

Effectiveness of Monetary and Fiscal Policy Measures in Controlling Inflation in Nigeria

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Abstract- *This study analyzed the effectiveness of monetary and fiscal policy measures in controlling inflation in Nigeria from 1985 to 2024. In order to achieve the objectives of the study, the study utilized annual time series data which were obtained from the Central Bank of Nigeria Statistical Bulletin, World Development Indicators of the World Bank, and National Bureau of Statistics. Also, monetary policy was proxied by broad money supply, lending rate and monetary policy rate, while fiscal policy was proxied by government expenditure and government tax revenue while inflation was measured by inflation rate. The major technique of data analysis adopted is Autoregressive Distributed Lag estimation technique. The findings showed that broad money supply and government expenditure have significant negative effects on inflation rate, lending rate and monetary policy rate have significant positive effects on inflation rate while government tax revenue exerted a negative but statistically insignificant effect on inflation rate. Based on the findings, the study concluded that monetary and fiscal policy measures exert significant but divergent effects on inflation dynamics in Nigeria, depending on the specific policy instrument and time horizon considered. It was recommended, among others, that the Central Bank of Nigeria pursue deliberate measures to reduce the cost of credit as a channel for moderating cost-push inflationary pressures, and that fiscal authorities sustain productive government expenditure that enhances supply-side capacity and eases inflationary pressures.*

Keywords: *Monetary Policy, Fiscal Policy, Inflation, Broad Money Supply, Lending Rate, Monetary Policy Rate, Government Expenditure, Government Tax Revenue.*

I. INTRODUCTION

The achievement of price stability has, from time immemorial, remained one of the most critical

macroeconomic goals pursued by every economy, whether developed or developing, given the far-reaching consequences of uncontrolled inflation on household welfare, investment planning, and overall economic stability. Government policies designed to stabilize prices typically operate through government spending and taxation, that is, fiscal policy, or through the regulation of money supply and credit conditions, that is, monetary policy (Olawunmi & Ayinla, 2017). In this regard, Ndugbu and Okere (2015) stated that monetary policy is a major economic stabilization weapon which involves measures designed to regulate and control the volume, cost, availability and direction of money and credit in an economy, in order to achieve specified macroeconomic policy objectives, chief among which is price stability. Nwikina, Akidi and Abdullahi (2024) noted that monetary policy contributes significantly to price stability by controlling inflation. Inflation occurs when there is an excessive increase in the general price level due to excess money supply or demand pressures in the economy. Through monetary tightening measures such as increasing interest rates, raising the cash reserve ratio, or conducting open market operations, the central bank can reduce excess liquidity and stabilize prices. Maintaining low and stable inflation is important because it preserves the purchasing power of consumers and encourages long-term investment decisions. Fiscal policy also plays a vital role in stabilizing prices in the economy. Through appropriate taxation and government spending, fiscal authorities can manage aggregate demand and influence inflationary pressures. When inflation rises due to excessive demand, the government may adopt contractionary fiscal policy by reducing public spending or increasing taxes in order to control

inflation and stabilize prices (Olawuni, 2022). Conversely, government spending directed toward productive sectors such as agriculture and manufacturing can enhance supply-side capacity and moderate cost-push inflationary pressures, underscoring the complex and sometimes counterintuitive channels through which fiscal policy influences the price level.

The effectiveness of monetary and fiscal policy measures in controlling inflation remains a critical and unresolved issue in the Nigerian economy. Inflation has remained a major macroeconomic challenge in Nigeria, reflecting the limited effectiveness of monetary policy in maintaining price stability. Recent statistics indicate that inflation rose significantly from 24.7% in 2023 to about 31.4% in 2024, driven largely by rising food prices, exchange rate depreciation, and energy cost increases following policy reforms such as fuel subsidy removal. In early 2024, inflation even exceeded 32% year-on-year, creating severe pressure on household purchasing power and worsening economic hardship. Despite several monetary tightening measures such as interest rate adjustments and liquidity control by the Central Bank of Nigeria, and several fiscal interventions channelled through government expenditure and taxation, inflationary pressures have continued to persist and, in several periods, intensify. This persistence raises fundamental questions about whether existing monetary and fiscal policy measures are sufficiently effective in controlling inflation in Nigeria, and whether the transmission channels through which these policies are expected to operate remain functional under prevailing structural conditions. Although a growing body of literature has examined the broader monetary policy-inflation and fiscal policy-inflation nexus in Nigeria, most existing studies have tended to examine monetary and fiscal policy measures in isolation, rather than jointly, and comparatively few have simultaneously disaggregated both monetary policy, into money supply, lending rate and monetary policy rate, and fiscal policy, into government expenditure and government tax revenue, within a single unified model using contemporary annual data. This gap in the literature motivates this study, which examined the effectiveness of monetary and fiscal policy

measures in controlling inflation in Nigeria from 1985 to 2024. The specific objectives of the study are to determine the effect of money supply on inflation rate in Nigeria; to examine the effect of lending rate on inflation rate in Nigeria; to ascertain the effect of monetary policy rate on inflation rate in Nigeria; to investigate the effect of government expenditure on inflation rate in Nigeria; and to evaluate the effect of government tax revenue on inflation rate in Nigeria.

II. LITERATURE REVIEW

Theoretical Framework

Two theories were reviewed in this study. These theories are Monetarism/Neo-Classical Theory and Classical Theory. These theories are discussed below:

i. Monetarism/Neo-Classical Theory

Owing to the criticisms that bedevilled the Keynesian theory, the Monetarist theory was propounded by Milton Friedman in 1956. The role of monetary policy, which is essentially the influencing of the volume, cost and direction of money supply, was effectively conveyed by Friedman (1968), whose central position is that inflation is always and everywhere a monetary phenomenon. He recognised that in the short run, an increase in money supply can reduce unemployment but can also create inflation, and so monetary authorities should increase money supply with caution (Onyemaechi, 2005). The monetarists essentially adopted Fisher's equation of exchange to illustrate their theory, making a functional relationship between the quantities of real balances demanded by a limited number of variables (Essia, 1997). Monetarists like Friedman (1956, 1963) emphasized money supply as the key factor affecting the wellbeing of the economy, arguing that to promote steady growth, the money supply should grow at a fixed rate, instead of being regulated and altered arbitrarily by the monetary authorities. The theory assumes that the demand for money is a stable function of a limited number of variables, and that since money supply is substitutive not just for bonds but also for many goods and services, changes in money supply have both direct and indirect effects on spending and, ultimately, on the general price level. Friedman and Schwartz (1963) described the transmission mechanism thus: an expansive open

market operation by the Central Bank increases the stock of money, which leads to an increase in commercial bank reserves and their ability to create credit, thereby increasing money supply through the multiplier effect. This theory is directly relevant to the present study as it provides the theoretical foundation for expecting a strong positive relationship between excessive money supply growth and inflation in Nigeria, implying that disciplined and carefully calibrated monetary expansion is essential to controlling inflationary pressures.

ii. Classical Theory

The widely accepted approach to monetary economics, known as the quantity theory of money, was used as part of a broader approach to micro and macro issues referred to as classical economics, tracing its origins to the work of Irving Fisher, who laid the foundation of the quantity theory of money through his equation of exchange. Diamond (2003) states in his proposition that money has no effect on economic aggregates other than price. The classical school evolved through the concerted contributions of economists such as Jean Baptist Say, Adam Smith, David Ricardo, Pigou and others who shared similar beliefs, deciding upon the quantity theory of money as the primary determinant of the general price level. Fisher's equation of exchange is stated as $MV = PT$, where M is the actual money stock or money supply, V is the transaction velocity of circulation of money, P is the average price level, and T is the real volume of all market transactions made during a period of time. The theory assumes that velocity of money (V) and the volume of transactions (T) are relatively constant in the short run, such that any change in the quantity of money (M) translates directly and proportionally into a change in the average price level (P). If the quantity of money is doubled, the price level will also double and the value of money will be halved. The theory is based on the assumption of the neutrality of money, according to Ajudua, Davis and Osmond (2015), meaning that changes in the money supply affect only nominal variables such as the price level and not real variables such as output in the long run. This theory is directly relevant to the present study as it provides the theoretical justification for examining the direct relationship between money supply and inflation rate in Nigeria,

and for expecting monetary policy instruments that regulate the quantity of money in circulation to be central determinants of the country's inflationary experience.

Empirical Review

Sokunbi, Olayinka, Aworinde, Taiwo and Musa (2024) evaluated the effects of fiscal and monetary policies on growth in Nigeria's economic between 1986 and 2023. In order to ascertain whether a long-term link existed among the factors, the ARDL Bounds co-integration test was used because the variables showed a mixed order of integration. For monetary and fiscal policy, the Auto Regressive Distributed Lag (ARDL) method was employed to estimate the models. The findings revealed a brief correlation between Nigeria's economic growth and variables related to monetary and fiscal policy. Economic growth was negatively correlated with interest rates and government revenue, but positively correlated with the broad money supply and government spending.

Taofeekat (2022) examined how monetary policy affects Nigerian economic growth and price dynamics using time series data from 1990 to 2021. Employing the Augmented Dickey-Fuller test and the ARDL bounds test, the study found that the monetary policy rate and money growth rate exert a significant impact on macroeconomic outcomes in Nigeria, recommending a renewed commitment to disciplined monetary policy conduct to stabilize prices and support growth.

Chukwunulu (2022) used the Ordinary Least Square regression technique to examine whether monetary policy, comprising money supply, interest rate and exchange rate, influences stock market performance in Nigeria from 1986 to 2019. The study found that money supply and exchange rate have a positive and significant effect on stock market price movement, while interest rate has an insignificant negative effect, underscoring the asymmetric transmission of monetary policy instruments in Nigeria.

Emmanuel (2022) investigated the separate impact of fiscal and monetary policies on the Nigerian industrial sector from 1986 to 2021, using the ARDL

Bounds Testing Approach. The study found that government stabilization policies, comprising both fiscal and monetary instruments, are potent determinants of industrial sector output in both the short run and long run, recommending an appropriate policy mix that adjusts to the dynamic nature of the Nigerian economy.

Balogun (2021) investigated the effects of cash reserve ratio and monetary policy rate on the Nigerian economy from 1999 to 2020, using the ARDL bounds test for cointegration. The study found a negative and significant long-run relationship between real gross domestic product and cash reserve ratio, concluding that the Central Bank of Nigeria should take a holistic approach to monetary policy to stimulate credit flow to productive sectors of the economy.

Omodero, Adetula and Adeyemo (2021) evaluated the stock market reaction to monetary policy modifications in Nigeria using data from 1998 to 2018. The multiple regression results showed that money supply has a significant favourable influence on the all-share index, while interest rate has an immaterial negative effect, recommending that monetary authorities pilot-test policy amendments before full implementation to avoid adverse market reactions.

Olukemi and Tayelolu (2021) examined the relationship between fiscal policy and economic growth in Nigeria for the period 1970 to 2018, using the Augmented Dickey-Fuller unit root test and cointegration analysis. The study found a positive relationship between government expenditure and government debt stock with gross domestic product, while government tax revenue exhibited a negative relationship, confirming a long-run equilibrium relationship between fiscal policy and economic performance in Nigeria.

Alugbuo and Chika (2020) investigated the effect of monetary policy on stock market performance in Nigeria for the period 1981 to 2018, using the ARDL model. The study found that lending interest rate had a positive and significant relationship with the all-share index in the current year, while money supply

exhibited a negative short-run relationship but a positive and significant long-run relationship, recommending that policymakers remain attentive to the differentiated short-run and long-run effects of monetary policy shifts.

Nwakobi, Ananwude and Umezurike (2020) examined the effect of fiscal policy on stock market development in Nigeria for the period 1986 to 2018, using the Autoregressive Distributed Lag technique alongside Granger causality analysis. The study found that government total expenditure has a significant effect on the value of stock traded ratio but no significant effect on market capitalization ratio or turnover ratio, recommending that government carefully accommodate stock market development considerations in its fiscal policy design.

Onwuteaka, Okoye and Molokwu (2019) examined the effect of monetary policy on economic growth in Nigeria using data covering 1980 to 2017, employing the Ordinary Least Squares technique. The study found that money supply, interest rate on credit, infrastructure and external debt were statistically significant in explaining economic growth, recommending that the Central Bank of Nigeria be granted full autonomy over its monetary policy functions to enhance policy effectiveness.

Shobande (2019) examined the impact of switching from direct to indirect monetary policy on industrial growth in Nigeria using annual data from 1960 to 2015, employing the ARDL bounds testing approach. The study found that domestic credit, interest rate and trade balance have a positive impact on industrial output, while money supply, inflation and exchange rate have a negative impact, recommending that policymakers use both conventional and non-conventional monetary policy tools to speed up industrial recovery.

Eneje, Obidike, Ani and Jacpuno (2019) evaluated how fiscal policy affects stock market growth in Nigeria over the period 1986 to 2016, using the Vector Error Correction Model. The study found that fiscal policy had a significant and positive long-run relationship with stock market growth, while debt overhang showed a significant negative long-run

relationship, recommending increased productive government expenditure alongside serious tax reforms to enhance voluntary compliance.

Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018) investigated the effect of monetary policy on economic growth in Nigeria using data covering 1986 to 2016, adopting the Ordinary Least Squares technique alongside unit root and cointegration tests. The study found that money supply has a significant positive effect on growth while exchange rate has a significant negative effect, concluding that monetary policy can be effectively used as a veritable tool for price stability in Nigeria.

Chukwuemeka (2018) examined the relationship between monetary policy and the performance of the Nigerian capital market using annual time series data, applying the Ordinary Least Square technique alongside causality and cointegration tests. The study found that interest rate, exchange rate, monetary aggregates and monetary policy rate have a positive and significant relationship with market capitalization, recommending an effective monetary policy transmission mechanism to enhance capital market performance.

Egbulonu (2018) studied the impact of monetary policy on the growth of the manufacturing sector in Nigeria from 1980 to 2016, using the Autoregressive Distributed Lag model. The study found that money supply has a positive and significant impact on manufacturing output in both the short run and long run, while exchange rate remained negative and interest rate remained positive but statistically insignificant, recommending policy consistency to enable long-term business planning by manufacturers.

Oniore and Akatugba (2017) investigated the relationship between monetary policy and stock market prices in Nigeria for the period 1985 to 2015, using the Dynamic and Fully Modified Ordinary Least Squares techniques. The study found that monetary policy rate, credit to private sector, exchange rate and broad money supply are positively related to stock market prices, with exchange rate and broad money supply exerting statistically significant

effects, confirming monetary policy as a useful predictor of stock market dynamics in Nigeria.

Arikpo, Ogar and Cornelius (2017) examined the impact of fiscal policy on the performance of the manufacturing sector in Nigeria using data from 1982 to 2014, employing the ordinary least square multiple regression technique. The study found that increases in government revenue reduce manufacturing sector output, recommending that government increase expenditure on infrastructural development to generate multiplier effects on manufacturing activities.

Nwoko, Nnenna and Anumadu (2016) evaluated the extent to which Central Bank of Nigeria monetary policies could effectively promote economic growth, covering the period 1990 to 2011, using multiple regression analysis. The study found that average price and labour force have a significant influence on gross domestic product while money supply was not significant, and interest rate was negative and statistically significant, recommending that monetary policy be used to reduce lending rates and stabilize the economy.

Ogunbiyi and Okoye (2016) investigated the relationship between fiscal policy and economic growth in Nigeria for the period 1970 to 2014, using the Ordinary Least Squares method alongside Johansen cointegration and error correction modelling. The study found that government expenditure on social and community services and tax revenue relate positively and significantly with gross domestic product, confirming a long-run equilibrium relationship between fiscal policy and economic growth in Nigeria.

Maku (2015) examined the impact of fiscal policy on economic growth in Nigeria using data from 1970 to 2011, employing cointegration analysis for the long-run relationship and Ordinary Least Squares for short-run estimation. The study found that fiscal policy exerts a significant positive effect on economic growth, indicating that appropriate fiscal measures stimulate the Nigerian economy.

III. METHODOLOGY

This study adopted the ex-post facto research design. Ex-post facto research design was adopted because this study involves examining relationships among economic variables using historical time-series, cross-sectional, or panel data, which cannot be manipulated by the researchers. Also, the study utilized annual time series data which ranged from 1985 to 2024. These data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, the World Development Indicators (WDI) of the World Bank, and the National Bureau of Statistics (NBS).

Functional Model Specification

$$IFR = f(M2, LR, MPR, GEX, GTR) \quad (1)$$

Mathematical Model Specification

$$IFR = \delta_0 + \delta_1 M2 + \delta_2 LR + \delta_3 MPR + \delta_4 GEX + \delta_5 GTR \quad (2)$$

Econometrical Model Specification

$$IFR = \delta_0 + \delta_1 M2 + \delta_2 LR + \delta_3 MPR + \delta_4 GEX + \delta_5 GTR + u_t \quad (3)$$

Autoregressive Distributed Lag (ARDL) Model:

$$\begin{aligned} \ln(IFR_t) = & \delta_0 + \delta_{1i} \ln(IFR_{t-1}) + \delta_{2i} \ln(M2_{t-1}) + \delta_{3i} \ln(LR_{t-1}) + \delta_{4i} \ln(MPR_{t-1}) + \delta_{5i} \ln(GEX_{t-1}) \\ & + \delta_{6i} \ln(GTR_{t-1}) + \sum_{t=1}^p \alpha_{1i} \Delta \ln(RGDP_{t-1}) + \sum_{t=1}^q \alpha_{2i} \Delta \ln(M2_{t-1}) + \sum_{t=1}^p \alpha_{3i} \Delta \ln(LR_{t-1}) \\ & + \sum_{t=1}^q \alpha_{4i} \Delta \ln(MPR_{t-1}) + \sum_{t=1}^q \alpha_{5i} \Delta \ln(GEX_{t-1}) + \sum_{t=1}^p \alpha_{6i} \Delta \ln(GTR_{t-1}) + \alpha ECMT_{t-1} \\ & + \varepsilon_{1i} \end{aligned} \quad (4)$$

A Priori Expectation: $\delta_1 < 0$; $\delta_2 > 0$; $\delta_3 < 0$; $\delta_4 < 0$; $\delta_5 < 0$.

IFR = Inflation Rate, M2 = Money Supply, LR = Lending Rate, MPR = Monetary Policy Rate, GEX = Government Expenditure, GTR = Government Tax Revenue, δ_0 = Regression Intercept, $\delta_1 - \delta_5$ = Parameters of the Independent Variables, μ_t = Disturbance or Error Term, f = Functional Notation.

Model Specification

The theoretical foundation of this study was laid on the Monetarism/Neo-Classical Theory propounded by Friedman (1956), which argues that inflation is always and everywhere a monetary phenomenon driven primarily by the growth rate of the money supply. The model of this study was built on the empirical work of Sokunbi, Olayinka, Aworinde, Taiwo and Musa (2024), who evaluated the effects of fiscal and monetary policies on macroeconomic performance in Nigeria's economy between 1986 and 2023. The model is specified as follows:

Method of Data Analysis

The technique of analysis adopted in this study is Autoregressive Distributed Lag (ARDL) technique. The Autoregressive Distributed Lag (ARDL) technique is an econometric estimation method developed and popularized by M. Hashem Pesaran, Yongcheol Shin, and Richard J. Smith (2001) for

analyzing both short-run and long-run relationships among time series variables. The ARDL model combines the autoregressive (AR) component, which captures the influence of past values of the dependent variable, with the distributed lag (DL) component, which incorporates the current and lagged values of explanatory variables. The ARDL approach is widely used in economics, finance, energy economics, and social sciences because it provides reliable estimates even when explanatory variables exhibit different orders of integration. The ARDL technique is generally adopted when the variables under

investigation are integrated of mixed orders, that is, some variables are stationary at level $I(0)$ while others become stationary after first differencing $I(1)$.

IV. RESULTS AND DISCUSSION OF FINDINGS

Descriptive Analysis

The descriptive statistics for the study variables are summarized in Table 1:

Table 1: Descriptive Statistics for the Research Variables

	IFR	M2	LR	MPR	GEX	RGDP
Mean	19.88025	13114.09	17.79450	14.09375	3978.845	43141.42
Median	12.95000	2384.865	17.53000	13.50000	1711.950	37604.19
Maximum	76.80000	79422.59	29.80000	27.50000	22177.40	80607.14
Minimum	0.200000	22.30000	9.250000	6.000000	13.00000	17170.08
Std. Dev.	17.69616	19057.39	4.147205	4.316667	5398.042	22039.77
Skewness	1.710499	1.776556	0.597369	1.054144	1.885250	0.317163
Kurtosis	5.098219	5.794478	4.084472	4.977458	6.126888	1.471683
Jarque-Bera	26.84291	34.05618	4.339128	13.92537	39.99017	4.563536
Probability	0.000001	0.000000	0.114227	0.000947	0.000000	0.102104
Sum	795.2100	524563.5	711.7800	563.7500	159153.8	1725657.
Sum Sq. Dev.	12213.01	1.42E+10	670.7730	726.7109	1.14E+09	1.89E+10
Observations	40	40	40	40	40	40

The descriptive statistics presented in Table 1 provide important insights into the distributional characteristics, central tendencies, and variability of the variables used in the study over the period 1985 to 2024.

Inflation Rate (IFR)

The inflation rate presents a highly dispersed distribution with a mean of 19.88 percent and a median of 12.95 percent. The significant gap between the mean and median reflects the influence of extreme inflationary episodes, particularly the 76.80 percent recorded in 1994, on the average. The standard deviation of 17.70 reveals high volatility in inflation dynamics over the study period. The strongly positive skewness of 1.710 and leptokurtic kurtosis of 5.098 indicate a heavily right-skewed distribution with fat tails, implying frequent occurrences of abnormally high inflation episodes. The Jarque-Bera probability of 0.000001

conclusively rejects the null hypothesis of normality, confirming the non-normal distribution of the inflation rate.

Broad Money Supply (M2)

Broad money supply (M2) shows a mean of N13,114.09 billion and a median of N2,384.87 billion, revealing a highly right-skewed distribution, as the mean far exceeds the median due to the explosive growth of M2 in the most recent years of the study. The maximum of N79,422.59 billion and the standard deviation of N19,057.39 billion reflect the phenomenal expansion of the money supply, particularly after 2010. The skewness of 1.777 and leptokurtic kurtosis of 5.794, alongside a Jarque-Bera probability of 0.000, confirm non-normality.

Lending Rate (LR) and Monetary Policy Rate (MPR)

The lending rate has a mean of 17.79 percent and a median of 17.53 percent, indicating a relatively

symmetric distribution with a moderate standard deviation of 4.15. The maximum of 29.80 percent and minimum of 9.25 percent reflect the range of lending rate environments faced by borrowers over the study period. The Jarque-Bera probability of 0.114 confirms normality. The monetary policy rate (MPR) has a mean of 14.09 percent and a median of 13.50 percent. Its standard deviation of 4.32 indicates moderate variability, consistent with a policy rate that is adjusted periodically. The MPR is positively skewed (1.054) with a leptokurtic kurtosis (4.977), and the Jarque-Bera probability of 0.001 rejects normality, reflecting the asymmetric and episodic nature of monetary policy tightening cycles in Nigeria.

Government Expenditure (GEX)

Government expenditure (GEX) has a mean of N3,978.85 billion and a median of N1,711.95 billion, indicating a strongly right-skewed distribution driven by the explosive growth in public spending in recent

years. The standard deviation of N5,398.04 billion reflects high variability. Both the skewness (1.885) and kurtosis (6.127), along with a Jarque-Bera probability of 0.000, confirm non-normality.

Government Tax Revenue (GTR)

Government tax revenue (GTR) shows similar characteristics, with a mean of N5,198.24 billion, median of N4,382.55 billion, standard deviation of N5,412.98 billion, skewness of 1.060, kurtosis of 3.749, and a Jarque-Bera probability of 0.015 confirming non-normality. The distributional properties of both fiscal variables reflect the rapid but uneven expansion of Nigerian public finances, driven primarily by oil revenue cycles and more recently by non-oil revenue mobilization efforts.

Unit Root Test

The results of the unit root test are presented in Table 2 below:

Table 2: Augmented Dickey-Fuller (ADF) Test Results

Variables	ADF at Levels		ADF at First Difference		Order of Integration	Stationary
	ADF Statistic	5% Critical Value	ADF Statistic	5% Critical Value		
LOG(IFR)	-5.354631	-2.938987	-	-	I(0)	At Level
LOG(M2)	-1.947251	-2.938987	-4.351919	-2.941145	I(1)	At 1 st Differences
LOG(LR)	-3.914240	-2.938987	-	-	I(0)	At Level
LOG(MPR)	-2.305174	-2.938987	-6.968948	2.941145	I(1)	At 1 st Differences
LOG(GEX)	-3.687781	-2.941145	-	-	I(0)	At Level
LOG(GTR)	-2.275427	-2.938987	-6.362917	-2.941145	I(1)	At 1 st Differences

The unit root test results in Table 2 show that inflation rate (IFR), lending rate (LR) and government expenditure (GEX) attained stationarity at level, integrated of order zero [I(0)], while money supply (M2), monetary policy rate (MPR) and government tax revenue (GTR) attained stationarity only after first differencing, integrated of order one [I(1)]. The presence of mixed orders of integration

justifies the adoption of the Autoregressive Distributed Lag (ARDL) modelling technique.

Correlation Analysis

The results of the correlation matrix are presented in Table 3:

Table 3: Correlation Matrix

Variable	LOG(IFR)	LOG(M2)	LOG(LR)	LOG(MPR)	LOG(GEX)	LOG(GTR)
LOG(IFR)	1.000000					
LOG(M2)	0.006362	1.000000				
LOG(LR)	0.181847	-0.248630	1.000000			
LOG(MPR)	0.213970	-0.125260	0.327186	1.000000		

LOG(GEX)	-0.016330	0.389611	-0.191850	-0.070530	1.000000	
LOG(GTR)	-0.025100	0.567797	-0.119830	-0.101290	0.083811	1.000000

The correlation matrix in Table 3 shows that all pairwise correlations among the independent variables are below the conventional multicollinearity threshold of 0.80. The highest inter-regressor correlation is between money supply and government tax revenue (0.567797), which remains well below

the threshold. This confirms that the regression estimates for the IFR model will be free from serious multicollinearity bias and can be interpreted with confidence.

Bound Cointegration Test
Table 4: ARDL Bounds Cointegration Test

Test Statistic	Value	Significance Level	I(0)	I(1)
F-statistic	4.592725	10%	2.08	3.00
K	5	5%	2.39	3.38
		2.5%	2.70	3.73
		1%	3.06	4.15

In order to determine the presence or absence of cointegration among inflation rate (IFR), money supply (M2), lending rate (LR), monetary policy rate (MPR), government expenditure (GEX) and government tax revenue (GTR), the bounds cointegration test was conducted. The result of the ARDL Bounds cointegration test in Table 4.4 shows that the bounds test indicates the presence of a long-run relationship among the variables, given that the F-statistic value of 4.592725 is higher than the 5% upper bound critical value of 3.38. By this, the null

hypothesis is rejected, leading the study to conclude that there is a cointegrating relationship among the variables. This confirmation of long-run dynamics necessitated the estimation of the Autoregressive Distributed Lag (ARDL) model.

Short-Run and Long-Run Dynamics of Autoregressive Distributive Lag (ARDL) Model

The results of the estimation are presented in Table 5:

Table 5: Estimated Long-Run and Short-Run Coefficients of ARDL Model.

Dependent Variable = LOG(IFR)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DLOG(M2)	-4.068921	0.784002	-5.189935	0.0001
DLOG(M2(-1))	1.451916	0.882718	1.644825	0.1164
DLOG(M2(-2))	1.865956	0.824733	2.262497	0.0356
DLOG(LR)	0.559187	0.122824	4.552734	0.0004
DLOG(MPR)	1.812005	0.499378	3.628526	0.0018
DLOG(MPR(-1))	-2.734919	0.501612	-5.452259	0.0000
DLOG(MPR(-2))	-1.360912	0.469752	-2.897088	0.0092
DLOG(MPR(-3))	-1.771234	0.460087	-3.849784	0.0011
DLOG(GEX)	-5.296374	0.637127	-8.312895	0.0000
DLOG(GTR)	-0.112719	0.321460	-0.350647	0.7297
DLOG(GTR(-1))	0.061630	0.102735	0.599897	0.5550
CointEq(-1)*	-0.740546	0.113861	-6.503954	0.0000
R-squared = 0.857192; Adjusted R-squared = 0.800069; Durbin-Watson stat = 2.368633				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*

LOG(M2)	-3.173990	0.766105	-4.143023	0.0006
LOG(LR)	0.443521	0.112112	3.956060	0.0007
LOG(MPR)	3.223128	1.061303	3.036954	0.0068
LOG(GEX)	-3.204130	1.109803	-2.887116	0.0094
LOG(GTR)	-0.758389	0.603562	-1.256523	0.2242
C	-1.305534	5.307628	-0.245973	0.8083
EC = LOG(IFR) - (-3.1740*LOG(M2) + 0.4435*LOG(LR) + 3.2231*LOG(MPR) -3.2041*LOG(GEX) - 0.7584*LOG(GTR) -1.3055)				

The short-run estimation results for the inflation rate model reveal important transmission dynamics. Broad money supply (M2) exerts an immediate negative and significant short-run effect on inflation (coefficient: -4.068921, $p = 0.0001$). This counterintuitive result may reflect reverse causality or a lagged mechanism whereby tighter money supply responses to past inflationary pressures temporarily suppress current price levels. The positive lagged effect of broad money supply at two periods (1.866, $p = 0.0356$) suggests a delayed re-emergence of inflationary pressures from monetary expansion, which is consistent with lags in the monetary transmission mechanism identified in the literature. The lending rate (LR) has a positive and significant short-run effect on inflation (0.559, $p = 0.0004$), which may reflect the cost-push dimension of inflation in Nigeria, where higher lending rates increase the cost of production and are partly passed on to consumers as higher prices. The monetary policy rate (MPR) has an immediate positive effect (1.812, $p = 0.0018$), consistent with short-term uncertainty effects when interest rates are raised. However, lagged MPR effects at one, two, and three periods are negative and significant (-2.735, -1.361, -1.771), consistent with the delayed inflation-suppressing effect of monetary tightening as credit conditions tighten and demand moderates over time. Government expenditure (GEX) has a strongly negative and significant short-run coefficient (-5.296, $p = 0.0000$), suggesting that in the immediate term, increased government spending may substitute for private consumption and temporarily reduce demand-pull inflationary pressures—or alternatively, that government spending is more often directed toward supply-side improvements that reduce production costs in the short run.

The error correction term (CointEq(-1)) has a coefficient of -0.740546 ($p = 0.0000$), confirming a strong and rapid long-run adjustment speed of approximately 74.05 percent per year. This indicates that inflation deviations from long-run equilibrium are substantially corrected within the first year, reflecting the relative effectiveness of Nigerian monetary policy in managing inflationary pressures toward their long-run equilibrium path. The Adjusted R-squared value of 0.800069 is also very high and close to the R-squared value, confirming that the model is well specified and that approximately 80 percent of the variation in inflation rate is explained by the included explanatory variables (money supply, lending rate, monetary policy rate, government expenditure and government tax revenue).

In the long run, broad money supply (M2) has a significant negative coefficient (-3.174, $p = 0.0006$). While this appears contrary to standard quantity theory predictions, it may reflect the strong counter-inflationary policy responses that accompany money supply expansion in Nigeria, where the CBN has periodically engaged in aggressive open market operations and reserve requirement adjustments. The lending rate (LR) has a positive and significant long-run coefficient (0.444, $p = 0.0007$), confirming the cost-push inflation channel. The monetary policy rate (MPR) has a positive and significant long-run coefficient (3.223, $p = 0.0068$), suggesting that over extended periods, higher policy rates may contribute to inflationary pressures through their effect on interest income, financial sector costs, and exchange rate pass-through—a finding that highlights the complexity of monetary transmission in a developing economy. Government expenditure (GEX) has a negative and significant long-run coefficient (-3.204, $p = 0.0094$), reinforcing the finding that productive government expenditure may enhance supply

capacity and dampen inflationary pressures over the long run. Government tax revenue (GTR) is negative but statistically insignificant in the long run ($p = 0.2242$), suggesting that fiscal revenue mobilization

does not independently reduce inflation in a statistically reliable manner once other variables are controlled for.

Post-Estimation Tests of IFR Model

Table 6: Post-Estimation Diagnostic Test Results for IFR Model

Test	F-Statistic	P-value	Null Hypothesis	Decision
Jarque-Bera Normality Test	0.706743	0.7023	H_0 : Normally distributed	Retain H_0
Breusch-Godfrey Serial Correlation LM Test	1.076745	0.3628	H_0 : No serial correlation	Retain H_0
Heteroskedasticity Test (Breusch-Pagan-Godfrey)	1.750301	0.1219	H_0 : Homoscedasticity	Retain H_0
Ramsey RESET Test	13.28905	0.0019	H_0 : Correctly specified	Retain H_0

The post-estimation diagnostic results for the inflation rate model presented in Table 4.11 indicate that the model satisfies most classical regression assumptions. The Jarque-Bera normality test reports an F-statistic of 0.706743 with a probability value of 0.7023, which is greater than the 0.05 significance level; hence, the null hypothesis of normally distributed residuals is retained. This implies that the error terms follow a normal distribution, satisfying one of the key assumptions of classical linear regression and ensuring the validity of statistical inferences. The Breusch-Godfrey serial correlation LM test yields a probability value of 0.3628, confirming the absence of serial correlation in the residuals. The Breusch-Pagan-Godfrey heteroskedasticity test produces a probability value of 0.1219, confirming constant variance of the error terms and

homoscedastic residuals. However, the Ramsey RESET test yields an F-statistic of 13.289 with a probability value of 0.0019, which is below the 0.05 threshold and suggests the possibility of functional form misspecification or omitted non-linear dynamics. This finding is consistent with the complex and structurally non-linear nature of inflation in Nigeria, which may be influenced by threshold effects, asymmetric shocks, and structural breaks not fully captured by the linear ARDL specification. Notwithstanding this, the ARDL model remains a valid estimation framework given its flexibility in accommodating mixed integration orders and dynamic lag structures. Researchers interested in refining the inflation model may consider non-linear ARDL specifications as a robustness check.

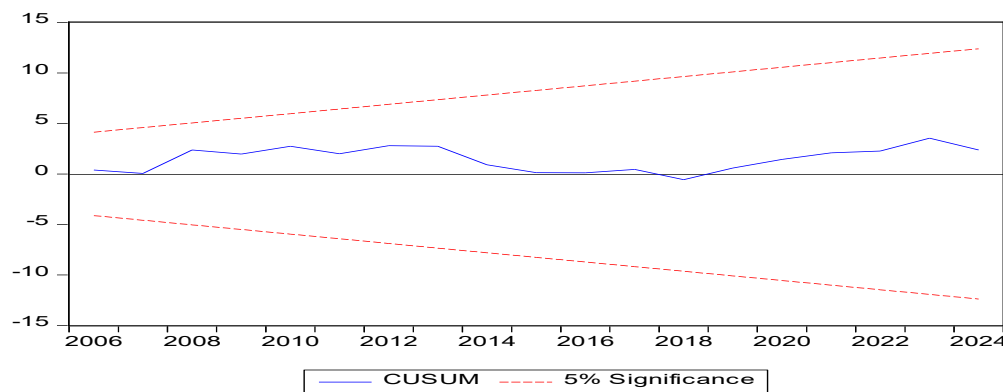


Figure 1: Stability Cusum Tests

The CUSUM stability test further confirms that the estimated coefficients remain stable throughout the sample period, as the CUSUM statistic stays well

within the 5 percent critical bounds at all time periods, indicating structural stability of the model

Discussion of Findings

This study has empirically analyzed time series data to determine the effectiveness of monetary and fiscal policy measures in controlling inflation in Nigeria from 1985 to 2024, using the Autoregressive Distributed Lag (ARDL) estimation technique and EViews 12 statistical package. The findings reveal complex and nuanced policy transmission dynamics. In the long run, broad money supply has a dampening effect on inflation, a result that reflects the complex, non-linear relationship between monetary expansion and price dynamics in Nigeria when money supply growth is channelled into productive uses. This finding partly aligns with Ndugbu and Okere (2015), who noted that monetary policy mechanisms in Nigeria are subject to time lags and structural bottlenecks that limit their effectiveness, and with Chukwunulu (2022), who found that money supply exerts a significant effect on key macroeconomic price indicators in Nigeria.

Government expenditure consistently suppresses inflation in both the short run and long run, suggesting that productive public spending enhances supply-side capacity and moderates inflationary cost pressures, consistent with Emmanuel (2022), who found that fiscal policy is a potent determinant of industrial sector output, which in turn expands aggregate supply and eases price pressures. The lending rate has a positive effect on inflation in both horizons, consistent with the cost-push inflation argument, and aligns with the findings of Egbulonu (2018), who documented the significant role of credit costs in shaping Nigeria's manufacturing and price dynamics. The monetary policy rate, while exhibiting negative lagged short-run dynamics, contributes positively to long-run inflation, raising important questions about the effectiveness of the Central Bank of Nigeria's interest rate policy as an inflation control tool, given structural supply-side constraints that monetary policy cannot easily address. This finding is consistent with Balogun (2021), who cautioned that monetary policy rate adjustments alone may be insufficient without a holistic approach to credit allocation, and resonates with the Monetarist proposition of Friedman (1956) that disciplined, rule-based monetary management, rather than discretionary rate adjustments alone, is central to

achieving durable price stability in developing economies such as Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study empirically determined the effectiveness of monetary and fiscal policy measures in controlling inflation in Nigeria. The findings of the study indicated that money supply and government expenditure, as indicators of monetary and fiscal policy, have significant negative effects on inflation rate in Nigeria in the long run, while lending rate and monetary policy rate have significant positive effects. Government tax revenue exerted a negative but statistically insignificant long-run effect. Premised on the findings, the study concluded that monetary and fiscal policy measures exert significant but divergent effects on inflation dynamics in Nigeria, with the effectiveness of any given instrument depending on the specific channel and time horizon considered.

Recommendations

The following recommendations are proffered based on the findings of this study:

- i. The Central Bank of Nigeria should pursue deliberate measures to reduce the cost of credit in the Nigerian economy as a channel for moderating cost-push inflationary pressures. Since lending rate consistently exerts a significant positive effect on inflation, financial market reforms that deepen competition among deposit money banks and lower the cost of capital should be prioritized alongside conventional interest rate policy.
- ii. Fiscal authorities should sustain and expand productive government expenditure, particularly in agriculture, manufacturing, and infrastructure, given its confirmed inflation-dampening effect. By enhancing domestic supply-side capacity, well-targeted public spending can help moderate the cost-push and structural drivers of inflation that pure monetary tightening cannot address.
- iii. The Central Bank of Nigeria and the Federal Ministry of Finance should establish a formal

macroeconomic policy coordination framework to ensure that monetary policy rate adjustments are complemented by supportive fiscal measures. Given the finding that the monetary policy rate alone exerts a counterintuitive long-run positive relationship with inflation, its effectiveness should not be assessed or deployed in isolation from the broader fiscal and structural policy environment.

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