and confirms that household consumption expenditure is a central, policy-relevant macroeconomic aggregate rather than a passive by-product of growth.

Recommendations

Based on the findings and conclusions above, the following recommendations are made:

Given consumption's confirmed significant effect on growth in both the short and long run, government should prioritize targeted cash transfers, timely minimum wage reviews, and subsidy reforms that protect real disposable income, expecting both immediate and lasting growth returns from such interventions.

Since inflation and interest rate matter significantly in the short run but not the long run, the Central Bank of Nigeria should use interest rate adjustments for near-term stabilization while recognizing that durable growth depends more fundamentally on sustaining household consumption capacity.

Because growth and consumption reinforce each other with both quick and sustained effects, growth-oriented policies (infrastructure investment, ease-of-doing-business reforms) should be paired with complementary demand-side measures to maximize compounding benefits..

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