

# Monetary Policy Rate and Performance of the Nigerian Economy: A Simulation Analysis

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## Abstract

*This study investigated the impact of monetary policy rate on the performance of the Nigerian economy by focusing on the macroeconomic variables of aggregate demand, total output production and inflation. The study used quarterly data on the Nigerian economy from 2006Q4 to 2022Q4. The study simulated the impact of 5% increase and 5% decrease in the monetary policy rate on aggregate demand, total output production and inflation. The study revealed that increasing the monetary policy rate was ineffective in controlling inflation in Nigeria. An increase in the monetary policy rate caused an increase in the interest rate, which in turn affected the supply of credit to the private sector. A reduction in the credit supply to the private sector has adverse consequences for aggregate demand and total output production in the economy. Also, the study concludes that decreasing the monetary policy rate in the country has the propensity to increase the credit supply to the private sector, with a potential positive impact on aggregate demand and total output production and, consequently, GDP growth in the economy. Therefore, the Central Bank of Nigeria (CBN) should consider the option of lowering the monetary policy rate (MPR) to stimulate economic and output growth. This would reduce interest rates, especially lending rates, and consequently increase the credit supply to the private sector in the economy. It is also recommended that the CBN continue to employ the monetary policy rate to effect changes in the credit supply and its accessibility to the private real economy.*

**Keywords:** Aggregate demand, inflation, macroeconomic performance, monetary policy, total output

## 1. Introduction

Monetary policy is a deliberate action of monetary authorities to influence the quantity, cost, and availability of money credit to achieve the desired macroeconomic objectives of internal and external balances (Central Bank of Nigeria, (CBN) 2021). According to Hassan and Oyedele (2022), monetary policy is a policy framed and controlled by a central bank with the help of a monetary policy committee through the monetary policy rate (MPR) to regulate the supply of money in an economy. The MPR in Nigeria was introduced in 2006 to replace the minimum rediscount rate (MRR). There are two types of monetary policy situations, namely, expansionary and contractionary monetary policy (CBN, 2021). Expansionary monetary policy helps in supplying money to the economy by reducing interest rates when there is less liquidity. Hence, it is used during recessions. Contractionary monetary policy helps reduce excess liquidity and inflation in the economy by increasing interest rates so that the money supply will become limited and, automatically, inflation will decrease (Nikhil & Deene, 2021).

The MPR is an important monetary policy tool for influencing the performance of an economy via inflation, output growth, aggregate demand, and exchange rate stability. The monetary policy rate serves as the fundamental benchmark interest rate to which other rates are added (Obi, 2020). This represents a short-term rate at which banks have the option to secure loans from monetary authority, facilitating lending by deposit money banks to individuals, businesses, corporations, and the government. When the monetary policy rate of the Central Bank of Nigeria increases, it becomes more expensive for banks to borrow money from the central bank. As a result, commercial banks increase their lending rates to consumers and businesses, which leads to higher borrowing costs. This can slow economic growth, as businesses may reduce investments, and consumers may reduce spending due to higher interest rates. Conversely, when the Central Bank lowers the monetary policy rate, borrowing costs decrease, leading to increased investments and consumer spending. This can stimulate economic growth and help boost employment levels in the country. However, if interest rates are lowered too much, inflationary pressures can occur in the economy (CBN, 2021).

Empirically, the relationship between the monetary policy and economic performance of Nigeria was investigated by Acha and Enow (2023), Babatunde, and Olasunkanmi (2023), Ogar (2022) and Nwobia, Ogbonnaya-Udo, and Ezu (2020); however, none of these studies examined the effect of contractionary and expansionary monetary policy rates on the economic performance of the country. Leaving a scholarly gap. Against this backdrop, this study investigated the effects of variations in the monetary policy rate on aggregate demand, total output production, and inflation in Nigeria. By employing simulation analysis, offers a comprehensive depiction of the impacts of contractionary and expansionary MPR policies.

The remaining sections of the paper are structured as follows: Section 2 captured the literature review, Section 3 comprise of the methodology, Section 4 contains results and findings, and lastly, Section 5 comprise of the study's conclusions and recommendations.

## 2.0 Literature review

### 2.1 Theoretical framework

**Hicks IS-LM Framework:** The modern theory of interest rates, also known as the Hicks IS-LM curve, posits that the real income and rate of interest are influenced by both goods market forces and money market forces. This theory elucidates the interplay between the commodity market and the money market, providing a comprehensive understanding of interest rate determination. It encompasses key factors such as liquidity preference, investment, savings, and money supply in influencing the actual income and interest rate. This determination is facilitated through the utilization of IS-LM curves. The IS curve emerges from the interplay of savings and investment in the commodity market, signifying the balance between the interest rate and income level in the goods market. Conversely, the LM curve arises from the interaction of liquidity preference and money supply, representing the equilibrium in the money market at various income levels. Consequently, the IS-LM curves collectively ascertain the national income and interest rate in the short term when price levels remain fixed.

The influence of monetary policy changes on the interest rate, given a specific income level, reveals that the equilibrium interest rate relies on the availability of real money balances. For example, if the monetary authority decides to augment the money stock while holding real money balances constant, it will lead to a decrease in the interest rate. This causes a downward movement in the LM curve, ultimately achieving equilibrium in the money market at a lower interest rate. On the other hand, if the money supply decreases, the interest rate will increase. This positive movement in the LM curve results in a higher interest rate, leading to stability in the money market at an elevated interest rate. Consequently, the LM curve demonstrates a positive association between income and the interest rate.

**Monetarist theory:** In response to the criticisms directed at Keynesian theory, Friedman (1956) introduced the monetarist theory. However, Friedman (1968) contended that monetary policy should solely focus on influencing the quantity, cost, and flow of money since inflation is inherently tied to monetary factors across all contexts. He acknowledged that temporarily increasing the money supply might lower unemployment, but it can also trigger inflation. As a result, monetary authorities should exercise caution in their actions. Monetarist theorists relied on Fisher's equation of exchange to demonstrate their arguments. Fisher's equation provided a framework for their thesis, and according to this equation:

$$MV = PQ$$

where M denotes the money supply, V denotes the circulation velocity, P refers to the price level, and Q is the output produced.

The significance of this equation lies in its implication that doubling the money stock within the economy will lead to a corresponding doubling of the price. Furthermore, in the scenario where there is a 10% increase in the money supply, the price level will correspondingly increase by 10%. Monetarist economists, such as Friedman (1956; 1963), highlighted the crucial role of the money stock in the

overall well-being of the economy. They argued that rather than being subject to discretionary control by the CBN, the money stock should expand at a consistent rate to promote stable growth. Additionally, Friedman asserted that changes in the money supply directly and indirectly influence investment and expenditure, as money serves as a substitute for various goods, services, and bonds. Monetarists firmly believe that alterations in the supply of money have an immediate influence on the actual amount of money in circulation. They maintain the perspective that the CBN has the capacity to influence the real sector of the economy via open market operations.

## 2.2 Empirical Review

Acha and Enow (2023) examine the effect of indirect monetary policy on the performance of the Nigerian economy from 1993 to 2020. The study revealed that the monetary policy rate and liquidity ratio have detrimental effects on the performance of the Nigerian economy, while open market operations and the cash reserve ratio have positive effects on the performance of the Nigerian economy. The study concluded that indirect monetary policy contributed positively to the performance of the Nigerian economy within the study period.

In a similar vein, Babatunde and Olasunkanmi (2023) examined the impact of monetary policy on economic performance in sub-Saharan Africa from 2005 to 2019. This study employs the Blundell and Bond system GMM technique for the estimation. This study revealed that monetary policy was an important factor in the determination of economic performance in sub-Saharan African countries.

Furthermore, Ogar (2022) investigated the interplay among the monetary policy rate, inflation, and economic growth in Nigeria from 2007Q1 to 2017Q4. Employing the SVAR methodology, the study found that the monetary policy rate exerts a favourable and statistically substantial correlation with the monetary policy rate. Additionally, the money supply spurs the level of output, whereas inflation impedes economic growth in Nigeria.

The effects of monetary policy on selected macroeconomic variables in the Nigerian economy from 1981 to 2019 were examined by Nwobia, Ogbonnaya-Udo, and Ezu (2020). Vector autoregressive and least regression analysis techniques were used for the data analysis. The study results revealed that monetary policy has a nonsignificant positive relationship with real gross domestic product but has a significant positive effect on the inflation rate.

## 3.0 Methods

This research utilized an ex post facto research design to examine the influence of changes in the monetary policy rate on various aspects of the Nigerian economy, including the interest rate structure, aggregate demand, total output production, and inflation during the period from 2006Q4 to 2022Q4. The study included the following variables: monetary policy rate (MPR), prime lending rate, interbank lending rate, private final consumption expenditure, credit to the private sector, inflation rate, exchange rate, and real gross domestic product through the Central Bank of Nigeria (CBN) Statistical Bulletin and reports from the National Bureau of Statistics.

### 3.1 Model Specification

The models for the study were built using the modelling procedure outlined by the CBN (2017) and IS-LM framework. Thus, the study built three models to (i) examine the effect of MPR on aggregate demand, (ii) examine the effect of MPR on total output production and (iii) examine the effect of MPR on inflation. The models are specified below:

**Model I:** To capture the effect of the MPR on aggregate demand in Nigeria, the model is specified as:

$$PCE = f(CPS, DLR, MPR, INFL)$$

where PCE = Private final consumption expenditure, CPS = Credit to the private sector; DLR = Differential between maximum and prime lending rates of deposit money banks; MPR = Monetary Policy Rate; and INFL = Inflation Rate

**Model II:** To capture the effect of the MPR on total output production in Nigeria, the model is specified as follows:

$$TOP = f(CPS, MPR, INFL, EXCH)$$

where TOP = total output production, CPS = credit to the private sector, MPR = monetary policy rate, INFL = inflation rate and EXCH = exchange rate.

**Model II:** To capture the effect of the MPR on inflation in Nigeria, the model is specified as:

$$INFL = f(RGDP, MPR, EXCH, CPS)$$

where INFL = Inflation, RGDP = Real Gross Domestic Product, MPR = Monetary Policy Rate, EXCH = Exchange Rate, and CPS = Credit to the private sector.

### 3.2 Method of Data Analysis

This study utilized both descriptive and analytical techniques to examine the data. Descriptive statistics and graphical methods were employed to provide a comprehensive analysis of the variables under investigation, presenting various properties and characteristics. Alongside descriptive statistics, the Augmented Dickey Fuller and KPSS tests were utilized for the purpose of examining the data for stationarity. Furthermore, the vector autoregressive (VAR) model was employed to estimate the models that address the study’s objectives. To assess the effect of the set of scenarios, simulation experiments were conducted within the framework of the VAR model. For the simulation experiments, the sample period of 2006Q4-2018Q4 was utilized for within-sample simulations, while the out-of-sample simulation period ranged from 2019Q1 to 2022Q4. A baseline simulation was compared against the policy shocks introduced by the MPR adjustments, enabling an evaluation of the effects of the MPR on aggregate demand, total output production, and inflation in Nigeria.

## 4. Results and Findings

Before the models in this study were estimated, the series used in the models were subjected to descriptive statistical analysis and unit root tests.

### 4.1 Descriptive Statistics

The descriptive properties of the series were computed, and the results are presented in the following tables.

**Table 1: Descriptive Statistics**

	RGDP(₦)	MPR (%)	INTR (%)	INFL (%)	EXCH (₦-\$)	CPS (₦)	PCE(₦)
Mean	4.577402	11.01480	16.39449	11.94432	164.5371	9285.080	44501.56
Median	4.685442	9.916667	16.52000	12.15626	149.5891	8011.274	32940.02
Maximum	5.239369	14.00000	24.85000	18.87365	306.9400	22521.93	108468.2
Minimum	3.640928	6.000000	11.50000	5.388008	21.88610	200.1593	2405.094
Std. Dev.	0.513486	2.237821	3.187446	3.578147	78.11867	8515.284	38417.59
Skewness	-0.476162	-0.309205	0.528463	0.070369	0.401142	0.340008	0.467263
Kurtosis	1.893764	2.573264	3.045650	2.152880	2.570890	1.503015	1.662621
Jarque-Bera	9.232941	2.446317	4.849762	3.195483	3.587104	11.71468	11.53500
Probability	0.009888	0.294299	0.088489	0.202353	0.166368	0.002859	0.003128
Observatio	65	65	65	65	65	65	65

**Source:** Authors’ Computation using E-view 10

Table 1 shows that between 2006Q4 and 2022Q4, RGDP, MPR, INTR, INFL, EXCH, CPS and PCE averaged ₦4.58 billion, 11.01%, 16.39%, 11.94%, ₦164.54, ₦9,285.08 billion and ₦44,501.56 billion, with peaks of ₦5.24 billion, 14.00%, 24.85%, 18.87%, ₦306.94, ₦22,521.93 billion and ₦108,468.20 billion, respectively. The corresponding minimum values of RGDP, MPR, INTR, INFL, EXCH, CPS and PCE are ₦3.64 billion, 6.00%, 11.50%, 5.39%, ₦21.89, ₦200.16 billion and ₦2405.09 billion, respectively. These results indicate that the series have moving trends, as their values vary with time. Furthermore, RGDP and MPR are negatively skewed to the left, while INTR, INFL, EXCH, CPS and PCE are positively skewed to the right. It was revealed that RGDP, MPR, INFL, EXCH, CPS AND PCE are platykurtic except for the INTR, which is mesokurtic. The Jarque-Bera statistic indicated that the MPR, INTR, INFL, and EXCH are normally distributed, while the RGDP, CPS and PCE are not normally distributed.

**4.2 Unit Root Test Results**

Second, to avoid spurious estimates, the series were subjected to unit root tests. In doing so, the augmented Dickey-Fuller (ADF) test and Kwiatkowski-Philips-Schmidt-Shin (KPSS) test were used. The results are presented in the following tables.

**Table 2: Unit Root Tests Results**

Variable	ADF					KPSS		
	At Levels	P Values	First Difference	Critical Values	P-Value	LM. Stat	Critical Values	Order of Integration
RGDP	-1.99894	0.1384	-10.654	-2.8906	0.000	0.1275	0.1460	I(1)
MPR	-2.60055	0.2811	-9.9841	-3.45447	0.000	0.0451	0.1460	I(1)
DLR	-2.92793	0.314	-10.001	-2.89003	0.000	0.1900	0.4630	I(1)
INFL	-3.24093	0.0824	-9.9575	-3.45447	0.000	0.0486	0.1460	I(1)
EXCH	-2.42509	0.3646	-10.179	-3.45447	0.000	0.0913	0.1460	I(1)
CPS	-2.63228	0.267	-9.9828	-3.45447	0.000	0.1520	0.4630	I(1)
CONS	-2.34318	0.4070	-11.105	-3.45447	0.000	0.1140	0.1460	I(1)

Source: Author’s Computation from E-views 10

The results of the stationarity tests in Table 2 show that all variables were stationary at the first difference, according to both the ADF and KPSS tests. This means that the series have a mean reverting ability in the long run; the implication is that any shock to the series will taper off over time.

**4.3 Simulating the Effects of Changes in MPR on the Performance of Nigerian Economy**

**4.3.1 Simulating the Effects of Changes in MPR on Aggregate Demand in Nigeria**

To ascertain the impact of changes in MPR on aggregate demand, the study simulated 5% increase and 5% decrease in MPR and the results of the experiments are presented in Table 3.

**Table 3: Simulation Results of 5% Increase and 5% Decrease in MPR**

Variables	5% Increase in MPR		5% Decrease in MPR	
	Within Sample	Out-of-sample	Within sample	Out-of-sample
PCE	-0.004	-0.001	0.145	0.218
CPS	-0.005	-0.018	0.019	0.023
DLR	0.370	0.481	0.002	0.004
INFL	-0.014	-0.008	0.057	0.048

Source: Author’s Computations using E-views 10

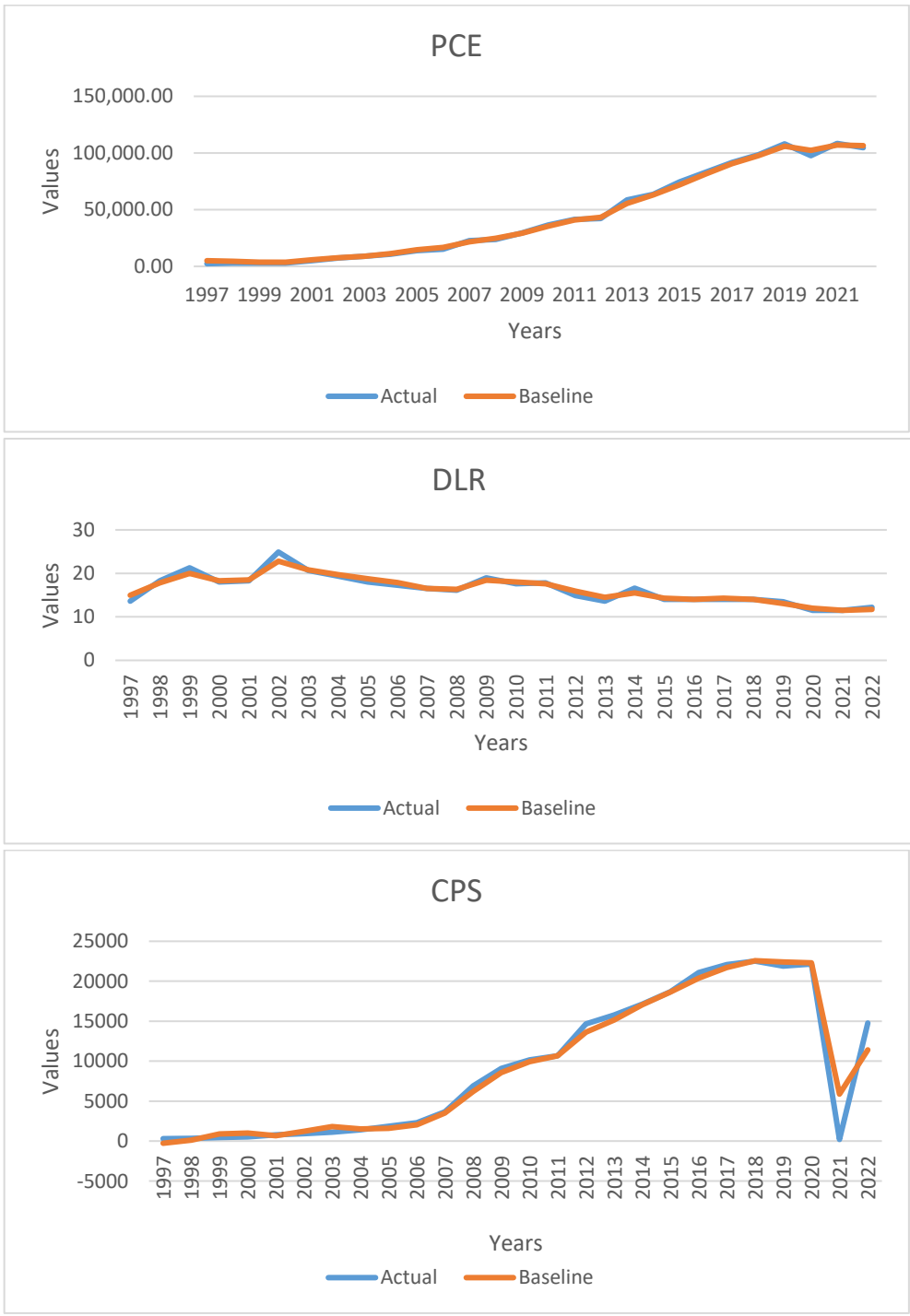
The result in Table 3 shows the simulated results for 5% increase in MPR and 5% decrease in MPR. The table indicated that, a 5% increase in MPR would marginally reduce private consumption expenditure by 0.004% for the within sample forecast and would marginally reduce private consumption expenditure by 0.001% for out-of-sample forecast. This result suggests that increasing MPR which represents a contractionary monetary policy stance would exert a detrimental effect on the consumption patterns of households and firms in the economy. Also, the results showed that a 5% increase in MPR would marginally reduce credit to the private sector both within and the out-of-sample forecast. That is, 0.005% and 0.018%, respectively. This suggests that credit channel of the monetary policy transmission in the country is weak.

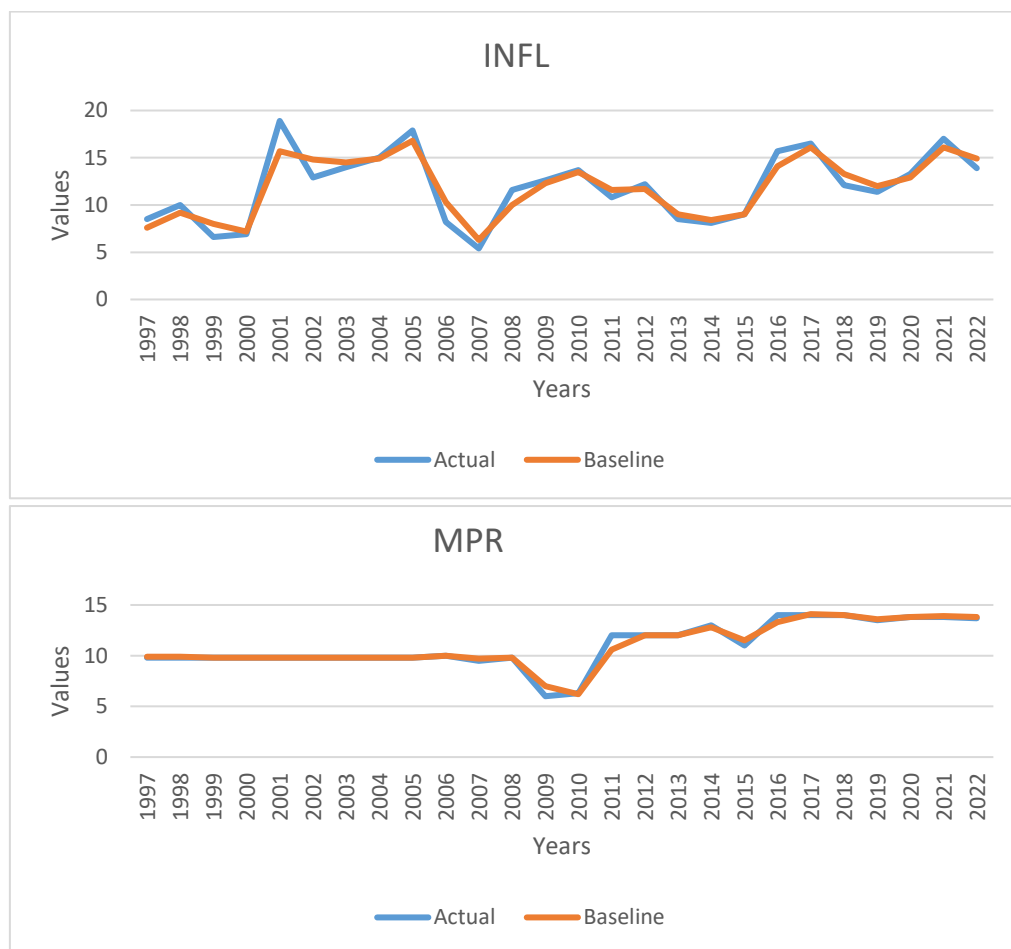
Furthermore, the table indicated that increasing MPR by 5% would increase the differential or the spread between the maximum lending rate and the prime lending rate by 0.37% for the within sample forecast and 0.48% for the out-of-sample forecast. This suggests that the spread between the maximum lending rate and the prime lending rate has relatively high interest rate elasticity. That is, it is moderately variant to the official interest rate. Again, the results revealed that increasing MPR by 5% would marginally reduce inflationary pressures by 0.14% for the within sample forecast and 0.008% for the out-sample forecast. The implication of this outcome is that incremental changes in the MPR are propitious in influencing inflationary pressures in the country. Though, the response is very low to notice the impact.

On the other hand, by decreasing the MPR by 5%, aggregate private consumption increased by 0.145% for the within sample forecast and 0.218% for the out-of-sample forecast. This suggests that private consumption appears to be more responsive to decrease in MPR than increases to MPR in the country. For credit to the private sector, a 5% reduction in the MPR has increased the credit to private sector by 0.019% for the within sample forecast and 0.023% for the out-of-sample forecast. This scenario also indicates that the credit channel is weak in transmitting monetary policy; however, the elasticity appears to increase with increasing MPR.

For the spread between the maximum lending rate and the prime lending rate, increasing the MPR by 5% marginally increased it by 0.002% for the within-sample forecast and 0.004% for the out-of-sample forecast. This suggests that the spread between the maximum lending rate and the prime lending rate is more sensitive to increases in the official interest rate than to decreases in the official interest rate in the country. Finally, reducing the MPR by 5% marginally increased inflation by 0.057% for the within-sample forecast and 0.048% for the out-of-sample forecast. This suggests that inflation is more elastic to the expansionary monetary stance than to the contractionary monetary policy stance in the country.

Furthermore, the actual and simulated graphs for the five endogenous variables were plotted together to examine their turning points, and the graphs presented in Figure 1.





**Figure 1: Baseline Simulation of the Endogenous Variables**

A critical examination of the graphs shows that for all the graphs, the simulated could replicate the critical turning points of the actual data, implying that the model is appropriate for policy analysis and projection of the monetary and other macroeconomic variables in the Nigerian economy.

**4.3.2 Simulating the Effects of Changes in MPR on Total Output Production in Nigeria**

To examine the impact of changes in MPR on total output production in Nigeria, the study simulated 5% increase and 5% decrease in MPR and the results of the experiments are presented in Table 4.

**Table 4: Simulation Results of 5% Increase and 5% Decrease in MPR**

Variables	5% Increase in MPR		5% Decrease in MPR	
	Within Sample	Out-of-sample	Within sample	Out-of-sample
TOP	-0.043	-0.038	0.035	0.067
CPS	-0.028	-0.032	0.021	0.026
INFL	-0.001	-0.051	0.052	0.049
EXCH	-0.037	-0.039	0.471	0.433

Source: Author’s Computations using E-views 10

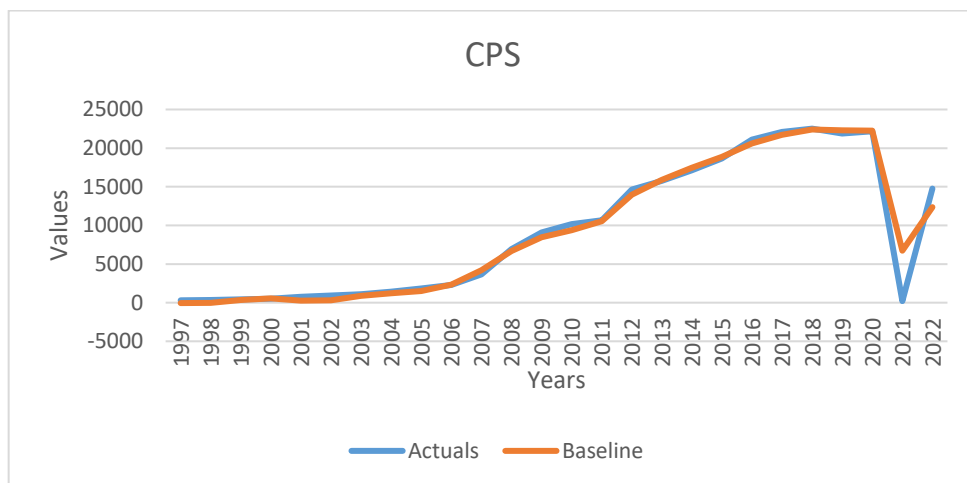


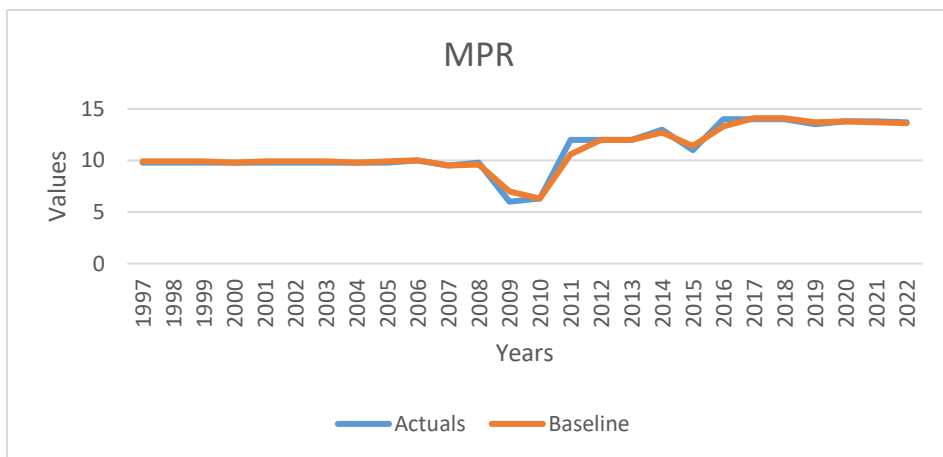
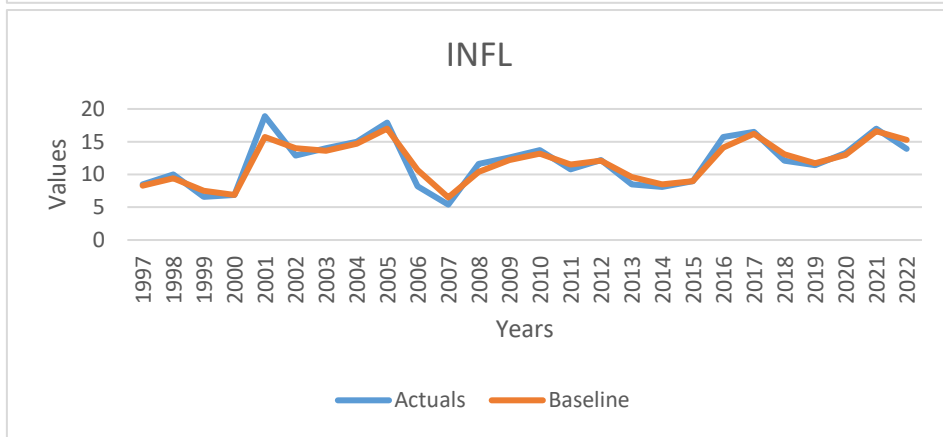
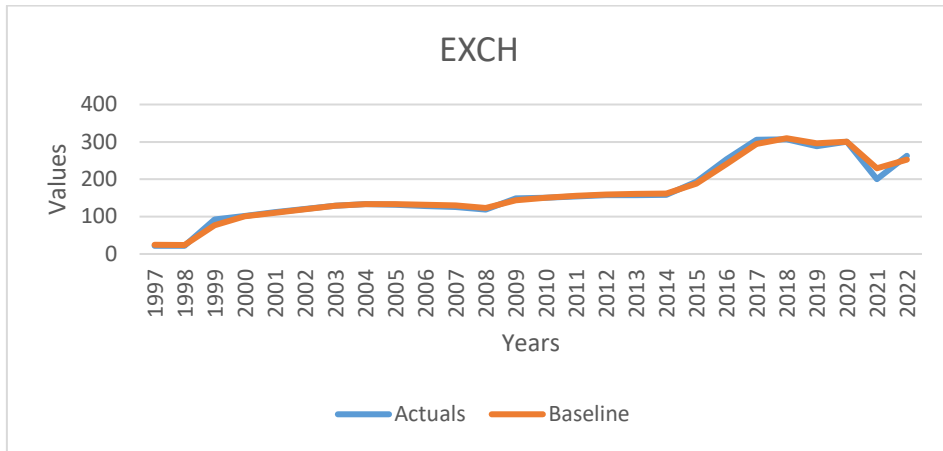
Table 4 shows the simulated results for 5% increase in MPR and 5% decrease in MPR. The table indicated that, a 5% increase in MPR would marginally reduce total output production by 0.043% for the within sample forecast and would marginally reduce total output production by 0.038% for out-of-sample forecast. This result suggests that increasing MPR which is a contractionary monetary policy stance would the funds available for production in the economy. Again, the results indicated that, a 5% increase in MPR would marginally reduce credit to the private sector by 0.028% for the within sample forecast and by 0.032% for the out-of-sample forecast. This suggests that credit channel of the monetary policy transmission in the country is not strong enough.

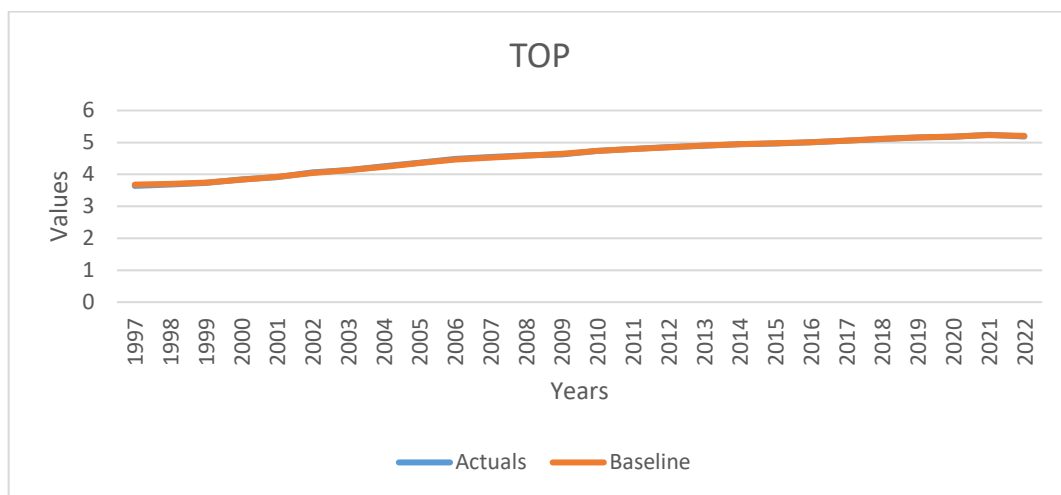
Furthermore, the results revealed that increasing MPR by 5% would marginally reduce inflationary pressures by 0.001% for the within sample forecast and 0.051% for the out-sample forecast. The implication of this result is that incremental changes in the MPR are propitious in influencing inflationary pressures in the country. Though, the response is very low to feel the impact in the contemporary Nigerian economy. Again, the table shows that, a 5% increase in the MPR marginally reduces the exchange rate by 0.037% for the within-sample forecast and marginally reduces total output production by 0.039% for the out-of-sample forecast.

On the other hand, by decreasing the MPR by 5%, the total output production increased by 0.035% for the within-sample forecast and 0.067% for the out-of-sample forecast. This suggests that total output production is more responsive to decreases in the MPR than to increases in the MPR in the country. Additionally, a 5% reduction in the MPR increases the credit to the private sector by 0.021% for the within-sample forecast and 0.026% for the out-of-sample forecast. In this case, the credit channel is weak in transmitting monetary policy in the economy. Furthermore, by decreasing the MPR by 5%, inflation marginally increased by 0.052% for the within-sample forecast and 0.047% for the out-of-sample forecast. This suggests that inflation is more elastic to the expansionary monetary stance than to the contractionary monetary policy stance in the country. Finally, reducing the MPR by 5% increased the exchange rate by 0.471% for the within-sample forecast and 0.433% for the out-of-sample forecast.

Furthermore, the actual and simulated graphs for the five endogenous variables were plotted together to examine their turning points, and the graphs are presented in Figure 2.







**Figure 2: Baseline Simulation of the Endogenous Variables**

A close look at the graphs reveals that the simulated values could replicate the critical turning points of the actual data for all the graphs. This implies that the model is appropriate for policy analysis and the projection of monetary and other macroeconomic variables in the Nigerian economy.

**4.3.3 Simulating the Effects of Changes in MPR on Inflation in Nigeria**

To examine the impact of changes in MPR on inflation in Nigeria, the study simulated 5% increase and 5% decrease in MPR and the results of the experiments are presented in Table 5.

Table 5: Simulation Results of 5% Increase and 5% Decrease in MPR

Variables	5% Increase in MPR		5% Decrease in MPR	
	Within Sample	Out-of-sample	Within sample	Out-of-sample
INFL	-0.007	-0.009	0.022	0.031
RGDP	-0.016	-0.021	0.047	0.038
EXCH	-0.011	-0.023	0.019	0.029
CPS	-0.026	-0.029	0.671	0.589

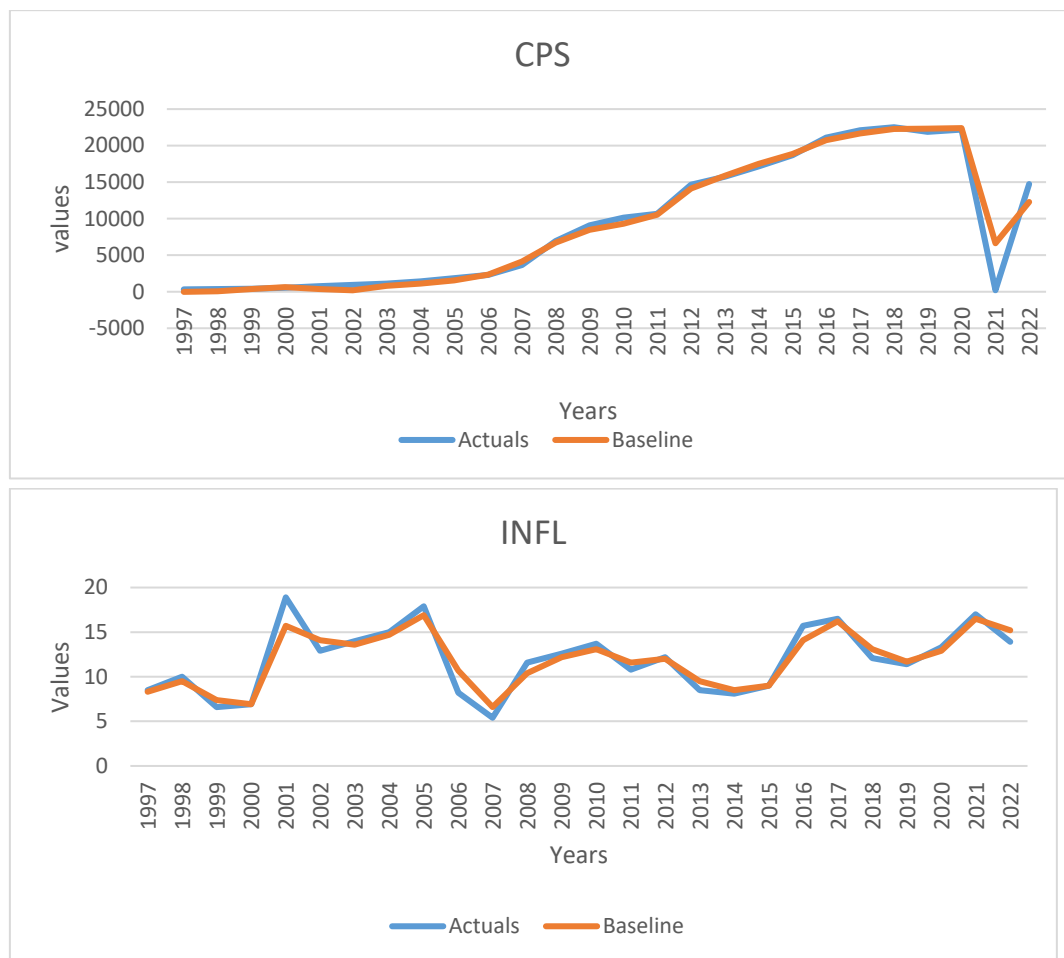
Source: Author’s Computations using E-views 10

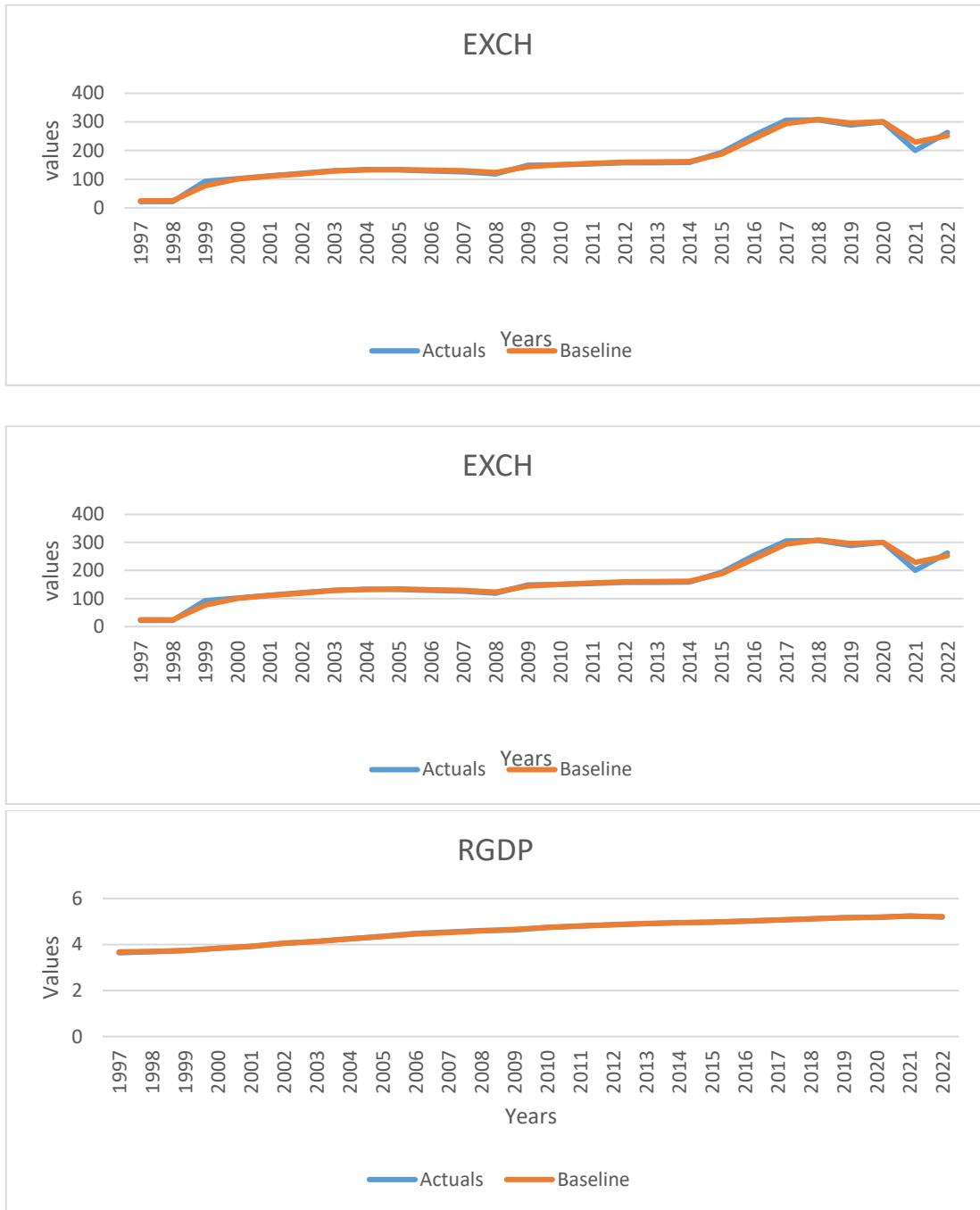
The Table 4 shows the simulated results for 5% increase in MPR and 5% decrease in MPR. The table indicated that, a 5% increase in MPR would marginally reduce total output production by 0.043% for the within sample forecast and would marginally reduce total output production by 0.038% for out-of-sample forecast. This result suggests that increasing MPR which is a contractionary monetary policy stance would the funds available for production in the economy. Again, the results indicated that, a 5% increase in MPR would marginally reduce credit to the private sector by 0.028% for the within sample forecast and by 0.032% for the out-of-sample forecast. This suggests that credit channel of the monetary policy transmission in the country is not strong enough.

Furthermore, the results revealed that increasing MPR by 5% would marginally reduce inflationary pressures by 0.001% for the within sample forecast and 0.051% for the out-sample forecast. The implication of this result is that incremental changes in the MPR are propitious in influencing inflationary pressures in the country. Though, the response is very low to feel the impact in the contemporary Nigerian economy. Again, the table shows that, a 5% increase in MPR would marginally reduce exchange rate by 0.037% for the within sample forecast and would marginally reduce total output production by 0.039% for out-of-sample forecast.

On the other hand, by decreasing the MPR by 5%, total output production increased by 0.035% for the within sample forecast and 0.067% for the out-of-sample forecast. This suggests that total output production is more responsive to decreases in MPR than increases in MPR in the country. Also, a 5% reduction in the MPR has increased the credit to private sector by 0.021% for the within sample forecast and 0.026% for the out-of-sample forecast. In this case too, the credit channel is weak in transmitting the monetary policy transmission in the economy. Furthermore, by decreasing the MPR by 5%, inflation has marginally increased by 0.052% for the within sample forecast and 0.047% for the out-of-sample forecast. This suggests that inflation is more elastic to expansionary monetary stance than contractionary monetary policy stance in the country. Finally, by reducing the MPR by 5% has increased exchange rate by 0.471% for the within sample forecast and 0.433% for the out-of-sample forecast.

Furthermore, the actual and simulated graphs for the five endogenous variables were plotted together to examine their turning points and the graphs presented in Figure 3.





**Figure 3: Baseline Simulation of the Endogenous Variables**

A critical look at Figure 3 reveals that, the simulated values could replicate the critical turning points of the actual data for all the graphs. This implies that, the model is appropriate for policy analysis and projection of the monetary and other macroeconomic variables in the Nigerian economy.

#### 4.4 Discussion of Findings

The study used two simulation experiments by increasing the MPR by 5% and decreasing the MPR by 5% to ascertain the impact of changes in MPR on aggregate demand, total output production and inflation in the Nigerian economy. The study found that, by increasing the MPR by 5% tends to increase the spread between the maximum lending rate and prime lending rate in the country. The increase in this spread between the two rates in turn reduces credit accessibility to the private sector. The reduction in credit supply to the private sector due to the hike in interest rate exerts negative impact on the aggregate demand defined in this study as the private final consumption expenditure. These findings are in line with the findings of Bianco (2021), Breitung and Scharler (2021), Benehon and Fantino (2021) and Olofinlade and Azeez (2021), who found in different economies that an increase in the interest rate affects the credit channel of the monetary policy transmission mechanism.

The study also found that reducing the MPR by 5% marginally increased the spread between the maximum lending rate and the prime lending rate; however, the impact is insignificant; as such, the supply of credit to the private sector has increased, leading to an increase in private final consumption expenditures. The implication of this finding is that an expansionary monetary policy stance enhances the credit supply in the economy. This finding agrees with the findings of Yunusa et al. (2020), Ahmed (2020), Mukolu and Adeleke (2020), and Olofinlade, Oloyede and Oke (2020), who concluded that a reduction in the bank lending rate positively impacts other monetary and macroeconomic variables in an economy.

Furthermore, the study revealed that increasing the MPR by 5%, which is a contractionary monetary policy, reduces the supply of credit to the private sector due to hikes in interest rates. This in turn exerts a detrimental effect on the total output production in the country since investors do not have enough capital to carry out investment activities. This finding corroborates the findings of Afolabi, Adeyemi, Salawudeen and Fagbemi (2018), Anwar and Nguyen (2018) and Vithessonthi, Schwaninger and Muller (2017), who, in their different studies in different economies, concluded that bank loan availability exerts substantial influence on firms' investment decisions.

Again, the findings of the study showed that reducing the MPR by 5% increased the availability of bank loans to private investments, which translates to an increase in total output production in the economy. The implication of this is that the expansionary monetary policy stance of the monetary authorities reduces the lending rate, thereby making borrowing for investment profitable to investors. These findings are in line with the findings of Chaiporn, Markus and Mathias (2017) and Chukwu and Ogonnaya-Udo (2020), who found that low lending rates stimulate investment and output growth in an economy.

Finally, the study revealed that increasing the MPR by 5%, which is a contractionary monetary policy, has an insignificant impact on reducing inflationary pressures in the economy, while decreasing the MPR, which is an expansionary monetary policy stance, appears to have exerted a more noticeable incremental impact on inflation in Nigeria. This finding agrees with the findings of Olofinlade, Oloyede and Oke (2020) and Ogar (2022), who found that MPR is not effective in curtailing inflationary pressures in the Nigerian economy.

#### 5. Conclusion and Recommendations

Based on the findings of this study, it is concluded that increasing the monetary policy rate is ineffective in controlling inflation in Nigeria. Increasing monetary policy in Nigeria, as a contractionary monetary policy stance, has caused an increase in the interest rate, which in turn affects the supply of credit to the private sector. A reduction in the credit supply to the private sector has adverse consequences for aggregate demand and total output production in the economy. Additionally, the study concludes that decreasing the monetary policy rate in the country as an expansionary monetary policy stance has the potential to increase the credit supply to the private sector, with a potential

positive impact on aggregate demand and total output production and, consequently, GDP growth in the economy. The study recommended the following:

- i. The Central Bank of Nigeria (CBN) should consider the option of lowering the monetary policy rate (MPR) to stimulate economic and output growth. This would reduce interest rates, especially lending rates, and consequently increase the credit supply to the private sector in the economy.
- ii. It is also recommended that the CBN continue to employ changes in its monetary policy rate as a monetary policy trigger to effect changes in credit supply and accessibility to the private real economy. Through such measures, there would be changes in credit market expectations and, hence, the behaviour of credit institutions. It is through such a mechanism that the interest rate and credit effects positively impact other financial institutions in their financial intermediation operations, as well as the foreign exchange market and exchange rate pass-through in the economy.
- iii. The CBN and financial institutions should design appropriate credit structural facilities within the framework of the financial institutions, especially money deposit banks and other banking institutions, to provide special credit windows for low-creditworthiness and vulnerability enterprises in the real sector with the aim of enhancing the potency of the credit channel of monetary policy transmission, which was found to be weak in the economy.
- iv. To effectively control inflationary pressure in the Nigerian economy, which could arise not necessarily from interest rate changes but from other production costs, especially from a depreciated exchange rate, cost-push dynamics, the mark-up pricing mechanism in the production process, and the phenomenon of imported inflation, a robust monetary-fiscal policy mix is imperative. Thus, government fiscal operations and instruments are needed to have a proper handshake with monetary policies, and such an optimal policy mix would help to attain noninflationary output growth in the economy.

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