Monetary Policy and Unemployment in Nigeria

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Abstract: This study investigates the effect of monetary policy on unemployment in Nigeria from 1986 to 2024, a period marked by significant macroeconomic shifts, including the Structural Adjustment Programme (SAP) and recent post-COVID-19 recovery efforts. The study examines how monetary policy instruments—monetary policy rate (MPR), inflation rate (IFR), exchange rate (EXR), money supply (MS), and cash reserve ratio (CRR)—affect the unemployment rate. An ex-post facto research design was adopted using secondary time-series data sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and the World Bank. The study is grounded in the Solow Growth Model, Keynesian Theory, and Endogenous Growth Theory. Unit root tests were conducted to determine stationarity, while cointegration was examined using the ARDL bounds testing approach. The Autoregressive Distributed Lag (ARDL) model was then estimated, followed by post-estimation diagnostic tests. The findings reveal that monetary policy significantly affects unemployment in Nigeria. Money supply exhibits a positive effect on employment generation, while a high monetary policy rate constrains economic growth and employment. Inflation and exchange rate instability show significant short-run and long-run relationships with unemployment. The study recommends balanced MPR settings, effective inflation targeting, and exchange rate stability to promote employment growth. It also suggests complementing monetary policy with supportive fiscal reforms for optimal macroeconomic outcomes.

Keywords: Monetary policy, Unemployment rate, Inflation Rate Money Supply.

INTRODUCTION

Unemployment is a critical macroeconomic variable that reflects the degree to which an economy is able or unable to productively engage its labor force. Nieto-Carrillo (2021) describe the unemployed as individuals who have been laid off, fired, or have voluntarily left their jobs and are actively seeking new employment. This also includes new entrants or re-entrants into the labor market who are yet to secure employment. The International Labour Organization (ILO) adds that the unemployed consist of members of the economically active population who are without work but are available and willing to engage in employment activities, including those who lost jobs and those who voluntarily left their positions. A high unemployment rate implies that a significant portion of the labor force is idle, which leads to an output gap where actual GDP is below its potential level (Cheli et al., 2024). This shortfall represents a lost opportunity for economic growth and signals a failure in fully utilizing labor resources. Persistent unemployment not only affects individual livelihoods but also weakens consumer spending, reduces tax revenues, increases government welfare obligations, and hinders economic development.

Monetary policy is certainly one of the key drivers of economic development through its impact on economic variables. Monetary policies such as interest rate, inflation, exchange rate, and money supply are fundamental tools used by the monetary authorities to influence economic performance (Tiblola, et al., 2024). Gini and Obode (2025), viewed monetary policy as the use of monetary tools to regulate the money supply, inflation, and monetary action that cuts interest rate which lower the cost of borrowing, leading to higher investment activity and the purchase of consumer durables. The expectation that economic activity may also prompt financial institutions (deposit money banks) to ease lending policy, which in turn enables businesses and households to boost spending. Additionally, this might lead to increased consumer spending, which would increase the rate of businesses' investment projects. These elements work together to increase investment, consumer spending, output, and employment. One of the major goals of macroeconomic which can be either objective or policy variables always aimed at achieving sustainable economic growth (Omebere, et al., 2024).

Nigeria, like many developing nations, has been particularly affected by macroeconomic volatility over the past four decades. Since the introduction of the Structural Adjustment Programme (SAP) in 1986, Nigeria has undergone significant policy shifts aimed at liberalizing the economy and stabilizing key monetary policies indicators (Aladejare, 2021). However, the outcomes have been mixed. While some gains have been recorded, monetary policy instability continues to hinder developmental progress. The persistent macroeconomic instability in Nigeria has had adverse implications for socio-economic development. Despite being the largest economy in Africa, Nigeria has one of the highest poverty and unemployment rates on the continent. According to the National Bureau of Statistics (2024), the unemployment rate stood at 33.3%, with youth unemployment even higher.

Despite the objectives of the Economic Recovery and Growth Plan (ERGP) to reduce unemployment to single digits by 2020, unemployment rose from 18.8% in 2017 to over 33% by the end of 2020 (NBS, 2021). Key monetary policy indicators such as interest rates, inflation, exchange rate fluctuations, and inconsistent money supply growth have raised critical concerns about their effectiveness in driving development outcomes such as reduced unemployment. Despite the growing body of literature investigating the effect of monetary policy and economic performance, significant gaps remain that limit the depth and generalizability of existing findings. A considerable number of studies have assessed unemployment using a single proxy, most commonly Gross Domestic Product (GDP) growth rate, while neglecting other critical socio-economic indicators such as unemployment rate, literacy rate, and per capita. This study is significant as it provides an in-depth analysis of how key monetary policy such as interest rate, inflation rate, exchange rate, and money supply affect critical indicators of economic performance in Nigeria like unemployment rate which can lead to improved living standards, reduced inequality, and enhanced national development.

The study contributes to the literature by extending the scope of performance measurement and employing recent data up to 2024. In light of the above, it becomes imperative to investigate the extent to which macroeconomic variables affect economic performance indicators in Nigeria.

LITERATURE REVIEW

Conceptual Review

Unemployment Rate

One of the primary indicators of economic performance is human capital development, which encompasses education, healthcare, and workforce skills. A well-developed human capital base enhances productivity, fosters innovation, and drives long-term economic growth. Additionally, poverty reduction is a key metric, as a thriving economy should lift people out of poverty by creating job opportunities and ensuring equitable wealth distribution. According to Alhassan(2025), unemployment could take the form of structural, cyclical or frictional. In Nigeria, the most dominant form of unemployment that exists is structural unemployment, meaning the significant difference in the demand and supply of labour is the major cause of unemployment. The unemployment rate is an important macroeconomic indicator of the labour market performance and economic welfare, it measures the portion of the labour force that is actively seeking but unable to find employment (Okeke, Ifebi, & Ekesiobi, 2023). In developing countries, the unemployment rate showcases the interplay between structural and demand-side happenings that include: structural disparity between skilled workers and jobs, limited gainful employment in formal sectors, shortages in demand, and difficulties in job search (Sakanko, et al, 2020; Lenka et al., 2024).

Monetary Policy

Monetary policy is one of the key macroeconomic instruments used by a country's central bank to regulate money supply, control inflation, and stabilize the economy. It involves deliberate actions by the monetary authorities to influence the cost and availability of credit, thereby affecting aggregate demand and overall economic activity. In Nigeria, monetary policy is primarily implemented by the Central Bank of Nigeria (CBN) through tools such as the Monetary Policy Rate (MPR), open market operations, cash reserve requirements, and liquidity ratios. The Monetary Policy Rate (MPR), often referred to as the policy interest rate, serves as the benchmark rate that determines the direction of other interest rates in the economy.

Theoretical Review: Endogenous Growth Theory

Endogenous Growth Theory, first articulated by economists such as Paul Romer (1986) and Robert Lucas (1988), emphasizes the role of internal factors within an economy such as human capital, innovation, and knowledge accumulation in driving long-term economic growth. Unlike traditional growth models that focus on external factors like capital accumulation or technological advances as the primary sources of economic growth (as seen in Solow's exogenous growth model), Endogenous Growth Theory suggests that economic growth is primarily determined by factors within the economy itself. This theory posits that investment in human capital, research and development (R&D), and the accumulation of knowledge can lead to sustained economic growth by fostering increased productivity and innovation over time.

Endogenous Growth Theory is not without its critics. One common criticism is that it can be overly optimistic in its assumptions about the capacity of economies to innovate and generate knowledge, particularly in developing countries where access to education and capital may be limited.

In the context of Nigeria, Endogenous Growth Theory offers a useful framework for understanding how the country's economic performance can be enhanced through investments in education, technological innovation, and the development of human capital. Nigeria faces substantial challenges related to poor educational outcomes, low levels of innovation, and insufficient infrastructure for research and development. To achieve sustained economic growth, the Nigerian government and development finance institutions (DFIs) could focus on policies that foster technological innovation, promote knowledge creation, and invest in skill development to create a more dynamic and productive economy. The theory underscores the importance of creating a conducive environment for innovation, ensuring that education systems are strengthened, and that R&D investments are prioritized to enable Nigeria to develop homegrown solutions to its economic challenges.

By focusing on these factors, Nigeria has the potential to achieve sustained economic growth, reduce poverty, reduced unemployment and create more competitive and productive economy.

Empirical Review

Zhang (2025) investigated the effect of Monetary Policy on Stock Market Performance in the United Kingdom" employed a Vector Autoregression (VAR) model with Granger causality tests and impulse response analysis using data from 1990 to 2025. The study incorporated key variables such as money supply (M2), real GDP, CPI, policy interest rate, and the FTSE 100 index return. The findings revealed that stock returns exhibit a significant and rapid negative response to monetary policy shocks, confirming the discount rate channel, while stock market performance also predicts economic growth and inflation, demonstrating its forward-looking role. The study concluded that monetary policy shocks have a persistent and significant impact on financial markets, and there exists a two-way feedback relationship between monetary policy and the stock market in the UK.

Osakwe, et al (2024) examined the effect of some macroeconomic variables on economic development of Nigeria. The macroeconomic variables were proxied by inflation, unemployment and real gross domestic product while the economic development was proxied by human development index. The study used ex-post-facto research design. Secondary data was sourced from central bank of Nigeria statistical bulletin. Ordinary Least Square (OLS) method and the Grander Causality test were used to analyses the data. the findings using OLS revealed that Inflation rate and unemployment negatively but insignificantly predict economic development in Nigeria while Real GDP positively and significantly predicts economic development in Nigeria. The Granger causality tests showed unidirectional causality exists flowing from RGDP and unemployment to HDI in Nigeria, whereas no causality exists between HDI and INFR. Recommendations of the authors from the findings is that the government and monetary authorities should come up with policies that boost real economic productivity in Nigeria, adopt monetary policy measures to reduce inflation to a level that is supportive of economic development in Nigeria and that

Government should increase adoption of schemes to improve the rate of unemployment in Nigeria.

Haseeb, et al. (2019) investigated the impact of macroeconomic indicators on development patterns of ASEAN countries with emphasis on tourism using annual data the cover the period 2001 to 2017. The empirical findings of the study revealed that key determinants for the change in tourism revenue in selected countries are exchange rate, stock market index, inflation and industrial growth. However, impact of GDP on tourism revenue is also significant for Malaysia, Indonesia, and Brunei.

Madaki (2024) investigated the effect of macroeconomic variables on economic growth in Nigeria covering 1990-2024. Ex-post-facto research design was adopted for the study. To achieve this, the researcher employed secondary data on included variables to carry out the analysis. Auto regression Distribution lag (ARDL) model adopted with modification for the study. The data were subjected to diagnostic test which include Unit root test and Cointegration test before estimating the model. The findings of the study showed that the coefficient of Foreign Exchange Rate (FER) was statistically significant at 5% level, while Interest Rate (IR), Inflation Rate (INF) and Foreign Direct Investment (FDI) were no statistically significant at 5% level. It was concluded from the result analysis that Foreign Exchange Rate (FER) has positive and strong influence on economic growth, Interest Rate (IR) and Inflation Rate (INF) has a positive and weak influence on economic growth, while Foreign Direct Investment (FDI) has a negative and weak influence on economic growth in Nigeria during the period under review.

Moutinho (2020) examined the nexus between economic growth and macroeconomic variables environmental drivers of sustainable economic growth characterized by a well-diversified portfolio for a team of selected OPEC countries within the context of the environmental Kuznets curve hypothesis. The study employed some econometric techniques including pool mean group, mean group, and dynamic fixed effect techniques. The results obtained suggested that the contribution of Foreign Direct Investment to the economy studied is not significant.

Omogbai (2025) examined the . effect of Monetary Policy on Economic Growth in Nigeria" employed the Autoregressive Distributed Lag (ARDL) approach on annual data from 1985 to 2023 sourced from the Central Bank of Nigeria. The result revealed that money supply has a negative and insignificant effect on economic growth in both the short and long run, while interest rate exerts a negative and significant effect. Inflation rate, however, showed a positive and significant impact on growth, and balance of payment had a positive relationship with growth in the long run. The study concluded that monetary policy, particularly interest rate management, requires stronger attention from monetary authorities to foster sustainable economic growth in Nigeria.

Alesinloye and Yusuf (2024) investigated the impact of selected macroeconomic variables on economic growth in Nigeria using quarterly data spanning from 2000Q1 to 2022Q3. The methodology, anchored in the co-integrated Autoregressive Distributed Lag (ARDL) model, emphasizes data collection, validity, and reliability considerations. The variables under scrutiny nominal GDP growth (as a proxy for economic growth), exchange rate (EXR), inflation rate (INF), and interest rate (INT) demonstrate distinct relationships established through rigorous statistical analysis. Validity and reliability assessments employing a 95% confidence level ascertain the credibility of the study's results. The ARDL

bounds test for co-integration confirms a long-run equilibrium relationship among the variables, enabling the estimation of long-run coefficients. Findings reveal that while inflation and interest rates seemingly bolster economic growth in theory, their impact remains statistically insignificant in both the short and long runs. Conversely, exchange rate fluctuations exhibit a significant negative impact on economic growth in both periods. Short-run analyses reveal exchange rate depreciation's detrimental effects on economic growth, aligning with theoretical expectations. However, unexpected positive correlations emerge between inflation and economic growth, challenging conventional assumptions.

Obidike, et al (2022) explored the effect of selected macroeconomic variables on the Nigeria economy. The main objective of the study is to examine the effect of selected macroeconomic variables on the Nigerian economy. Specifically, the study examines the effect of exchange rate, interest rate, inflation rate, trade openness, foreign direct investment and money supply on the Nigeria in economy. Time series data covering 34 years, from 1987 to 2020 were analyzed with econometric techniques including Descriptive Statistics, Augmented Dickey Fuller Tests for Unit Roots, The Autoregressive Distributive Lag (ARDL) and the Diagnostics Tests to determine the reliability of the models in the study. The Diagnostics analyses carried out are the Normality Test, Serial Correlation, Multicollinearity Test, Heteroskedasticity, and Ramsey RESET Tests. Our findings revealed that inflation rate, trade openness, foreign direct investment and money supply have positive and significant effect on real gross domestic product in the short run while exchange rate and interest rate had insignificant effect on real gross domestic product in the short run. The study therefore concludes that selected macroeconomic variables have been an effective short run policy instrument that largely affects Nigeria in economy.

Alhassan (2025) applies time-series/ panel regressions to demonstrate a positive link between unemployment and certain categories of crime in Nigeria, with negative feedback effects on economic growth; the paper highlights data quality constraints for crime and unemployment series that complicate causal attribution.

Lenka et al. (2024) employ a 31-country panel (2004–2019) with fixed/random effects, PCSE and system dynamic panel estimators to examine FI's effect on unemployment; they find that FI significantly reduces unemployment in upper-middle-income (UMI) countries but has weaker or non-robust effects in lower-middle-income (LMI) contexts, concluding that institutional quality and labour market structure condition FI's employment benefits; the study's limitation is its cross-country scope which may obscure country-specific institutional mechanisms relevant to Nigeria.

Okeke et al. (2023) apply ARDL/ECM on Nigerian annual aggregates (1991–2021) using Global Findex proxies and national series and report that financial inclusion indicators substantially reduce unemployment in the short run, while long-run relationships are less robust across specifications; the study includes standard diagnostics but is limited by aggregate proxies that may mask household and MSME channels and by potential endogeneity between inclusion and employment variables.

Sakanko et al. (2020) combine ARDL econometrics with household-level discussions and find that financial inclusion reduces poverty and inequality but produces only modest short-term effects on unemployment—suggesting that credit and inclusion primarily facilitate self-employment and enterprise formation rather than immediate formal hiring; the paper recommends finer tracing of labour-market transmission channels.

Amakor and Eneh (2021) analyse Nigerian time-series (1986–2019) using OLS and cointegration approaches, employing rural commercial bank and microfinance lending as inclusion proxies; they report a negative association between rural credit proxies and unemployment, suggesting rural lending supports employment, but the study's reliance on OLS and narrow proxies limits its causal claims and misses digital and account-ownership dimensions.

Ozili (2025) applies advanced time-series econometrics (including 2SLS/IV and fully-modified OLS) to examine how profitability, capital regulation, financial inclusion, inflation, unemployment and growth jointly determine financial stability in Nigeria. The study finds that higher profitability, stronger capital regulation and greater financial inclusion improve stability, whereas inflation and high unemployment undermine it; results are robust to diagnostic tests for stability and heteroskedasticity. A noted gap is the need for sectoral and institutional microdata to unpack heterogeneous effects across bank types and to isolate digital versus traditional inclusion channels.

Azolibe (2025) proposes panel regression and IV techniques to test whether banking credit expansion reduces unemployment; while results are pending publication, the paper's premise is that credit fosters employment if channeled to productive sectors—highlighting the need for careful identification in empirical designs.

METHODOLOGY

The study examined the effect monetary policy on unemployment in Nigeria. This study adopted an ex-post facto research design, which is suitable for analyzing historical data and identifying cause-and-effect relationships without direct manipulation of variables. The variable for monetary policy are monetary policy rate, inflation rate, exchange rate, money supply and cash reserve ration while the measurement for unemployment is unemployment rate. Given that the study relies on secondary data from various financial and economic sources, and are sourced from reputable financial and economic institutions, including the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Bank data base (WDI).

Model Specification

The study objective premised on monetary policy on unemployment rate in Nigeria, the work of Obidike et al., (2022) which explored the effect of selected monetary policy on the Nigeria unemployment. The model is specified below

$$UMR_t = f(MPR_t, INF_t, EXR_t, MS_t, CRR_t)................................(3.1)$$

Where:

- Unemployment Rate: UMR

- Monetary Policy rate as MPR

- Inflation Rate is IFR

- Exchange Rate is EXR

- Money Supply as MSP.

- Cash Reserve Ratio as CRR

To complete the specification of the econometric model, we consider the form of algebraic or linear relationship among the variables. The corresponding econometric model is specified in linear form:

$$UMR_t = \alpha_0 + \alpha_1 MPR_t + \alpha_2 INF_t + \alpha_3 EXR_t + \alpha_4 MS_t + \alpha_5 CRR_t + \mu_t \ldots\ldots (3.2)$$

Since the variables are in different measurements, regressing this nature of the variables leads to the problem of heteroskedasticity, therefore, in other to avoid the issue of heteroskedasticity, the variables will be rescaled into ratio through logging those them, thus the model was re-specified in a log linear form

$$UMR_t = \alpha_0 + \alpha_1 MPR_t + \alpha_2 INF_t + \alpha_3 lnEXR_t + \alpha_4 lnMS_t + \alpha_5 CRR_t + \mu_t \ldots\ldots (3.3)$$

- ln is Natural logarithm

- α_0 = Intercept, which explains the average value of the dependent variable as the independent variables are held constant

- $\alpha_{1,2,3,4,5}$ = Parameters of the independent variables. This measures the rate at which the dependent variables changes, giving that the dependent variables change by a unit.

- μ= Stochastic or error term

- t = time variant

As a result of the mixed stationarity among the variables, Autoregressive Distributed Lag (ARDL) was the estimation techniques. ARDL model used in this study is expressed as follows:

$$\Delta lnUMR_t = \alpha_0 + \sum_{i=1}^{N} \alpha_1 ln\Delta UMR_{t-1} + \sum_{i=1}^{N} \alpha_2 \Delta lnMPR_{t-1} + \sum_{i=1}^{N} \alpha_3 ln\Delta IFR_{t-1} + \sum_{i=1}^{N} \alpha_4 \Delta EXR_{t-1}$$

$$+ \sum_{i=1}^{N} \alpha_5 \Delta lnMS_{t-1} + \sum_{i=1}^{N} \alpha_6 \Delta lnCRR_{t-1} + \varphi_1 lnUMR_{t-1} + \varphi_2 lnMPR_{t-1}$$

$$+ \varphi_3 lnIFR_{t-1} + \varphi_4 EXR_{t-1} + \varphi_5 lnMS_{t-1} + \varphi_6 lnCRR_{t-1} + v_t$$

Measurements of Variables

Table 1: Variables, Description, and Measurement of Monetary Policy and Unemployment in Nigeria

S/N	Variables	Indicators	Measurements
1	Unemployment Rate (UMR)	Labour Market Condition	Percentage of the labor force that is without jobs and actively seeking employment
2	Monetray Policy Rate (MPR)	Cost of Borrowing	Lending interest rate charged by banks on loans to private sector
3	Inflation Rate (IFR)	Price Stability	Annual percentage change in consumer price index (CPI)
4	Exchange Rate (EXR)	Currency Value	Official exchange rate of local currency per US dollar
5	Money Supply (MSP)	Liquidity Level	Broad money supply (M2) as a share of GDP or in local currency

6	Cash Reserve Ratio	Liquidity Level	Credit to Private sector as a share of GDP or in local currency

Source: Researcher's Compilation, 2025

Estimation Techniques

This section explains the pre-estimation diagnostic that informed the choice of the appropriate analytical models and the estimation procedures. The pre estimation diagnostics were unit root and cointegration tests, while post estimation diagnostic comprises heteroscedasticity, normality, autocorrelation, linearity and stability test. These test are discussed below:

DATA ANALYSIS, RESULT AND DISCUSSION

Table 2: Descriptive Statistics of Monetary Policy and Unemployment in Nigeria

	UMR	MPR	IFR	EXR_LOG	MS_LOG	CRR
Mean	4.236897	13.96795	19.9149	1.880491	1.27045	11.55769
Maximum	7	26	72.8355	3.169958	1.943303	32.5
Minimum	2.99	6	5.388008	0.244159	0.142336	1
Std. Dev.	0.858658	3.801047	17.02926	0.674593	0.364404	9.523824
Skewness	1.37978	0.590885	1.68817	-0.60566	-1.13834	0.824295
Jarque-Bera	16.27105	5.491899	23.31891	2.601424	14.54734	4.951578
Probability	0.000293	0.064187	0.000009	0.272338	0.000694	0.084097

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

The unemployment rate (UMR) averaged 4.24, with a high standard deviation of 0.85, a maximum of 7 and a minimum of 2.99, indicating moderate but persistent unemployment across the study period. Monetary policy (MPR) averaged 13.97, with a maximum value of 26, a standard deviation of 3.8, a minimum of 6, and a maximum of 26 which suggest a persistently tight monetary policy stance. This reflects the Central Bank of Nigeria's aggressive use of interest rates to control inflation and stabilize the naira. The mean of inflation rate is 19.91, standard deviation is 17.8, with a minimum of 5.3, and a maximum of 72.84, revealing severe and persistent inflationary pressure in Nigeria. The very high volatility standard deviation (17.03) confirms that Nigeria has experienced frequent inflation shocks caused by exchange rate depreciation. Exchange rate (EXR_LOG) mean is 1.8 with standard deviation of 0.6, minimum of 0.24, and a maximum of 3.1 indicates that Nigeria experienced prolonged currency depreciation over the study period. Money supply (MS_LOG) has a mean value 1.2, standard deviation of 0.36, minimum of 0.24, and a maximum of 3.1 which implies rapid monetary expansion in response to fiscal pressures. The average cash reserve ratio (CRR) of 11.56, with a standard deviation of 1, a maximum of 32.5, and a minimum of 1 suggest steady state of the countries reserve. The Jarque-Bera test results indicate that some variables are not normally distributed at the 5 level. However, this does not constitute an econometric problem for this study. According to the Central Limit Theorem, when the sample size is sufficiently large (N ≥ 30), the sampling

distribution of the estimators converges to normality regardless of the underlying data distribution. Since this study uses 39 observations, this condition is fully satisfied.

Correlation Matrix

Table 3 presents the correlation coefficients among the variables used to analyze the effect of monetary policy and unemployment in Nigeria. The matrix shows the direction and strength of relationships between variables, with correlation values ranging from -1 to +1.

Table 3: Correlation Matrix of Monetary Policy and Unemployment in Nigeria

	UMR	MPR	IFR	EXR_LOG	MS_LOG	CRR	VIF
UMR	1						
MPR	-0.16668	1					1.6526
IFR	-0.01748	0.392962	1				1.3086
EXR_LOG	-0.18227	-0.08487	-0.30825	1			3.1518
MS_LOG	-0.27826	0.257079	0.188486	-0.13522	1		1.4633
CRR	0.157892	0.202888	-0.12763	0.750142	-0.32734	1	3.669021

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

The correlation coefficients indicate generally low to moderate relationships among the explanatory variables. UMR shows a weak negative correlation with MPR (–0.167), IFR (–0.017), EXR_LOG (–0.182), and MS_LOG (–0.278), suggesting that increases in these monetary variables are associated with slight reductions in unemployment, though the relationships are weak. Conversely, UMR has a weak positive correlation with CRR (0.158), implying that higher cash reserve requirements may be associated with marginal increases in unemployment. Among the independent variables, MPR is moderately positively correlated with IFR (0.393) and MS_LOG (0.257), indicating that higher policy rates tend to move alongside inflation and money supply during the study period. IFR exhibits a moderate negative relationship with EXR_LOG (–0.308), suggesting that rising inflation is associated with exchange rate depreciation dynamics. A strong positive correlation is observed between CRR and EXR_LOG (0.750), which reflects a close association between reserve requirements and exchange rate movements. The VIF values range from 1.31 to 3.67, all below the conventional threshold of 10 (and even the stricter threshold of 5), indicating the absence of multicollinearity among the explanatory variables. This suggests that the estimated regression coefficients are reliable and not distorted by excessive linear dependence.

Pre-estimation Test

Stationarity Test

Table 4 presents the results of unit root tests using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests to assess the stationarity of various variables. The tests reveal that variables such as, MPR, IFR, and MS are stationary at level (I(0)). In contrast, variables such as UMR, LR, EXR and CRR are non-stationary at level but become stationary after first

differencing (I(1)). The results demonstrate a mix of stationarity at different orders, with some variables integrated at level (I(0)) and others requiring differencing to achieve stationarity (I(1)).

Table 4: Unit root test of Monetary Policy and Unemployment in Nigeria

ADF TEST			PP			
VARIABLES	Level	First Difference	Level	First Differences	Order of integration(PP)	Order of integration(ADF)
UMR		-2.1392 (0.5568)	-	-7.0964 (0)	1(1)	1(1)
MPR	-3.2369 (0.0254)	-	-3.2911 (0.0224)	-	1(0)	1(0)
IFR	-3.5492 (0.012)	-	-2.9869 (0.0452)	-	1(0)	1(0)
ER	-	-5.5562 (0)	-	-5.5511 (0)	1(1)	1(1)
MS	-	-4.5335 (0)	-5.5954 (0)	-	1(0)	1(1)
CRR		-1.4458 (0.5456)	-	-6.3225 (0)	1(1)	1(1)

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

The mixed results of stationarity justify the use of an autoregressive distributed lag (ARDL) model, which can accommodate variables integrated at different orders. While most variables become stationary after first differencing, the presence of variables like GDPGR, MPR, IFR, and MS that are stationary at level (I(0)) further supports the need for an ARDL approach, as it is well-suited for analyzing variables with different integration orders. These findings align with prior studies that summarises why ARDL is preffered when variables have mixed stationarity. Thus, the ARDL model is appropriate for further analysis of the relationships between the variables in the study.

Cointegration Test

Table 5: Johansen Cointegration for Monetary Policy and Unemployment Rate in Nigeria

Hypothesized No. of CE (s)	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob	Hypothesized No. of CE (s)	Eigenvalue	Max-Eigen Statistics	0.05 Critical Value	Prob
None	0.675844	97.75366	95.75366	0.0388	None	0.675844	41.68168	40.07757	0.0327
At most 1	0.453730	55.64027	69.81889	0.3926	At most 1	0.453730	22.37175	33.87687	0.5789
At most 2	0.334030	33.26852	47.85613	0.5420	At most 2	0.334030	15.04088	27.58434	0.7450
At most 3	0.290795	18.22764	29.79707	0.5493	At most 3	0.290795	12.71358	21.13162	0.4790
At most 4	0.137501	5.514055	15.49471	0.7521	At most 4	0.137501	5.473067	14.26460	0.6813
At most 5	0.001107	0.040987	3.841466	0.8395	At most 5	0.00207	0.040987	3.841466	0.8395

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

The Johansen cointegration tests indicate the presence of one long-run cointegrating relationship among the variables. Both the Trace statistic (Trace = 97.32; p = 0.0388) and the Maximum Eigenvalue statistic (Max-Eigen = 41.68; p = 0.0327) reject the null hypothesis of no cointegration (r = 0) at the 5% significance level, while subsequent hypotheses (r ≤ 1, r ≤ 2, …) are not rejected. This confirms the existence of a single stable long-run equilibrium relationship, allowing for the estimation of long-run coefficients and the error correction model to analyze short-run dynamics.

Table 6: Autoregressive Distributed Lag Modelling for Monetary Policy and Unemployment Rate in Nigeria.

Panel A: Short Run Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UMR(-1))	0.257906	0.143712	1.794611	0.0848
D(UMR(-2))	0.516456	0.168765	3.060203	0.0052
D(MPR)	-0.056605	0.027456	-2.061684	0.0498
D(IFR)	0.003559	0.006943	0.512611	0.6127
D(EXR_LOG)	-0.872082	0.311614	-2.798599	0.0097
D(MS_LOG)	0.050201	0.283734	0.176930	0.8610
D(CRR)	0.013122	0.030901	0.424658	0.6747
CointEq(-1)	-0.649545	0.158189	-4.106127	0.0004

Panel B: Long Run Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MPR	-0.087145	0.046454	-1.875947	0.0724
IFR	-0.013444	0.010678	-1.259046	0.2196
EXR_LOG	-1.342604	0.485884	-2.763220	0.0106
MS_LOG	0.077287	0.435659	0.177402	0.8606
CRR	0.084791	0.026437	3.207317	0.0036
C	7.191465	1.357030	5.299413	0.0000

Panel C: Diagnostic Tests	Statistics	Prob.
R-squared	0.712342	-
Adjusted R-squared	0.597278	-
F-statistic	6.190866	0.000105

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Literacy rate is LR, Per capita income is PCI, Gross domestic product growth rate is GDPGR, Real gross domestic product is RGDP, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

Short-Run Dynamics:

The short-run dynamics results show how the dependent variable UMR (Unemployment Rate) responds immediately to changes in the independent variables within the same year. Unemployment at lag one D(UMR(-1)) have an insignificant and positive influences with (Coefficient = 0.2579, p-value = 0.0848) highlighting some persistence in unemployment. In contrast, Unemployment at lag two D(UMR(-2)) have a significant and positive effect (Coefficient = 0.5165, p-value = 0.0052) indicating shocks to unemployment two periods ago strongly influence current unemployment. Monetary policy rate D(MPR) have a negative and significant effect on unemployment rate with (Coefficient = -0.0566, p-value = 0.0498) indicates changes in the MPR reduces unemployment in the short run which is significant at 5%, indicating contractionary monetary policy slightly reduces unemployment (UMR).inflation rate D(IFR) have a positive and insignificant effect with (Coefficient = 0.0036, p-value = 0.6127) indicating a percentage increase change in inflation leads to 0.00355 percentage increase changes in unemployment rate but it has an insignificant effect on short run unemployment. Exchange rate D(EXR_LOG) have a negative and significant effect with (Coefficient = --0.8721, p-value = 0.0097) Meaning when exchange rate increases

(Naira depreciates), unemployment decreases in the short run. Money supply D(MS_LOG) have a positive and insignificant effect with (Coefficient = -0.0502, p-value = 0.8610) meaning money supply changes have no significant short run impact on unemployment rate. Cash reserve ratio D(CRR) with (Coefficient = -0.0131, p-value = 0.6747) shows cash reserve ratio changes has no significant effect in the short run on unemployment rate.

Importantly, the error correction term (ECT(-1)) is highly significant with a coefficient of -0.6495 (p-value = 0.0004), indicating a rapid adjustment speed, with about 65% of the short run disequilibrium is corrected yearly.

Long-Run Dynamics:

In the long-run analysis reveals the persistent effects of monetary policy variables on unemployment rate (UMR). The monetary policy rate (MPR) MPR has a negative and weakly insignificant long-run effect on unemployment with -0.0871 (p value= 0.0724), indicating that higher monetary policy rates are associated with a reduction in unemployment in the long run. Inflation rate shows a negative but statistically insignificant long-run effect with -0.0134 (p value= 0.2196), suggesting that inflation does not meaningfully influence unemployment in the long run. Exchange rate (EXR) has a negative and statistically significant long-run effect with -1.3426 (p value= 0.0106), implying that exchange rate depreciation reduces unemployment rate by making exports to be cheaper thereby stimulating domestic production and employment. Money supply (MS) shows a positive but insignificant long-run effect on unemployment with 0.0772 (p value= 0.8606), indicating a weak monetary transmission to employment outcomes. Cash reserve ratio (CRR) has a positive and statistically significant long-run effect with 0.0847 (p value= 0.0036), suggesting that higher reserve requirements increase unemployment by restricting credit to the private sector.

The adjusted R-squared of 0.5972 indicates that the monetary policy indicators account for about 59% of the short-run fluctuations in unemployment after controlling for model complexity, signifying a moderate explanatory strength between monetary policy and economic performance. The model's F-statistic is 6.1908 (p-value of 0.000), which is significant at the 5% level. Therefore, the null hypothesis of no significant effect of monetary policy on unemployment rate is rejected, and the study concluded that monetary policy has a significant effect on unemployment rate in Nigeria.

Table 6.1: **Diagnostics Test for Monetary Policy and Unemployment Rate in Nigeria**

Serial Correlation LM Test	0.367857	0.6962
Heteroskedasticity Test:	1.650101	0.1496
Normality Test	71.67878	0.0000
	CUSUM	CUSUMSQ
Stability Test	Stable	Stable

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Literacy rate is LR, Per capita income is PCI, Gross domestic product growth rate is GDPGR, Real gross domestic product is RGDP, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.
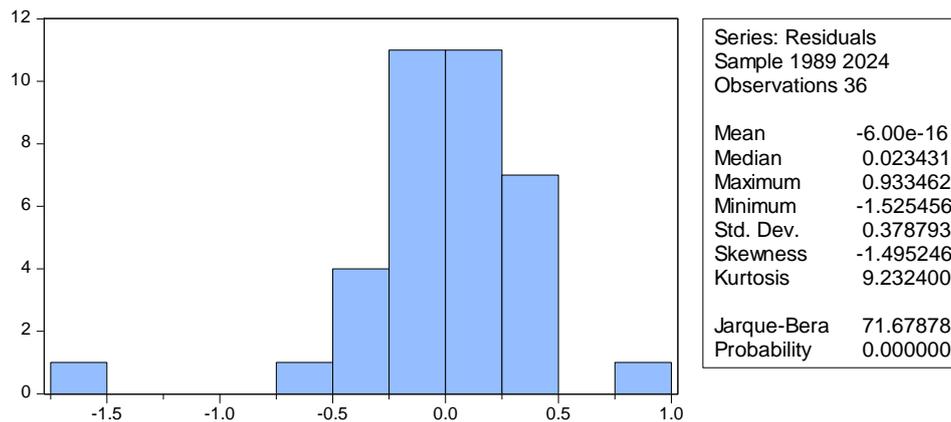
Diagram 1: Histogram of Monetary Policy and Unemployment in Nigeria

Source: Author's Computation (2025); Where: Unemployment rate is UMR, Literacy rate is LR, Per capita income is PCI, Gross domestic product growth rate is GDPGR, Real gross domestic product is RGDP, Monetary policy rate is MPR, Inflation rate is IFR, Exchange rate is EXR, Money supply is MS, Cash reserve ratio is CRR.

Diagnostic Tests:

The diagnostic tests confirm the robustness and reliability of the model. The Serial Correlation LM Test shows no presence of serial correlation, as the p-value is 0.6962, which is above the critical threshold. The Heteroskedasticity Test indicates the absence of heteroskedasticity with a p-value of 0.1068, ensuring that the error terms are homoscedastic. The Normality Test further verifies that the residuals are non-normally distributed (p-value = 0.000). However, this does not constitute an econometric problem for this study. According to the Central Limit Theorem, when the sample size is sufficiently large (N ≥ 30), the sampling distribution of the estimators converges to normality regardless of the underlying data distribution. Since this study uses 39 observations, this condition is fully satisfied. As supported by Greene (2018) and Wooldridge (2016), normality is not a strict requirement for unbiased, consistent, and efficient estimation in large samples. Modern econometric practice also relies on heteroscedasticity-robust and HAC standard errors (White, 1980; Newey & West, 1987), which do not require normality, making inference valid under general conditions. Unemployment rate deviate significantly from normality, exhibiting skewness and leptokurtosis. This aligns with recent findings that macroeconomic variables are prone to asymmetry and heavy tails due to shocks and policy interventions (Bonyiri et al., 2023; Okey-Obiegbu & Offor, 2023; Xu, 2023). Despite minor departures from normality in a few variables, the study satisfies all major statistical conditions for reliable econometric estimation due to: Adequate sample size (N = 39), Logarithmic transformation of volatile variables and the asymptotic normality guaranteed by the Central Limit Theorem. Therefore, the normality test does not pose any threat to the validity, reliability, or robustness of the subsequent econometric results.

Lastly, the Stability Test, as indicated by the CUSUM and CUSUMSQ plots below confirms that the model is stable over the sample period, reinforcing the reliability of the estimated coefficients. The model's diagnostic tests confirm its validity, further supporting the findings that monetary policy has a profound effect on unemployment rate.
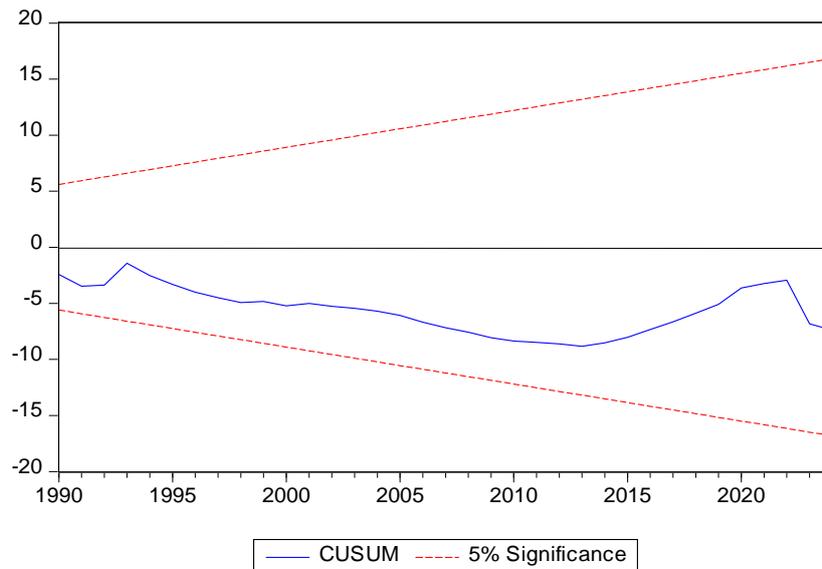
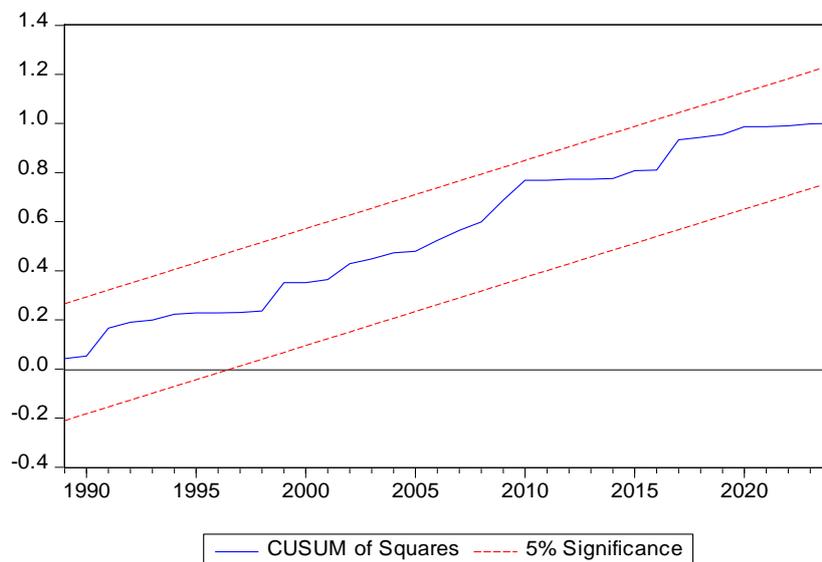**Figure 1: CUSUM Test for Monetary Policy and Unemployment Rate in Nigeria**

Figure 2: CUSUM Squares for Monetary Policy and Unemployment Rate in Nigeria

Discussion of Findings for Objective One

The hypothesis $H_0 1$ posits that monetary policy does not significantly affect unemployment rate in Nigeria; however, the analysis reveals varying impacts of key monetary policy variables on economic performance. The short-run dynamics results show how the dependent variable UMR (Unemployment Rate) responds immediately to changes in the independent variables within the same year. Unemployment at lag one D(UMR(-1)) has an insignificant and positive influences, highlighting some persistence in unemployment. In contrast, Unemployment at lag two D(UMR (-2)) have a significant and positive effect, indicating shocks to unemployment two periods ago strongly influence current unemployment. Monetary policy rate D(MPR) have a negative and significant effect on unemployment rate, indicates changes in the MPR reduces unemployment in the short run which is significant at 5%, indicating contractionary monetary policy slightly reduces

unemployment (UMR). Inflation rate D(IFR) have a positive and insignificant effect, indicating inflation rate changes have an insignificant effect on short run unemployment. Exchange rate D(EXR_LOG) have a negative and significant effect indicating when exchange rate increases (Naira depreciates), unemployment decreases in the short run. Money supply D(MS_LOG) have a positive and insignificant effect indicating money supply changes have no significant short run impact on unemployment rate. Cash reserve ratio D(CRR) shows cash reserve ratio changes has no significant effect in the short run on unemployment rate. The error correction term (ECT(-1)) is highly significant, indicating a rapid adjustment speed, with about 65% of the short run disequilibrium is corrected yearly.

In the long-run analysis reveals the persistent effects of monetary policy variables on unemployment rate (UMR). The monetary policy rate (MPR) MPR has a negative and weakly insignificant long-run effect on unemployment, indicating that higher monetary policy rates are associated with a reduction in unemployment in the long run. Inflation rate shows a negative but statistically insignificant long-run effect, suggesting that inflation does not meaningfully influence unemployment in the long run. Exchange rate (EXR) has a negative and statistically significant long-run effect, implying that exchange rate depreciation reduces unemployment rate by making exports to be cheaper thereby stimulating domestic production and employment. Money supply (MS) shows a positive but insignificant long-run effect on unemployment, indicating a weak monetary transmission to employment outcomes. Cash reserve ratio (CRR) has a positive and statistically significant long-run effect, suggesting that higher reserve requirements increase unemployment by restricting credit to the private sector.

This study's findings are strongly supported by Keynesian theory which posit that monetary policy influences real economic activity and labour market outcomes through interest rate and demand channels, particularly in the presence of price and wage rigidities. The findings from the study on monetary policy and unemployment rate in Nigeria rejects the null hypotheses and concludes that monetary policy has a significant effect on unemployment rate. This finding align with Okeke & Chukwu (2021) report that exchange rate and liquidity ratio significantly reduce unemployment while some monetary policy instruments (e.g., MPR and cash reserve ratio) have weak or insignificant effects, consistent with the mixed dynamics observed in this analysis. Ogbebor et al. (2020) examined inflation dynamics using ARDL and found long-run relationships with economic variables, implying structural macro transmission patterns common to unemployment studies.

In contrast, While this study finds that monetary policy significantly affects the unemployment rate in Nigeria, several recent empirical investigations report insignificant or mixed relationships between monetary policy instruments and unemployment outcomes such as Chukwuemeka (2022) reports that in the short run, key policy variables such as the prime lending rate and exchange rate demonstrate insignificant impacts on unemployment, while some long-run coefficients are only marginally significant, suggesting an unstable and weak monetary transmission to unemployment. Similarly, Nwamuo (2022) using ARDL framewok, find that monetary policy instruments have insignificant effects on unemployment rate in Nigeria, indicating weak monetary transmission into the labor market. The findings also corroborate Chukwudi & Ude (2021), whose work states that monetary policy variables do not significantly affect unemployment rate in Nigeria which is largely driven by non-monetary factors such as inadequate infrastructure, skill mismatches, population growth, and policy uncertainly, rather than short run monetary conditions. These

contrasting outcomes may arise from different time periods, model specifications such as ARDL vs. OLS, and the structural characteristics of Nigeria's labor market and monetary transmission mechanisms, which can attenuate the influence of policy instruments on joblessness relative to other macroeconomic determinants.

SUMMARY AND RECOMMENDATIONS

This study examined the effect of monetary policy on economic performance in Nigeria over the period 1986–2024. The study was carried out due to the persistent macroeconomic challenges facing the Nigerian economy, including inflationary pressures, exchange rate volatility, unemployment rate, and uneven economic growth, despite continuous monetary policy interventions by the Central Bank of Nigeria (CBN). The findings revealed that monetary policy exerts a significant effect on unemployment in Nigeria, although the magnitude and direction of effects varied across policy instruments. Money supply was found to have a positive and significant effect on unemployment, while high monetary policy rates constrained investment and output growth. Inflation and exchange rate instability adversely affected unemployment, whereas the cash reserve ratio significantly influenced credit availability and financial intermediation. Overall, the study confirmed the existence of both short-run and long-run relationships between monetary policy and unemployment in Nigeria.

Based on the empirical findings, the study concludes that monetary policy is a critical determinant of unemployment in Nigeria, but its effectiveness depends largely on the policy mix, implementation consistency, and prevailing structural conditions. Expansion in money supply supports economic growth and income generation when properly managed, while excessively high interest rates weaken investment, output, and employment.

The study further concludes that price instability and exchange rate volatility undermine unemployment, reflecting Nigeria's import-dependent structure and weak productive base. The cash reserve ratio plays an important role in influencing economic activities through its effect on bank lending and liquidity conditions. However, the transmission of monetary policy to real economic outcomes is weakened by structural rigidities, shallow financial markets, and limited coordination between monetary and fiscal authorities. Therefore, monetary policy alone cannot guarantee sustainable unemployment in Nigeria without complementary structural, institutional, and fiscal reforms.

Based on the findings of this study, the study recommends that monetary policy rates should be set at levels that balance inflation control with the need to stimulate investment and production. Prolonged high interest rates should be avoided due to their adverse effects on output and employment. Policymakers should pursue measures that promote exchange rate stability through export diversification, reduced import dependence, and improved foreign exchange management.

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