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Multidimensional Policy Volatility and Economic Growth in Nigeria: Short-Run Dynamics and Long-Run Equilibrium Relationships

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Abstract

Macroeconomic policy uncertainty remains a major challenge to economic growth in Nigeria, where fluctuations in monetary conditions, government fiscal operations, trade openness, and exchange rates can influence investment decisions, production costs, and aggregate demand. This study examines the short-run dynamics and long-run equilibrium relationships between multidimensional policy volatility and economic growth in Nigeria. Specifically, it evaluates the effects of monetary policy rate volatility, money supply volatility, government expenditure volatility, government revenue volatility, trade openness volatility, and exchange-rate volatility on economic growth. The study adopts an autoregressive distributed lag (ARDL) framework to distinguish immediate and lagged effects from long-run relationships. The reported estimates reveal that monetary policy rate volatility has a negative and statistically significant association with growth in both the short and long run, whereas money supply volatility has a positive and statistically significant association in both periods. Government expenditure volatility has a negative significant lagged short-run effect but a positive significant long-run relationship with growth. Government revenue volatility exhibits a positive and significant long-run relationship, although its reported short-run coefficients are statistically insignificant. Trade openness volatility has a negative and significant lagged short-run coefficient but an insignificant long-run relationship. Exchange-rate volatility exhibits significant short-run effects with opposing signs across contemporaneous and lagged terms, alongside a positive and statistically significant long-run coefficient. These findings indicate that the growth implications of policy volatility differ across policy dimensions and over time. The study highlights the importance of predictable monetary management, credible fiscal planning, and coordinated trade and exchange-rate policies in strengthening Nigeria's growth performance.

Keywords: *Economic Growth; Multidimensional Policy Volatility; Short-Run Dynamics; Long-Run Equilibrium; ARDL.*

1. INTRODUCTION

Economic growth remains a central objective of macroeconomic management across the world because sustained increases in real output create opportunities for employment generation, income improvement, poverty reduction, and higher living standards. However, the achievement of sustained growth depends not only on the availability of productive resources, technological advancement, and institutional capacity but also on the consistency and credibility of government economic policies. Monetary, fiscal, trade, and exchange-rate policies influence aggregate demand, investment decisions, production costs, international competitiveness, and the allocation of resources within an economy. When these policies are predictable and appropriately coordinated, they can strengthen confidence and support investment and output expansion. Conversely, frequent policy changes, inconsistent policy signals, or substantial fluctuations in policy instruments may increase uncertainty, weaken private-sector confidence, delay investment, and disrupt economic activity. The International Monetary Fund (IMF, 2024) highlighted the risks that elevated policy uncertainty, financial-market volatility, and increasing trade tensions pose to global economic prospects. This relationship makes policy volatility an important consideration in understanding variations in economic growth, particularly in developing economies that are vulnerable to external shocks and changes in international financial conditions.

At the global level, the interaction between economic growth and policy volatility has become

increasingly important amid geopolitical tensions, changing trade arrangements, persistent inflationary pressures, and uncertainty surrounding the direction of monetary and fiscal policies. The IMF's (2024) World Economic Outlook Update projected global growth of 3.2% in 2024 and 3.3% in 2025, while warning that persistent services inflation and rising trade-policy uncertainty complicated the normalization of monetary policy (IMF, 2024). These conditions illustrate how policymakers must balance competing objectives, including price stability, employment, investment, fiscal sustainability, and external competitiveness. For example, abrupt changes in interest rates can affect borrowing costs and private investment, while unpredictable fiscal measures may influence household consumption and firms' expectations. Similarly, shifts in trade policy can alter market access, supply chains, and production costs, while exchange-rate fluctuations may affect imported inputs, export earnings, and the real value of external obligations. Although policy adjustments may be necessary to respond to changing economic conditions, frequent or poorly coordinated changes can make it difficult for businesses and investors to plan effectively. Consequently, the relevant issue is not simply whether governments intervene in the economy, but whether policy changes are credible, consistent, well-coordinated, and conducive to sustainable growth.

In Africa, the relationship between economic growth and policy volatility is particularly significant because many economies remain exposed to commodity-price fluctuations, exchange-rate pressures, limited fiscal space, external financing constraints, and structural weaknesses in production and export diversification. The African Development Bank's African Economic Outlook 2025 projected that Africa's economic growth would increase from 3.3% in 2024 to 3.9% in 2025 and 4.0% in 2026, while emphasizing the effects of geopolitical uncertainty, changing global trade policies, and reduced development assistance on the continent's economic prospects (African Development Bank [AfDB], 2025). Similarly, the World Bank (2025) projected Sub-Saharan African growth of 3.5% in 2025 and 4.3% in 2026–2027, but noted that this performance would remain insufficient to substantially reduce poverty and meet the region's development needs. These projections demonstrate that positive aggregate growth does not necessarily imply that economies have achieved sufficiently strong, stable, or inclusive growth.

Nigeria provides an important setting for examining these relationships because its economic performance is closely linked to changes in monetary conditions, government expenditure, public revenue, trade openness, and exchange-rate movements. Despite its substantial natural and human resources, the Nigerian economy has experienced persistent challenges involving inflation, exchange-rate instability, fiscal constraints, infrastructure deficits, and inadequate diversification. These challenges can make the transmission of economic policies to production, investment, and employment complex. The IMF (2024) observed that weak growth, high inflation, and security challenges had contributed to worsening poverty and food insecurity in Nigeria, while emphasizing the importance of consistent and well-sequenced reforms for achieving faster and more inclusive growth. The World Bank's Nigeria Development Update similarly reported that reforms introduced since May 2023—including changes to fuel-price subsidies and foreign-exchange arrangements—were intended to restore macroeconomic stability, although they also created short-term pressures for households and businesses (World Bank, 2024). This experience highlights the potential trade-off between the immediate adjustment costs of economic reforms and their expected longer-term benefits.

Recent economic developments further demonstrate the importance of examining policy changes in relation to Nigeria's growth performance. According to the World Bank (2025), Nigeria's real GDP grew by 3.4% in 2024, while growth in the fourth quarter reached 4.6% year-on-year. The improvement was supported by developments in the services sector and changes in the broader macroeconomic environment. Nevertheless, the World Bank stressed that growth needed to become more broad-based and translate more effectively into improved living standards. Its October 2025 assessment reported that growth reached 3.9% year-on-year in the first half of 2025, alongside continuing concerns about food inflation, poverty, and structural barriers to inclusive development (World Bank, 2025). These developments suggest that growth performance should be assessed not only in terms of aggregate output expansion but also in relation to the stability of the macroeconomic environment in which production and investment take place.

Within this context, multidimensional policy volatility refers to fluctuations over time in key policy instruments or policy-related economic indicators across monetary, fiscal, trade, and exchange-rate dimensions. In this study, monetary policy rate volatility (MPRV) and money supply volatility (M2V) capture fluctuations in monetary conditions; government expenditure volatility (GEXV) and government revenue volatility (GRVV) represent the fiscal dimension; trade-openness volatility (OPPNV) reflects fluctuations in the trade-related measure adopted in the study; and exchange-rate volatility (EXRV) captures variations in exchange-rate conditions. These dimensions may influence economic growth through different, and sometimes opposing, mechanisms. Monetary volatility may affect borrowing costs and investment planning, fiscal volatility may influence aggregate demand and the predictability of public investment, trade-related volatility may affect external market opportunities, and exchange-rate volatility may influence production costs and international competitiveness. The combined effect may depend on the magnitude, duration, direction, and coordination of policy changes, as well as the economy's institutional capacity to manage adjustment costs.

Although existing institutional assessments document the relationship between macroeconomic reforms, stability, and Nigeria's growth prospects, an important empirical question remains: do monetary, fiscal, trade, and exchange-rate volatility exhibit significant short-run and long-run relationships with economic growth when examined within a common analytical framework? Considering these policy dimensions separately may overlook their interconnected effects, since changes in one instrument can influence the effectiveness of others. For example, monetary tightening may have different growth implications depending on fiscal conditions and exchange-rate developments, while changes in government spending may interact with inflation and private-sector credit conditions. Furthermore, a policy variable that is associated with lower output in the short run may exhibit a different relationship over a longer horizon. An integrated assessment is therefore useful for distinguishing immediate adjustment effects from longer-term associations.

Against this background, this study evaluates the short-run dynamic and long-run equilibrium relationships between multidimensional policy volatility—monetary, fiscal, trade, and exchange-rate volatility—and economic growth in Nigeria. Using the autoregressive distributed lag (ARDL) framework, the analysis investigates the individual relationships of the selected volatility measures with economic growth across different time horizons. The study is intended to contribute to the Nigerian macroeconomic literature by bringing these policy dimensions together in one empirical framework and by identifying whether their relationships with growth differ between the short run and long run. The findings are expected to provide evidence relevant to policy coordination, macroeconomic management, and the design of measures aimed at promoting more stable and sustainable economic growth in Nigeria.

2. Literature Review

2.1.1 Economic Growth

The scope of the definition of the concepts of economic growth varies considerably across scholars. Economic growth refers to a sustained increase in the quantity of goods and services produced within an economy over time. It is commonly measured by the percentage change in real gross domestic product (GDP), which adjusts for price changes or by real GDP per capita when the objective is to assess changes in average economic output relative to population. According to the World Bank (2024), GDP growth measures changes in the value of economic output at constant prices, while GDP per capita provides an indication of output per person. Economic growth is important because it can expand employment opportunities, increase household incomes, strengthen government revenue, and improve the resources available for public services.

The determinants of economic growth include capital accumulation, labour productivity, technological progress, human capital development, institutional quality, and macroeconomic stability. Investment in physical infrastructure, education, healthcare, and productive technology can increase the economy's capacity to produce goods and services. Conversely, persistent inflation, unpredictable monetary policy, unstable exchange rates, and poorly coordinated fiscal measures may increase production costs, discourage private investment, and create uncertainty for businesses. International Monetary Fund (2024) emphasised the importance of restoring macroeconomic stability, improving the

business environment, strengthening governance, and raising productivity to support stronger and more inclusive growth. These considerations are particularly relevant to the present study because monetary, fiscal, trade, and exchange-rate volatility may influence economic growth through their effects on investment, production, trade, and aggregate demand.

For this study, economic growth is conceptualised as the change in Nigeria's real economic output in response to macroeconomic conditions and policy uncertainty. The distinction between short-run and long-run growth relationships is important because policy volatility may produce immediate effects that differ from its cumulative effects over time. For example, a monetary policy adjustment may initially increase borrowing costs, while its longer-term implications may depend on whether it helps stabilise inflation and strengthen confidence. Similarly, fiscal fluctuations may temporarily stimulate demand but create longer-term uncertainty about public investment and financing. Accordingly, examining the short-run dynamics and long-run equilibrium relationships between multidimensional policy volatility and economic growth provides a framework for assessing how these different policy conditions are associated with Nigeria's economic performance.

2.1.2 Policy Volatility

Scholars differ considerably in their definitions and conceptualisations of economic growth. Policy volatility refers to the degree of fluctuation, instability, or unpredictability in government policy instruments and policy-related economic measures over time. In macroeconomic management, it can arise when monetary, fiscal, trade, or exchange-rate instruments experience substantial changes in magnitude or direction within a particular period. The Central Bank of Nigeria (CBN, 2025) and the International Monetary Fund (IMF, 2025) emphasize the importance of credible policy frameworks, clear communication, and appropriate coordination in managing macroeconomic adjustments and financial-market pressures.

Policy volatility can be examined across several dimensions of macroeconomic policy. Monetary policy volatility refers to fluctuations in policy-related monetary instruments, such as the monetary policy rate and money supply, which influence borrowing costs, liquidity, inflation, and investment. Fiscal policy volatility concerns fluctuations in government expenditure and revenue, potentially affecting aggregate demand, public investment, business expectations, and fiscal sustainability. Trade policy volatility arises from changes in trade-related measures or conditions that affect imports, exports, tariffs, and access to international markets. Exchange-rate volatility refers to the extent of variation in the domestic currency’s value relative to foreign currencies. These dimensions may interact: for example, exchange-rate depreciation may contribute to imported inflation and prompt monetary tightening, while changes in government spending may affect liquidity and aggregate demand (Olasehinde-Williams et al. 2024; Orisdare & Olofin, 2024).

In the context of this study, policy volatility is conceptualised as fluctuations in selected monetary, fiscal, trade, and exchange-rate indicators that may influence Nigeria’s economic growth over time. Specifically, monetary policy rate volatility (MPRV), money supply volatility (M2V), government expenditure volatility (GEXV), government revenue volatility (GRVV), trade-openness volatility (OPPNV), and exchange-rate volatility (EXRV) represent the dimensions incorporated into the empirical analysis. Their effects may differ between the short run and the long run because immediate adjustments in borrowing costs, prices, public spending, and exchange rates may differ from their longer-term effects on investment, productivity, and resource allocation. Accordingly, policy volatility should be assessed empirically rather than assumed to have a uniformly positive or negative effect on growth. Its interpretation must also reflect how each volatility measure is constructed: fluctuations in a policy instrument do not, by themselves, establish that government policy is inconsistent or ineffective. This conceptual understanding provides the basis for examining the short-run dynamics and long-run relationships between multidimensional policy volatility and economic growth in Nigeria.

2.2 Theoretical Review

The study is anchored on the Keynesian Uncertainty Theory which is associated with the ideas of

John Maynard Keynes, a British economist whose analysis of uncertainty, expectations, investment, and economic fluctuations was developed in The General Theory of Employment, Interest and Money (1936) and further clarified in his article, The General Theory of Employment (1937). In particular, Keynes (1937) explained that investment decisions depend heavily on expectations about future returns, even though the future cannot always be predicted using reliable probabilities. This perspective distinguishes fundamental uncertainty from measurable risk and provides a theoretical basis for understanding why changes in economic conditions and policy expectations can influence investment, output, and employment.

The Keynesian perspective on uncertainty rests on several interconnected propositions. First, the future is fundamentally uncertain: economic agents cannot always calculate the probability of future events because relevant information may be incomplete or unavailable. Second, investment decisions depend on expectations and confidence. When firms are uncertain about future demand, interest rates, taxation, government spending, trade conditions, or exchange rates, they may postpone investment until the economic outlook becomes clearer. Third, uncertainty can influence liquidity preference and precautionary behaviour, as households and businesses may prefer to hold liquid assets rather than commit resources to long-term investments. Fourth, changes in investment and consumption can affect aggregate demand, output, and employment because these components of expenditure are important determinants of economic activity. Finally, the theory recognises a role for government policy in stabilising the economy, although poorly coordinated, unpredictable, or frequently changing policies may weaken confidence and undermine the effectiveness of policy interventions. Keynes's analysis therefore suggests that economic fluctuations can arise not only from changes in actual economic conditions but also from changes in expectations and confidence about the future.

The Keynesian Uncertainty Theory is relevant to this study on the short-run dynamics and long-run relationships between multidimensional policy volatility and economic growth in Nigeria because it explains how fluctuations in policy-related economic indicators may affect the expectations, confidence, and investment decisions of economic agents. Monetary policy rate volatility (MPRV) and money supply volatility (M2V) may influence borrowing costs, liquidity, and investment planning. Government expenditure volatility (GEXV) and government revenue volatility (GRVV) may affect the predictability of public investment, aggregate demand, and private-sector expectations. Similarly, trade-openness volatility (OPPNV) and exchange-rate volatility (EXRV) may create uncertainty regarding market access, imported input costs, export earnings, and the returns to investment. Where such fluctuations discourage investment or delay production decisions, aggregate demand and economic growth may weaken. Conversely, credible policy adjustments that restore macroeconomic stability may strengthen confidence and support growth over time.

The theory also provides a useful basis for distinguishing between the short-run and long-run effects of policy volatility. In the short run, unexpected policy changes may generate adjustment costs, disrupt investment plans, and affect output. Over a longer period, however, the consequences may depend on whether policy adjustments establish a more stable macroeconomic environment or perpetuate uncertainty. This distinction supports the study's use of the autoregressive distributed lag (ARDL) framework to examine both short-run dynamics and long-run relationships.

2.3 Empirical Review

Building on the conceptual and theoretical discussions, the empirical review examines previous studies on policy volatility and economic growth to identify their key findings, methodological approaches, areas of agreement or disagreement, and research gaps that the present study seeks to address. Olasehinde-Williams et al. (2024) investigated the effects of interest-rate volatility on economic growth in Nigeria using annual data for 1981–2020. The study employed the Quantile Autoregressive Distributed Lag (QARDL) model to estimate short-run and long-run relationships across different conditional quantiles of economic growth. Granger causality tests were also conducted to examine predictive relationships among the variables. The results revealed that interest-rate volatility negatively affected economic growth in both the short run and long run. The adverse short-run effect was stronger when the economy was performing relatively poorly, while the long-run adverse effect was greater at higher growth quantiles. The study argued that interest-rate instability undermines investment decisions by making expected returns less predictable and potentially weakening savings, borrowing, investment,

and stock-market performance.

In addition to their findings on exchange-rate volatility, Iliyasu et al. (2024) provide evidence that changes in money supply and previous exchange-rate fluctuations are important contributors to exchange-rate instability. Their causality results indicate feedback between exchange-rate volatility and monetary and financial variables.

Similarly, Adebayo and Omotayo (2026) examined the relationship between public financial management and economic growth in Nigeria using annual data covering 1981–2024. The study focused on government expenditure, public debt, and revenue mobilisation. Using an ex-post facto research design and the ARDL framework, the study examined both short-run dynamics and long-run equilibrium relationships. The bounds test confirmed cointegration among the variables. The long-run results showed that government revenue had a positive and statistically significant effect on economic growth. Government expenditure had a negative but statistically insignificant coefficient at the 5% level, while public debt had a positive but statistically insignificant coefficient. Most short-run fiscal effects were also insignificant at the 5% level, although the contemporaneous revenue effect was marginally significant at the 10% level.

Also, Ojo and Afolabi (2023) investigated the relationship and causal links between trade openness and economic growth in Nigeria over the period 1986–2021. Their study employed the ARDL model and Granger causality tests, with exchange rate, investment, and government expenditure included as control variables. The findings revealed that trade openness exerted a statistically significant negative effect on economic growth in the short run. In the long run, its effect became positive but statistically insignificant. The causality results indicated a unidirectional positive long-run causal relationship between economic growth and trade openness, while the joint lagged short-run effect was statistically insignificant.

In the same vein, Gimba et al. (2025) examined the relationship between trade openness and economic growth in Nigeria, focusing on the moderating role of exchange-rate volatility. The study used quarterly data covering 2002–2022 and employed ARCH/GARCH modelling and ARDL analysis. The results indicated that exports had a positive and statistically significant effect on economic growth when exchange-rate volatility was incorporated into the relationship. The study also reported a negative and statistically significant effect of imports in the moderated relationship. These findings suggest that the interaction between trade flows and exchange-rate volatility may influence whether international trade contributes positively or negatively to economic performance.

More so, Orisdare and Olofin (2024) investigated the effect of exchange-rate volatility on productivity in Nigeria. The researchers employed annual time-series data and used Johansen and bounds cointegration tests to establish long-run relationships among the variables, followed by the Autoregressive Distributed Lag (ARDL) model for estimation. Their findings indicated that exchange-rate volatility negatively affected productivity in both the short run and long run. Financial development also exhibited a negative relationship with productivity, which the authors associated with the limited capacity of the financial system to transmit resources effectively to the real sector.

On the contrary, Abdulhamid et al. (2024) examined the effect of exchange-rate shocks on economic growth in Nigeria, with particular attention to the asymmetric effects of exchange-rate movements. The researchers employed the Bootstrap Autoregressive Distributed Lag (BARDL) approach to investigate the short-run and long-run relationships between exchange rates and economic growth. The bootstrap bounds test confirmed the existence of a long-run relationship between the variables. The findings further revealed an inverted U-shaped relationship in the short run, indicating that an initially positive effect of exchange-rate shocks on growth changed into a negative effect by the second lag. The study also found that currency depreciation could constrain short-run economic growth, although it might improve external trade competitiveness.

The existing evidence underscores the importance of examining individual policy dimensions while recognising their interaction within the wider economy. The present study builds on this literature by considering monetary, fiscal, trade, and exchange-rate volatility in one empirical framework and comparing their short-run and long-run relationships with economic growth.

3. Methodology

The study adopts an ex post facto research design and a quantitative time-series approach to investigate the relationship between multidimensional policy volatility and economic growth in Nigeria. The study's broader empirical context covers annual observations from 1990 to 2025. The data sources identified for the research include the Central Bank of Nigeria (CBN) and the World Development Indicators (WDI). This study employed statistical and econometric methods for data presentation and analyses. The statistical methods were; tables graphs, mean, median and standard deviation. In addition, the study employed other econometrics techniques such as; Augmented Dickey Fuller Test (ADF) for unit root testing. GARCH modeling technique was used to obtain the conditional fluctuations values from the estimated variance equation of the GARCH model as developed by Bollerslev (1986) and advanced by Nelson (1991). The GARCH model is considered suitable to measure the volatility because it provides a rich class of possible parameterizations of heteroskedasticity. The estimated GARCH model was used to generate the various policy volatility series used for the study.

The GARCH (p, q) model is specified thus;

$$X_t = \alpha_0 + \beta' Y_t + \mu_t \quad \text{.....(3.1)}$$

In the above mean equation, X_t = Individual time series data of the variables of interest while Y_t is a (k x 1) vector of explanatory variables and it includes also autoregressive terms of the dependent variables. The initial condition is assumed to be:

$$\mu_t \sim iid \;\; N(0, \sigma_t^2) \quad \text{.....(3.2)}$$

Where,

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{p} \lambda_i \sigma_{t-i}^2 + \sum_{j=1}^{q} \gamma_j \mu_{t-j}^2 + \sum_{k=1}^{n} \beta_k Y_k \quad \text{.....,(3.3)}$$

Equation 3.3 is the variance equation, which states that the value of the variance scaling parameter σ_t^2 depends on both its past values captured by lagged σ_t^2 terms and on the lagged squared residuals terms. While Y_k is a set of explanatory variables that might help to explain the variance equation. Thus, the generalized GARCH (p,q) model for the conditional variance is:

$$\ln(\sigma_t^2) = \alpha + \sum_{i=i}^{p} \lambda_i \ln(\sigma_{t-i}^2) + \sum_{k=1}^{n} \beta_k Y_k + \sum_{j=1}^{q} \left[\omega_j \frac{|\mu_{t-j}|}{|\sigma_{t-j}|} + \theta_j \frac{\mu_{t-j}}{\sigma_{t-j}} \right] \text{- - - - - - - - - - - - - -} \quad (3.4)$$

Where,

$\alpha, \lambda_i, \beta_k, \omega_j \text{ and } \theta_j$ are parameters to be estimated. Therefore, the left hand side being of the conditional variance, implies that the leverage effect is exponential not quadratic, hence, the estimates of the conditional variance are positive.

To identify the long run equilibrium relationship between policy volatility and economic growth, the Autoregressive Distributed Lag (ARDL) bounds testing approach developed by Pesaran, Shin, and Smith (2001) was employed. The unrestricted error correction model (UECM) is thus specified as thus;

$$LogGDP_t = \beta_0 + \beta_1 \log(GDP)_{t-i} + \beta_2 MPRV_{t-i} + \beta_3 \log(M2V)_{t-i} + \beta_4 \log(GEXV)_{t-i} + \beta_5 \log(GRVV)_{t-i} + \beta_6 OPPNV_{t-i} +$$

Where;

GDP = Gross Domestic Product (proxies for Economic Growth)

MPRV = Monetary Policy Volatility

M2V = Money Supply Volatility

GEXV = Government Expenditure Volatility

GRVV = Government Revenue Volatility

OPPNV = Trade Openness Volatility

EXRV= Exchange Rate Volatility

β_O = intercept or constant term;

β_1- β_7 = long -run coefficients

π_1- π_7 = short-run coefficients

εt = Error term with the assumption of zero mean and constant variance.

4. Results and Discussion

This section presents and discusses the empirical results of the study, focusing on the unit root test, long-run and short-run dynamics relationships between multidimensional policy volatility—monetary, fiscal, trade, and exchange-rate volatility—and economic growth in Nigeria, with the findings interpreted in relation to the study's objective, theoretical framework, and existing empirical evidence.

4.1 Unit Root Test Results

To examine the stationarity properties of the variables, the study employed the Augmented Dickey-Fuller (ADF) test. The results of this analysis, which indicate whether the series are stationary, are presented in Table 4.1.

Table 4.1: ADF Unit Root Test Result

Variables	ADF Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value	Prob.	Order of Integration
ΔGDP	-5.834361	-3.653730	-2.957110	-2.617434	0.0000	I(1)
ΔMPR	-7.338187	-3.639407	-2.951125	-2.614300	0.0000	I(1)
ΔM2	-4.399022	-3.661661	-2.960411	-2.619160	0.0015	I(1)
ΔEXR	-4.450684	-3.639407	-2.951125	-2.614300	0.0012	I(1)
ΔGEX	-11.02279	-3.661661	-2.960411	-2.619160	0.0000	I(1)
ΔGRV	-6.183263	-3.653730	-2.957110	-2.617434	0.0000	I(1)
OPPN	-2.972313	-3.632900	-2.948404	-2.612874	0.0475	I(0)

Source: Author's Computation using E-Views 9.0 Version (2025)

Table 4.1 presents the results of the Augmented Dickey–Fuller (ADF) unit root test conducted to determine the stationarity properties of the variables used in examining the relationship between policy uncertainty and economic growth in Nigeria. The decision is based on the reported p-values and the ADF test statistics relative to their corresponding critical values. At the 5% significance level, a variable is considered stationary if its p-value is less than 0.05 or its test statistic is more negative than the corresponding critical value. The results show that GDP, MPR, M2, EXR, GEX and GRV become stationary after first differencing, as their reported ADF statistics are more negative than their respective 5% critical values and their probability values are below 0.05. These results indicate that the variables are stationary at first difference, suggesting that they are integrated of order one, I(1). In contrast, trade openness (OPPN) is reported as stationary at level, or I(0). The ADF statistic for OPPN is −2.972313, with a probability value of 0.0475, indicating stationarity at the 5% level. Therefore, the results suggest a mixture of I(0) and I(1) variables. This combination is generally compatible with the ARDL bounds-testing approach, provided that none of the variables is integrated of order two, I(2).

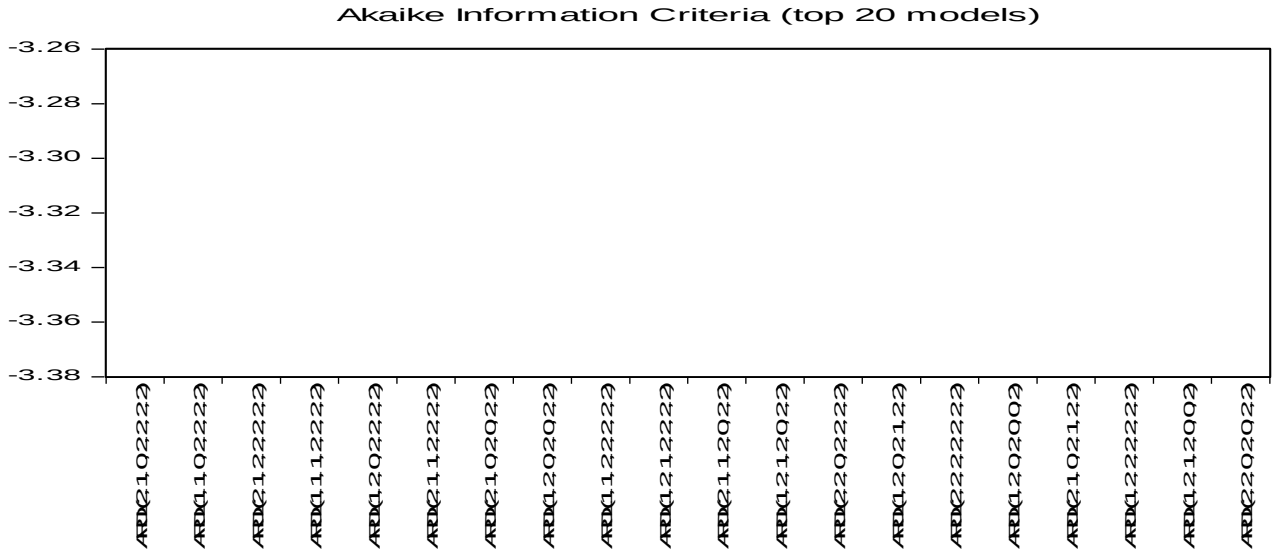
4.2 Presentation and Analysis of the ARDL Estimated Model

The estimated results of the Autoregressive Distribution lag (ARDL) model are presented and interpreted in this section. It begins with ARDL optimal lag selection criteria follows by Bounds Test to

Co-integration, long-run and short-run coefficients.

4.2.1 ARDL Optimal Lag Selection

Akaike Information Criterion (AIC) was used to select the optimal lag for the ARDL models estimation. The graph of the optimal model selection summary is presented in figure 1.



Source: Author's Computation using E-Views 9.0 Version (2026)

Figure 1: AIC Graph Showing Optimal Model Selection Summary

Figure 1 provides an evaluation of the twenty primary ARDL model configurations analyzed within this research. The ARDL (2, 1, 0, 2, 2, 2, 2) structure was eventually identified and chosen as the most suitable framework for the empirical inquiry. Furthermore, the illustration emphasizes the performance of various alternative models, demonstrating their comparative efficiency in reducing the Akaike Information Criterion (AIC) to its lowest value.

4.2.2 ARDL Bounds Test

The ARDL Bounds test approach to co-integration was employed to investigate if the variables used in the model of the study which sought to determine the relationship between policy uncertainty and economic growth co integrate or move together in the long-run. The choice of this approach was premised on the fact that, the series used for the study were of mixed order of integration. The ARDL Bound test result is presented in table 4.2

Table 4.2: ARDL Bound Test to Co-integration

Test Statistic	Value	K
F-statistic	4.483195	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Author's Computation using E-Views 9.0 Version (2026)

The Autoregressive Distributed Lag (ARDL) bounds test was conducted to determine whether a long-run equilibrium relationship exists among the variables included in the model. The result presented in Table 4.2 shows that the calculated F-statistic is 4.483195, with six explanatory variables (k=6). The calculated F-statistic is compared with the lower-bound (I(0)) and upper-bound (I(1)) critical values at different levels of significance. At the 10% significance level, the upper-bound critical value is 3.23, while at the 5% level, it is 3.61. Since the calculated F-statistic of 4.483195 is greater than the upper-bound critical

value of 3.61 at the 5% significance level, the null hypothesis of no co-integration is rejected. This indicates that a statistically significant long-run equilibrium relationship exists among the variables in the model. The result provides evidence that the dependent variable and its explanatory variables move together in the long run, despite possible short-run fluctuations. Consequently, the ARDL model is appropriate for estimating both the short-run dynamics and long-run relationships among the variables. The existence of co-integration also implies that short-run deviations from the long-run equilibrium may be corrected over time, provided that the estimated error-correction coefficient is negative and statistically significant.

4.2.3 ARDL Long Run Coefficients

It was established that a long relationship exists between the endogenous and exogenous variables; hence ARDL long-run coefficients were estimated to examine the long-run coefficients of exogenous variables so as to determine the magnitude of the effect of policy uncertainty on economic growth in Nigeria and the result in presented in table 4.3.

Table 4.3 ARDL Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MPRV	-0.022575	0.006753	-3.342842	0.0053
M2V	0.094708	0.028515	3.321390	0.0055
GEXV	0.305443	0.053579	5.700805	0.0001
GRVV	0.180235	0.045084	3.997762	0.0015
OPPNV	0.003867	0.004890	0.790739	0.4433
EXRV	0.183655	0.026400	6.956663	0.0000

Source: Author's Computation using E-Views 9.0 Version (2026)

Table 4.3 presents the estimated long-run relationship between economic growth (GDP) and monetary policy rate volatility (MPRV), money supply volatility (M2V), government expenditure volatility (GEXV), government revenue volatility (GRVV), openness volatility (OPPNV), and exchange rate volatility (EXRV). The coefficients indicate the direction and magnitude of the long-run relationships, while the probability values determine their statistical significance.

Monetary Policy Rate Volatility (MPRV) coefficient is negative (−0.022575), with a t-statistic of −3.342842 and a probability value of 0.0053. Since the probability value is less than 0.05, monetary policy rate volatility has a statistically significant negative relationship with economic growth in the long run. This suggests that greater fluctuations in the monetary policy rate may undermine economic growth by increasing uncertainty, raising borrowing costs, discouraging private investment, and making business planning more difficult. Therefore, instability in monetary policy rates may constrain Nigeria's long-run economic performance.

Money Supply Volatility (M2V) coefficient is positive (0.094708), with a t-statistic of 3.321390 and a probability value of 0.0055. This indicates a statistically significant positive long-run relationship between money supply volatility and economic growth at the 5% significance level. Given the logarithmic specification, a 5% increase in M2V is associated with approximately a 0.0947% increase in GDP in the long run, holding other variables constant. This positive association may reflect circumstances in which changes in money supply support liquidity, credit availability, and productive investment. However, the result does not necessarily imply that greater volatility is beneficial, because its effect may depend on whether monetary expansion supports production or generates inflationary pressures.

Government Expenditure Volatility (GEXV) coefficient of (GEXV) is positive (0.305443), with a t-statistic of 5.700805 and a probability value of 0.0001. This shows that government expenditure volatility has a statistically significant positive long-run relationship with economic growth. Specifically, a 1% increase in GEXV is associated with approximately a 0.3054% increase in GDP, other things being equal. One possible explanation is that fluctuations in government expenditure may coincide with periods of increased public investment in infrastructure, education, healthcare, and other productive sectors. Nevertheless, this finding should not be interpreted as evidence that expenditure instability necessarily promotes growth; the positive coefficient may reflect the composition and timing of government spending.

Government Revenue Volatility (GRVV) coefficient is positive (0.180235), with a t-statistic of 3.997762 and a probability value of 0.0015. The result indicates a statistically significant positive long-run relationship between government revenue volatility and economic growth. In elasticity terms, a 1% increase in GRVV is associated with approximately a 0.1802% increase in GDP, holding other variables constant. This may reflect periods when fluctuations in government revenue arise from increased oil receipts, stronger economic activity, or improved revenue mobilisation that enables the government to finance productive expenditure. However, the result does not establish that revenue instability itself causes economic growth. Greater predictability in revenue collection may still be important for effective fiscal planning.

Openness Volatility (OPPNV) coefficient is positive (0.003867), with a t-statistic of 0.790739 and a probability value of 0.4433. Since the probability value exceeds 0.05, the relationship between openness volatility and economic growth is statistically insignificant. Although the estimated coefficient suggests a positive association, there is insufficient statistical evidence to conclude that OPPNV has a meaningful long-run relationship with GDP in the model. This may indicate that fluctuations in openness have no consistent long-run association with economic growth over the study period, or that their effects depend on other factors, such as export diversification, domestic productive capacity, and trade policy conditions.

Exchange Rate Volatility (EXRV) coefficient is positive (0.183655), with a t-statistic of 6.956663 and a probability value of 0.0000. This indicates a statistically significant positive long-run relationship between exchange rate volatility and economic growth. The coefficient implies that a 1% increase in EXRV is associated with approximately a 0.1837% increase in GDP, holding other variables constant. One possible explanation is that exchange rate movements may coincide with periods of increased export earnings, adjustments that improve the competitiveness of domestic producers, or changes in economic activity. However, exchange rate volatility can also increase import costs, inflationary pressures, and uncertainty.

4.2.4 ARDL Short-Run Coefficients

ARDL estimation revealed short-run coefficients to establish the short-run dynamics and to ascertain the speed of converges to the long-run equilibrium. The result of ARDL short-run dynamics is presented in table 4.4.

Table 4. 4: ARDL Short-Run Dynamics

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPR(-1)	0.093756	0.097317	0.963410	0.3529
MPRV	-0.012041	0.001958	-6.150951	0.0000
M2V	0.023175	0.008439	2.746324	0.0167
GEXV	0.032454	0.020985	1.546533	0.1460
GEXV(-1)	-0.061642	0.025288	-2.437596	0.0299
GRVV	0.023475	0.014260	1.646242	0.1237
GRVV(-1)	-0.025081	0.017260	-1.453146	0.1699
OPPNV	-0.000869	0.000961	-0.903723	0.3826
OPPNV(-1)	-0.003139	0.001135	-2.765254	0.0161
EXRV	0.015498	0.005655	2.740598	0.0168
EXRV(-1)	-0.020352	0.005182	-3.927704	0.0017
CointEq(-1)	-0.244701	0.047781	-5.121321	0.0002

Source: Author's Computation using E-Views 9.0 Version (2026)

Table 4.4 presents the short-run dynamics of the relationship between economic growth (GDP) and policy volatility in Nigeria. The explanatory variables include monetary policy rate volatility (MPRV), money supply volatility (M2V), government expenditure volatility (GEXV), government revenue volatility (GRVV), openness volatility (OPPNV), and exchange rate volatility (EXRV). The coefficients indicate the

direction and magnitude of the short-run relationships, while the probability values determine their statistical significance.

The coefficient of lagged economic growth GDPR (-1) is positive at 0.093756, with a probability value of 0.3529. Since the probability exceeds the 5% significance level, the coefficient is statistically insignificant. This suggests that the previous period's economic growth does not have a statistically significant direct effect on current economic growth in the estimated short-run model. Although the positive coefficient suggests some persistence in growth, the evidence is insufficient to establish such an effect statistically.

The coefficient of Monetary Policy Rate Volatility (MPRV) is negative at −0.012041, with a t-statistic of −6.150951 and a probability value of 0.0000. This indicates a statistically significant negative short-run relationship between monetary policy rate volatility and economic growth at the 1% significance level. The result suggests that increases in monetary policy rate volatility are associated with lower economic growth in the short run. Frequent or unpredictable changes in the monetary policy rate may increase borrowing costs, discourage private investment, and create uncertainty for businesses. This finding highlights the potential importance of monetary policy consistency in promoting economic stability and growth in Nigeria.

The coefficient of Money Supply Volatility (M2V) is positive at 0.023175, with a t-statistic of 2.746324 and a probability value of 0.0167. Since the probability is below 0.05, the relationship is statistically significant at the 5% level. This indicates that money supply volatility has a positive short-run association with economic growth. An increase in M2V is associated with an increase in GDP, holding other variables constant. One possible explanation is that changes in money supply may improve liquidity and credit availability, thereby supporting consumption, investment, and production.

The contemporaneous coefficient of Government Expenditure Volatility (GEXV) is positive at 0.032454, with a probability value of 0.1460. Since this exceeds 0.05, the coefficient is statistically insignificant. This suggests that government expenditure volatility has no statistically established immediate relationship with economic growth in the model. The positive sign may indicate that changes in government spending are associated with increased economic activity, but the evidence is insufficient to establish a significant short-run effect. However, the lagged coefficient of GEXV(-1) is negative at −0.061642, with a probability value of 0.0299. This indicates a statistically significant negative relationship between government expenditure volatility in the previous period and current economic growth at the 5% level. The finding suggests that expenditure fluctuations may have adverse effects on growth after a time lag, possibly through disruptions to budget implementation, delayed projects, uncertainty in public investment, or inefficient allocation of public resources. Thus, while the immediate effect is statistically insignificant, the lagged effect indicates that expenditure volatility may constrain economic growth over time.

The contemporaneous coefficient of Government Revenue Volatility (GRVV) is positive at 0.023475, with a probability value of 0.1237. This indicates a positive but statistically insignificant short-run relationship with economic growth. Therefore, there is insufficient evidence that current government revenue volatility significantly influences GDP in the short run. Similarly, the lagged coefficient of GRVV(-1) is negative at −0.025081, with a probability value of 0.1699. Since the probability exceeds 0.05, the lagged effect is also statistically insignificant. Although the negative coefficient may suggest that previous-period revenue volatility is associated with lower current growth, this relationship is not statistically established. Overall, the results do not provide sufficient evidence of a significant short-run effect of government revenue volatility on economic growth, either immediately or with a one-period lag.

The contemporaneous coefficient of Openness Volatility (OPPNV) is negative at −0.000869, with a probability value of 0.3826. This coefficient is statistically insignificant, suggesting that current openness volatility does not have a statistically established immediate relationship with economic growth. In contrast, the lagged coefficient of OPPNV(-1) is negative at −0.003139, with a probability value of 0.0161. This indicates a statistically significant negative short-run relationship at the 5% level. The result suggests that openness volatility in the previous period is associated with lower current economic growth. In the Nigerian context, fluctuations in trade openness may create uncertainty for import-dependent businesses, disrupt access to intermediate goods, and complicate production and investment decisions. The significant lagged coefficient suggests that the adverse association may emerge after the initial period rather than immediately.

The contemporaneous coefficient of Exchange Rate Volatility (EXRV) is positive at 0.015498, with a probability value of 0.0168. This indicates a statistically significant positive short-run relationship between exchange rate volatility and economic growth at the 5% level. The positive coefficient suggests that increases in exchange rate volatility are associated with higher GDP in the current period, holding other variables constant. Possible explanations include periods in which exchange rate movements coincide with improved export competitiveness, increased naira-denominated export earnings, or broader economic adjustments. Nevertheless, exchange rate volatility may also increase the cost of imported inputs and create uncertainty for investors, so the positive coefficient should not be interpreted as proof that volatility itself promotes growth. The lagged coefficient of EXRV(-1) is negative at −0.020352, with a probability value of 0.0017. This indicates a statistically significant negative relationship at the 1% level. The result suggests that exchange rate volatility in the previous period is associated with lower current economic growth. This may reflect delayed increases in import costs, inflationary pressures, production costs, and uncertainty affecting investment decisions. Taken together, the positive contemporaneous and negative lagged coefficients suggest that the short-run relationship between exchange rate volatility and economic growth changes over time.

The error-correction (CointEq(-1)) coefficient is negative at −0.244701, with a t-statistic of −5.121321 and a probability value of 0.0002. The coefficient has the expected negative sign and is statistically significant at the 1% level. This confirms that deviations from the long-run equilibrium are corrected over time and supports the existence of a stable adjustment mechanism in the estimated ARDL model. This implies that about 24.47% of the disequilibrium is corrected each year. The remaining disequilibrium is gradually eliminated as the economy adjusts towards its long-run path. The result indicates that the adjustment process is not instantaneous but occurs progressively over time.

4.4 Discussion of Findings

The ARDL results provide evidence that the relationship between policy volatility and economic growth in Nigeria differs across policy dimensions and over time. In particular, the findings reveal that monetary policy rate volatility (MPRV) has a statistically significant negative relationship with economic growth in both the short run and the long run. These results indicate that fluctuations in the monetary policy rate are associated with reduced economic growth over both time horizons. The negative relationship can be explained by the uncertainty that frequent or unpredictable monetary policy changes create for businesses, investors and financial institutions. When the policy rate fluctuates considerably, firms may find it difficult to forecast borrowing costs, assess investment profitability and plan long-term production. This can discourage capital formation and weaken aggregate economic activity. The result is particularly relevant to Nigeria, where firms depend on bank credit to finance working capital and investment. The finding agrees with Olasehinde-Williams, Omotosho, and Bekun (2024) who found that interest rate volatility adversely affected economic performance in both the short run and the long run. They also found that the adverse short-run effect was more pronounced when economic conditions were relatively weak. The agreement between the two studies strengthens the argument that monetary instability can constrain economic growth in Nigeria.

In addition, the ARDL results indicate that money supply volatility (M2V) has a statistically significant positive relationship with economic growth in both the short run and the long run. The positive relationship may reflect episodes in which changes in money supply accompany increased liquidity, expanded credit availability or monetary accommodation of rising economic activity. In an economy where firms face financing constraints, an expansion in liquidity may support consumption, investment and production. A useful comparison is provided by Iliyasu, Ibrahim, and Musa (2024), whose study of monetary policy and exchange rate volatility in Nigeria found that changes in money supply and previous exchange rate fluctuations helped explain exchange rate volatility, demonstrating the interconnectedness of monetary conditions and exchange rate dynamics.

On the other hand, fiscal policy volatility is represented by government expenditure volatility (GEXV) and government revenue volatility (GRVV). The findings show that these two indicators exhibit different short-run dynamics but statistically significant positive long-run relationships with economic growth. This suggests that expenditure volatility has no statistically established immediate relationship with growth, but its lagged effect is associated with lower economic performance. The delayed negative relationship may reflect disruptions to budget execution, uncertainty in public investment, interrupted projects and inefficient allocation of public resources. In contrast, the long-run coefficient of GEXV is positive and

significant. This suggests that, over the long horizon, expenditure volatility is positively associated with economic growth, conditional on the other variables in the model. One possible explanation is that fluctuations in public spending coincide with periods of increased infrastructure investment or expansionary fiscal intervention. Adebayo and Omotayo (2026), in their study of public financial management and economic growth in Nigeria found that government revenue had a positive and statistically significant long-run relationship with growth, while government expenditure had a negative but statistically insignificant long-run coefficient. Their findings partially agree with the present study regarding the importance of revenue for long-run growth, but differ regarding government expenditure.

In the vein, government revenue volatility has a positive but statistically insignificant contemporaneous short-run coefficient and an insignificant negative lagged coefficient. This implies that the short-run evidence does not establish a significant relationship between GRVV and economic growth. In the long run, however, the coefficient is positive and significant. This result may reflect the importance of Nigeria's revenue structure, particularly the possibility that periods of higher or more variable public revenue coincide with improved economic activity or increased capacity to finance public expenditure. Nevertheless, greater revenue volatility may also complicate budget planning and public service delivery. Adebayo and Omotayo (2026) provide partial support for this result because they identify a positive and significant long-run relationship between government revenue and economic growth. However, their findings concern revenue levels rather than revenue volatility, so the two results are related but not directly equivalent.

The findings further reveal that, openness volatility (OPPNV) has an insignificant contemporaneous short-run relationship with economic growth. However, its one-period lag has a negative and statistically significant coefficient. In the long run, the coefficient is positive but statistically insignificant. These results suggest that trade-related instability may exert a delayed negative association with economic growth without establishing a statistically significant long-run relationship. The negative lagged coefficient may reflect the exposure of Nigerian firms to fluctuations in international trade conditions, import costs, foreign exchange availability and access to intermediate goods. Businesses that depend on imported machinery and production inputs may experience higher costs or disruptions when trade conditions change unpredictably. These effects may not be fully reflected in output immediately but can emerge in subsequent periods. This finding is consistent with Ojo and Afolabi's (2023) study of trade openness and economic growth in Nigeria, which reported a significant negative short-run effect of trade openness on economic growth, while the long-run coefficient was positive but insignificant. Gimba, Omale, and Anaba (2025) also examined the relationship between trade openness and economic growth in Nigeria and found that exports had a positive significant relationship with growth when moderated by exchange rate volatility, whereas imports had a negative significant relationship. Their results suggest that the growth implications of international trade depend partly on the nature of trade flows and exchange rate conditions.

More so, exchange rate volatility (EXRV) displays a significant but changing relationship with economic growth across the two time horizons. The contemporaneous short-run coefficient is positive, while the lagged coefficient is negative. The long-run coefficient is positive and significant a5%. These results suggest that the immediate association between exchange rate volatility and economic growth is positive, but the relationship becomes negative after one period before turning positive in the long-run estimates. The positive contemporaneous relationship may reflect episodes in which exchange rate adjustments coincide with higher naira-denominated export earnings or improved competitiveness for certain domestic producers. However, the negative lagged relationship may capture the delayed effects of exchange rate instability through higher import costs, imported inflation, uncertainty in investment decisions and increases in production costs. Hence, it cannot be interpreted as evidence that persistent exchange rate instability necessarily promotes economic growth. The short-run and long-run results differ from Orisdare and Olofin (2024), who examined exchange rate volatility and productivity in Nigeria and found that exchange rate volatility negatively affected productivity in both the short run and the long run. Similarly, Abdulhamid et al. (2024), in their study of exchange rate shocks and growth performance in Nigeria found evidence of a long-run cointegrating relationship between exchange rate and economic growth.

5. Conclusion and Recommendations

In line with findings of the study, it was concludes that multidimensional policy volatility is an important consideration in understanding economic growth in Nigeria, but its effects are neither uniform nor consistently adverse across every policy instrument and time horizon. Monetary policy rate volatility exhibited a persistent negative relationship with aggregate economic growth, while money supply volatility had a positive estimated relationship with economic growth. Fiscal volatility produced different short-run and long-run associations, and trade openness volatility did not exhibit a statistically significant long-run relationship with aggregate growth. Exchange-rate volatility showed contrasting short-run and long-run effects.

Based on the study's findings, the following recommendations are proposed.

1. The Central Bank of Nigeria should strengthen the transparency and consistency of monetary policy decisions through clearer forward guidance, timely communication, and a more predictable policy framework. Monetary policy changes should be supported by clear explanations of the underlying economic conditions and expected transmission channels. This recommendation follows from the negative short-run and long-run relationships between monetary policy rate volatility and aggregate economic growth.

2. Monetary authorities and financial-sector regulators should improve the transmission of monetary policy to productive businesses, particularly small and medium-sized enterprises and agricultural producers. Measures should include improved access to affordable credit, stronger financial intermediation, and monitoring of how changes in monetary conditions affect lending rates and productive investment.

3. The Federal Government should strengthen medium-term expenditure planning, budget credibility, procurement transparency, and timely project implementation. Greater emphasis should be placed on protecting productive capital expenditure, including infrastructure, electricity, transport, irrigation, and industrial support facilities.

4. Government should broaden non-oil revenue sources, improve tax administration, strengthen compliance, and develop more reliable revenue forecasts. Fiscal buffers and prudent revenue-management arrangements should be used to reduce the need for abrupt expenditure adjustments during periods of revenue shortfalls. Although government revenue volatility had a positive long-run coefficient in the estimated model, this should not be interpreted as a reason to encourage unstable revenue collection. The policy priority should remain predictable revenue mobilisation and efficient use of public resources.

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