Responses of Inflation to Fiscal Deficit and Money Supply in Nigeria

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Abstract

Inflation rate plays important role in economic stability of a nation since it is one of the significant macroeconomic variables that affect virtually every aspect of the economy. The study's focus was to ascertain the responses of inflation to shocks in money supply and fiscal deficit in Nigeria. Data used was obtained from Central Bank of Nigeria statistical bulletin from 1981 to 2021. The study adopted vector auto regression (VAR), impulse response functions and variance decomposition for its analysis. Findings of this study revealed that inflation responded negatively to variations in the money supply in Nigeria, Fiscal deficit is a negative function of inflation in Nigeria, thus increase in fiscal policy would likely reduce inflationary tendencies in the country. The study further suggested that government should increase accessibility of funds for borrowing and embark on prudent management of borrowed funds so as to curb inflation in Nigeria.

1. Introduction

When there is a general increase in price of goods and services which persist over time, we refer to such phenomenon as inflation. It is usually calculated as the percentage change in the consumer price index (CPI) over a given time, usually a year. Inflation can also be measure through the product price index. Inflation is measured by calculating the percentage change in the average price level of a basket of goods and services over a specific period, usually a year. Inflation is often expressed as an annual percentage representing the rate at which price are increasing. Generally, monetary experts are of the view that money supply especially broad money supply (M2) and fiscal deficits both supports higher rate of inflation. There is also the general believe that long-run inflation is mainly a monetary phenomenon. Nigerian experience is indifferent in this context. Inflation is connected with monetary growth. Consequently, an increase in the general price level is mostly traceable to higher money supply. Conversely, the influence of fiscal sector is considered to be a significant factor in explaining price flux.

Nevertheless, in the case of Nigeria over the years, fiscal deficits expansion and it anticipated results continued to be vague. This is because over 70% of Nigerians citizens are in abject or wretched poverty, continual high rate of death and life expectancy of less than 60 years which is very low and is due to poor basic health care delivery, Poor infrastructural facilities, shortage of food and pathetically high level of unemployment and other negative characteristics of underdevelopment visible in Nigeria (see Ogwo & Agu., 2017; Agu et al., 2019; Agu, 2009). Hence, government was left with no alternative than to borrow internally and externally to fill the gap in resources supply. It is pertinent to note that various economic policies of the Nigerian government, which include Structural Adjustment Program (SAP) of 1986 which was implemented to improve deficit financing. Others are the financing of oil subsidy, security menace such as Boko haram insurgency, farmers herders clash, banditry, kidnapping and the recent unknown-gun-men are being financed through deficit budgeting.

Fiscal deficit, money supply and inflation have now turned out to be a global concern. Many studies exist which identify the relationships among these variables either on individual basis or on collective basis. However, the direction of the relation is at the heart of monetary economics. There is a monetary trend about money supply which contends that when money supply increase tends to be less than the growth rate of money, it will create inflation. In such period, expenditure tends to be higher than the revenues and then budget deficit will increase which will also trigger increase in borrowing and other liabilities which when added to the budget deficit it gives rise to fiscal deficit.

The persistent rise in the wide-ranging price level of goods and services which have persisted for a long period of time in Nigeria posed a major problem on monetary administration. Yet it has attracted scanty attention in the empirical literature especially in the case of Nigeria and most other developing countries in Africa and Asia. Besides, for the Central Bank of Nigeria to achieve and sustain low inflation, the monetary authorities need to understand the dynamics of inflationary processes in the country. These include the sources of shocks, type of shocks that cause inflationary impulses, etc. As correctly noted by Egbulonu and Wobilor (2016) inflation is one

of the macroeconomic challenges confronting Nigeria. It redistributes income and wealth in favor of few rich individuals and harm greater number of persons, making the life of the poor extra miserable.

Although empirical evidence exists on the link between the investigated variables, most of the prior studies were on cross-country studies (Nguyen, 2015; Fischer, et al., 2002, Mortaza, 2006), while those on country specific employed static model and ECM model (Ebipre, and Amaegberi 2020; Ezeabasili., et al., 2012). This study provides a unique contribution to the existing knowledge by utilizing a vector autoregression (VAR) model to examine the impact of fiscal deficit and money supply on Nigerian inflation rate. Following the introduction as section one, literature review is captured in section, methodology is in section three. Section four provides data presentation, analysis and results discussion. Section five consists of conclusion and possible recommendations.

2. Demand Pull Theory of Inflation (Keynes, 1936)

The theory of Demand-pull inflation is a macroeconomic concept that explains the main factors influencing the rise in the prices of commodities and service delivery in a given economy. When the demand for commodities and services is greater than the supply of these commodities and services in the economy, it results to shortage of commodities. This excess demand falls out from a rise in expenditure by consumer, government spending or investment. When demand exceeds supply in the market, businesses increase their prices to balance the excess demand. This increase in prices, in turn drives up overall inflation in the economy. For example, if consumers demand for new cars suddenly increase while the supply of cars remains stable, car manufacturer might raise their prices to maintain profitability in the face of rising demand. As a result, the price of cars increases, leading to inflations

J.M Keynes and followers of his theory give emphasis that demand-pull inflation is basically caused by aggregate demand increase. This aggregate demand consists of expenditure, investment, and consumption; they stated that whenever aggregate demand surpasses aggregate supply at zero percent of employment, it widens the inflationary gap. This inflationary gap is bigger; the inflationary rate will be swifter.

Keynesians accepted that even prior to full employment attainment, factors of production and other constraint can cause inflation. The inflation limitation that emerges rapidly in period of wealth is initially coming from asymmetrical sectors or various natural resources which are given by nature. As suggested by this inflation theory, economies should pursue policies which will reduce components of aggregate demand so as to reduce inflationary pressure. Government can reduce expenditure by increasing which invariably leads to reduction people effective demand, thereby controlling inflation.

2.1 Empirical Review

The empirical literature in this study is categorized thematically as follows

- **Studies on the Effect of Money Supply on Inflation**

Ngerebo, (2016) studied the association between supply of money and Nigerian inflation using ECM. The paper identified positive money supply influences inflation rate in Nigeria. The study also showed that estimated exchange rate impacted significantly on inflation as at the time of the study. Ayuba (2013), in his study discovered that money supply infinitesimally influences Tanzanian inflation. The study argued that the scholastic findings proved that supply of money does not affect inflation majorly in Tanzania stressing other potential drivers such of inflation such as interest rate. He noted, among all the estimated variables found to fuel inflation in the Tanzanian economy, money supply has least effect on inflation, particularly the short-run relationship, inflation tended to be more sensitive to shocks in real GDP both in short and long term. Consequently, he concluded that real economic factors are the major cause of spikes in inflation and not monetary issues as earlier noted in Tanzania.

Agha and Khan (2006) explored the relationship between monetary policy and inflation in the long-run using time series data from 1973-2003 obtain from the national statistical bulletin of Pakistan. The study adopted the Johansen cointegration estimation to establish the long-run interaction among the variables. The study observed that government borrowings from banks are the chief sources of inflation in the country.

- **Studies on the Effect of Fiscal Deficit on Inflation**

Catao and Terrones (2003) gave a presentation which indicates that a direct link between money supply and inflation for third world nations like Nigeria. The study observed that reduction in money supply by a unit will decrease the rate of inflation in the long run although it depends on the inflation tax-base. Mortaza, (2006) speculates that in emerging economies, inflation is solely a non-monetary trend and it is frequently connected to fiscal inequality and economic policies which are not sound to facilitate the needed effect in the economy.

Fischer, Sahay, and Vegh (2002) used 94 countries as sample to classify countries into high-inflation and low-inflation countries. In their study, they show that fiscal deficits drive inflation significantly, they further established that a percentage changes in budget balances have no significant inflationary effect in low inflation country. Doguwa and Englama (2000) propose that fiscal deficit which is financed by the government authority in the country create monetary expansion in the economy which invariably compels the general price level to rise in an economy. Contrary to this, Kiguel and Liviatan (1998) opine that the foregoing is a long run possibility as the

relationship is unclear in the short-run. The above argument originates from the study of more than 10 countries which found the relationship to be influenced by factors such as exchange rate depreciation, unstable money demand, widespread indexation, stubborn expectations etc in the short run. Onwioduokit (1999), analyzed the causality relationship between inflation and fiscal deficits, he observed that even though fiscal deficit triggers inflation, there is no established feedback between the variables. He further noted that it takes more than two years for fiscal deficit have significant impact on inflation in Nigeria.

Garba (2023) investigated the nonlinear impact of fiscal deficit on inflation in Nigeria from 1986 to 2020. They adopted the model developed by Shin et al (2014) which is on the non- linear autoregressive distributed lag model. The findings of the study indicated that fiscal deficit positive change induces inflation. This result point out that rise in fiscal deficit is inflationary in Nigeria. Additionally, the inflationary role of positive change in fiscal deficit leads to higher price level. In addition, a negative change in fiscal deficit exhibits an inflationary pressure in the long run although the result is statistically insignificant.

- **Studies on the Joint Effects of Money Supply and Fiscal Deficit on Inflation**

Ezeabasili, Mojekwu, Herbert (2012) examined the impact of fiscal deficits on inflation in Nigeria within the period considered as persistent inflationary period (1990 - 2006). They employed structural analysis and cointegration to evaluate the secondary data. Results show that a positive though insignificant correlation exists between fiscal deficits and inflation in Nigeria. Also supply of money exhibits positive impact on Nigerian inflation rate.

Nguyen (2015) observed the relationship among of fiscal deficit and money supply on inflation in Asian nations, namely, Cambodia, Bangladesh, Indonesia, Philippines, Sri Lanka Pakistan, Malaysia, Thailand, and Vietnam from 1985 to 2012. The adopted techniques were pooled mean on the framework of error correction and panel general method of moment for analysis. The study found that M2 impact positively and significantly on inflation. Masood, Mubashar and Mirza (2020) used data from 1990 to 2017 to analyze the connection among inflation, fiscal deficit and money supply in Pakistan. The collected data was analyzed using regression analysis and cointegration tests and the result disclosed that inflation is positively connected to money supply and negatively related fiscal deficit in Pakistan.

Ebipre, and Amaegberi (2020) looked at the connection between inflation rate and money supply in Nigeria. Applying data from 1981 to 2017 which were analyzed using unit root test and ordinary least square. The result shows that inflation positively relates with money supply and fiscal deficit. The study recommends that government should embark on prudential financial management of borrowed funds and also embark on provision of infrastructural facilities in Nigeria.

Hassan, Zia and Baig (2020) investigated the impact of money supply and inflation on fiscal deficit in Pakistan using data from 1990 to 2017. The secondary data was analyzed using unit root test, co-integration test and regression analysis. The outcome of the study showed that money supply and inflation differently affect fiscal deficit. The result supported a positive relationship in between fiscal deficit and money supply. And also, negative relationship between inflation and fiscal deficit. The study suggested that government should develop and implement such policies, capable of controlling the inflation and money supply which will ensure reduction in fiscal deficit in Pakistan.

Elsun (2022) noted that inflation is encouraged when monetary and fiscal policies are incompatibly utilized. In their study, they made use of data from Central Bank of Azerbaijan Republic annual report from 2009 to 2019 which was empirically analyzed through Granger causality analysis. The study confirms that fiscal deficits causes' inflation only if they are reflected in monetary aggregates, as inflation is a monetary phenomenon. This implies that fiscal deficit has no established impact on inflation except if it translates to monetary aggregates. The results further suggest that there is one-way causality from the money supply and the fiscal deficit to inflation.

3. Methodology
Sources of Data.
In carrying out this study, we made use of time series secondary data. The secondary data were obtained from central bank of Nigeria statistical bulletin (2020).

3.1 Analytical Framework of the Model
The VAR model will serve as the statistical foundation for our study. A vector autoregressive (VAR) model is evaluated using Choleski decomposition or disintegration to generate impulse response functions (IRFs) and variance decompositions (VDCs). The Cholesky decomposition investigates the concurrent relationships between the variables in the model pedestal to the Cholesky ordering.

The VAR model was developed as an alternative to large-scale econometric models based on the Cowels Commission approach. Scholars and researchers have criticised the Cowel Commission approach in a variety of ways. For example, Sims (1980) argued that the classification of variables as endogenous or exogenous, the constraints implied by traditional theory on structural parameters, and the dynamic adjustment mechanisms used

in large scale models are all illogical and restrictive. Forecasts from large scale models were also shown to be inadequate around this period, providing credence to Sims' (1980) complaints. Lucas also criticised the Cowles Commission approach's policy models' methodology. According to the Lucas critique, if expectations are generated rationally, economic agents modify their behaviour to account for the impacts of policies. Since the 1980s, these criticisms on the Cowles Commission approach have nearly wiped off policy model building activity, while VAR models have become popular for forecasting and testing economic hypotheses. Given the nature of this study's objectives, the researcher applies time series econometric approach based on Sim's (1980) vector autoregressive (VAR) model, which is translated into the vector error correction mechanism (VECM).

Model Specification

The Vector Autoregressive (VAR) model shall be employed. The model in its general   form:

$$y_{1T} = \alpha_t + \beta_t \sum_{J=1}^{K} y_{t-1} + \partial_i \sum_{J=1}^{K} X_{1T-1} \; V_J \dots \qquad (3.1)$$

where y_{1T} = 3 x 1 vector of endogenous variables (i.e. y_{1t} = INFR$_t$, LNMS$_t$, FISCD$_t$, , INTR$_t$)

α_i = 4x 1 vector of constant terms

β_i = 4x4 coefficient matrix of the autoregressive terms

∂_i =4 x 4 coefficients matrix of the explanatory variables (vector of coefficients)

V_i = vector of innovations.

Where inflation rate (INFR) measures the percentage change in the consumer price index for the years, log og broad money supply (LNMS) comprises physical currency as well as deposits and other highly liquid financial instruments that can easily be converted into cash while fiscal deficit (FISCD) measures the total excess of government expenditure over revenue in a given time. Finally, Interest rate (INTR) is added to serve as control variable to avoid variable omission.

Equation (3.1) can be re-written thus:

$$INFR_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^{K} INFR_{t-1} + \alpha_2^1 \sum_{J=1}^{K} LNMS_{t-1} + \alpha_3^1 \sum_{J=1}^{K} INTR_{t-1} + \alpha_4^1 \sum_{J=1}^{K} FISCD_{t-1} + \varepsilon_{1T} \dots \quad (3.2)$$

$$LNMS_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^{K} LNMS_{t-1} + \alpha_2^1 \sum_{J=1}^{K} INFR_{t-1} + \alpha_3^1 \sum_{J=1}^{K} INTR_{t-1} + \alpha_4^1 \sum_{J=1}^{K} FISCD_{t-1} + \varepsilon_{2t} \dots \quad (3.3)$$

$$INTR_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^{K} INTR_{t-1} + \alpha_2^1 \sum_{J=1}^{K} LNMS_{t-1} + \alpha_3^1 \sum_{J=1}^{K} INFR_{t-1} + \alpha_4^1 \sum_{J=1}^{K} FISCD_{t-1} + \varepsilon_{3t} \dots \quad (3.4)$$

$$FISCD_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^{K} FISCD_{t-1} + \alpha_2^1 \sum_{J=1}^{K} INTR_{t-1} + \alpha_3^1 \sum_{J=1}^{K} LNMS_{t-1} + \alpha_4^1 \sum_{J=1}^{K} INFR_{t-1} + \varepsilon_{4t} \dots \quad (3.5)$$

Where j is the lag length, K is the maximum distributed lag length α_0 $\alpha_1 - \alpha_4$, are the constant terms ε_T

is independent and identically distributed error term.

In matrix form, the above can be compactly specified as in equation (3.6)

$$\begin{bmatrix} INFR_t \\ LNMS_t \\ INTR_t \\ FISCD_T \end{bmatrix} = \begin{bmatrix} \alpha_0 \\ \alpha_0 \\ \alpha_0 \\ \alpha_0 \end{bmatrix} + \sum_{J-1}^{K} \begin{bmatrix} INFR_{t-1} & LNMS_{t-1} & INTR_{t-1} & FISCD_{t-1} \\ LNMS_{t-1} & INFR_{t-1} & INTR_{t-1} & FISCD_{t-1} \\ INTR_{t-1} & LNMS_{t-1} & INFR_{t-1} & FISCD_{t-1} \\ FISCD_{t-1} & INTR_{t-1} & LNMS_{t-1} & INFR_{t-1} \end{bmatrix} \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix} + \begin{bmatrix} \varepsilon_{1T} \\ \varepsilon_{2T} \\ \varepsilon_{3T} \\ \varepsilon_{4T} \end{bmatrix} \dots \; (3.6)$$

Transforming the VAR equations into VECM specifications correspond to:

$$\Delta INFR_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^K \Delta INFR_{t-1} + \alpha_2^1 \sum_{J=1}^K \Delta LNMS_{t-1} + \alpha_3^1 \sum_{J=1}^K \Delta INTR_{t-1} + \alpha_4^1 \sum_{J=1}^K \Delta FISCD_{t-1} + \delta ECM_{t-1} + \varepsilon_{1T} \dots \quad (3.7)$$

$$\Delta LNMS_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^K \Delta LNMS_{t-1} + \alpha_2^1 \sum_{J=1}^K \Delta INFR_{t-1} + \alpha_3^1 \sum_{J=1}^K \Delta INTR_{t-1} + \alpha_4^1 \sum_{J=1}^K \Delta FISCD_{t-1} + \Pi ECM_{t-1} + \varepsilon_{2t} \dots \quad (3.8)$$

$$\Delta INTR_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^K \Delta INTR_{t-1} + \alpha_2^1 \sum_{J=1}^K \Delta LNMS_{t-1} + \alpha_3^1 \sum_{J=1}^K \Delta INFR_{t-1} + \alpha_4^1 \sum_{J=1}^K \Delta FISCD_{t-1} + \lambda ECM_{t-1} + \varepsilon_{3t} \dots \quad (3.9)$$

$$\Delta FISCD_t = \alpha_0 + \alpha_1^1 \sum_{J=1}^K \Delta FISCD_{t-1} + \alpha_2^1 \sum_{J=1}^K \Delta INTR_{t-1} + \alpha_3^1 \sum_{J=1}^K \Delta LNMS_{t-1} + \alpha_4^1 \sum_{J=1}^K \Delta INFR_{t-1} + \varphi ECM_{T-1} + \varepsilon_{4t} \dots \quad (3.10)$$

where α^s are parameters to be estimated, Δ is the difference operator, ε_T, k are as defined above. The parameter estimates of δ, Π, λ and ψ should be negative (<0). Equation 3.7 to 3.10 can be summarized thus;

$$y_{1T} = \alpha_i + \beta_i \sum_{J=1}^K y\gamma_{t-1} + \partial_i \sum_{J=1}^K X_{1T-1} \quad \varphi.ECM_{T-1} + \varepsilon_Y \dots \quad (3.11)$$

The time profile of the influence of shocks at a particular point in time on the (anticipated) future values of variables in a dynamic system is measured by an impulse response function. It allows you to see the impact of shocks on the economy at time t and compare it to a baseline profile at time t-1.
IRF will thus be used to determine the effect of shock based on the relationship between the variables at time t, t-1, and t+1 (crisis, pre-crisis, and post-crisis periods).

Forecast Error Variance Decomposition
Shocks to any variable in the VAR model not only have a direct effect on that variable, but they are also communicated to all other endogenous variables via the VAR's dynamic (lag) structure. Variance decomposition will reveal the relative importance of each random innovation in influencing the variables in the VAR model.

4. Empirical Results
Unit Root Test
To determine whether the variables in the model are stationary, a unit root test was performed. This is required to avoid erroneous regression findings. Table 1 summarizes the findings of Unit Root Tests (ADF) performed with E-views software.

Table 1: Summary of ADF test results at 1%, 5% and 10% critical value

AUGUMENTED DICKEY FULLER UNIT ROOT TEST						
Variables	**Level**	**1ˢᵗ Difference**	**Critical values**	**Order of Integration**	**Prob. value**	**Decision**
INFR	-3.264565		1% -3.6056 5% -2.9369* 10% -2.6069	$I(0)$	0.0234	Reject H_0
LNMS	1.245389	-12.41915*	1% -3.6105 5% -2.9390* 10% -2.6079	$I(1)$	0.0000	Reject H_0
INTR	-3.218206	-6.412698*	1% -4.2191 5% -3.5331* 10%--3.1983*	$I(1)$	0.0000	Reject H_0
FISCD	-2.987094	-10.04637*	1% -42119 5% -2.5298 10%-2.1964*	$I(1)$	0.0000	Reject H_0

*Author's computation. *signifies stationary at 5% respective*

Table 1 shows that all the variables except INFR are not stationary at level form but become stationary after first difference, implying that the variables are integrated of order one (I (1)). The decision is based on the fact that the ADF statistics exceed the ADF critical values at the 5% level of significance. As a result, we rule out H and conclude that the variable is stationary. In the case of INFR, it is stationary at level which implies that it is integrated of order zero (I(0)). Since the variables are integrated of diverse order, we estimate unconstrained vector auto regression (VAR) and determine the best lag length using VAR lag length selection criteria which is presented in Table 2.

Table 2: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-704.7636	NA	1.87e+11	37.30335	37.47572	37.36468
1	-660.2852	77.25197	4.19e+10	35.80448	36.66637	36.11114
2	-626.9507	50.87893*	1.74e+10*	34.89214*	36.44354*	35.44412*
3	-618.1439	11.58786	2.74e+10	35.27073	37.51164	36.06803

indicates lag order selected by the citerion

As shown in Table 2, the lag length information criteria preferred lag 3 as the ideal lag value

Also, because the research variables were integrated in various orders, there is no reason to use the Johansson co integration test to determine co integration. Table 3 displays the VAR outcome.

Impulse Response Functions

The impulse response function depicts how the dependent variable (inflation rate) in Nigeria responds to changes in the independent variables (fiscal deficit and money supply). Figures 1 through 3 (Appendix 1) illustrate the results. Figure 1 shows that inflation has a continuous positive response that has been declining since the first period and has now turned negative since the third period. It remained negative until the sixth period, when it revealed no significant response across all periods. Figure 2 depicted the inflationary reaction to money supply shocks. According to the graph, inflation has no response to money supply shocks in the first period, but from the second period on, inflation has shown fluctuating responses that are more substantial in the negative region. This means that changes in the country's money supply had a negative impact on inflation. Inflation responded marginally and positively to fiscal deficit shocks from the first period until the second period, when it began to respond negatively (Figure 3). It also exhibited no meaningful response to fiscal deficit shocks throughout the time. This means that the budget deficit is a negative function of inflation in Nigeria, and that increasing the fiscal deficit may lessen the country's inflationary tendencies.

Variance Decomposition.

The variance decomposition (VDC) explains how much of a variable's forecast error variance is explained by variations in other variables and the variable itself. The VDCs (Appendix 2, 3 and 4) for the model's variables. The inflation rate has a strong endogenous influence on itself, meaning that it has a significant influence on itself both in the short and long run, and that INFR has a strong external influence, signaling a moderate influence on the dependent variable. This suggests that INFR accounted for 100% of its own variation in both the short and long run.   On the other hand, the log of money supply has a strong endogenous influence on itself, meaning that money supply has a strong influence on itself both in the short and long run. Furthermore, LNMS exhibit a substantial external influence, implying a modest influence on the dependent variable (INFR). In the case of the fiscal deficit, it has a large endogenous influence on itself in the short run but a limited endogenous influence on its own shocks in the long run. This means that the fiscal deficit has a high short-run influence on itself but a weak long-run influence. In the long run, FISCD also shows a substantially exogenously impacted log of money supply (LNMS).

4.1: Discussion of Findings

According to the impulse response function in figure 2 (Appendix 1), inflation has no response to shocks in money supply in the first period, then in the second period all the way through; it has fluctuating responses that are more substantial in the negative region. This means that changes in the country's money supply had a negative impact on inflation. This finding is consistent with the findings of Ngerebo (2016), who used ECM to investigate the link between money supply and inflation in Nigeria. The study discovered a favourable influence of money supply on Nigeria's inflation rate. As a result of our findings, reducing the money supply raises the inflation rate and vice versa. According to figure 3, inflation responded marginally and positively to fiscal deficit shocks from the first period to the seventh period, after which it began to respond negatively. It also exhibited no substantial response to fiscal deficit shocks throughout the time. This means that the budget deficit is a negative function of inflation in Nigeria, and that increasing the fiscal deficit may lessen the country's inflationary tendencies. This finding is consistent with the findings of Hassan, Zia, and Baig (2020), who evaluated the influence of money supply and inflation on Pakistan's fiscal deficit and discovered a negative link between inflation and fiscal deficit. This result, however, contradicts the findings of Ebipre and Amaegberi (2020), who investigated the relationship between money supply and inflation rate in Nigeria from 1981 to 2017. In Nigeria, they discovered a positive association between money supply and inflation, as well as deficit financing and inflation.

5. Conclusion and Policy Recommendation

The study's goal was to determine how inflation in Nigeria responds to shocks in the money supply and fiscal deficit. In the model, interest rate was used as a control variable. For the analysis, we used VAR model, impulse response functions, and variance decomposition to capture the reaction of inflation to shocks in the money supply and budget deficit. The study's findings demonstrated that inflation in Nigeria responded negatively to changes in the money supply. In Nigeria, the budget deficit is a negative function of inflation; consequently, increasing the fiscal deficit may lessen the country's inflationary tendencies. Based on the study's conclusions, the government should boost its capital and recurrent spending, which will increase the fiscal deficit and ensure that such investment is directed towards areas that benefit the population. Furthermore, the government should improve the availability and accessibility of finances while also implementing smart financial management of borrowed funds. This means that both the money supply and the budget deficit had a negative impact on the inflation rate in Nigeria throughout the research period.

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