

EFFECT OF MONETARY POLICY ON FOOD INFLATION IN NIGERIA: A NARDL STRUCTURAL APPROACH

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Abstract

The relationship between Nigeria's monetary policy and food inflation has been experimentally examined in this study. A quantitative research method based on ex-post facto research design was adopted using the non-linear autoregressive distributed lag model approach (NARDL) in order to examine the impact of monetary policy on food inflation in Nigeria between the periods of 1980 and 2021. As a dependent variable, Food Inflation (FINF) was employed in the study. Exogenous variables also included Treasury Bills Rate (TBR), Exchange Rate (EXG), Monetary Policy Rate (MPR), and Broad Money Supply (M2). The study used time series data from the World Bank data repository (WDI), the National Bureau of Statistics, and the Central Bank of Nigeria's (CBN) Statistical Bulletin. Data analysis showed that the exchange rate significantly and negatively affects the price of food in Nigeria. Similar to this, empirical data demonstrates a long-run association between Nigeria's monetary policy rates and food inflation. Both the money supply and the monetary policy rate have a favorable impact on food inflation in Nigeria, which is both positive and significant. As a result, it was advised that Nigeria's monetary policy be set up so that the goals to be attained are clearly specified.

Keywords: Monetary Policy, Food, Inflation, Nigeria, NARDL

1. Introduction

Nigeria has the highest population density in all of Africa more than 215 people per square kilometer. Feeding such a population, which is mostly young and between the ages of 0 to 14 (Lysonski and Durvasula, 2013) with a growth rate of about 2.6 percent per year (World Bank, 2019) is a major challenge for any government let alone that of a developing nation. Food security is one of the primary responsibilities of the federal government; however, Nigeria is still characterized by high reliance on food imports (Astou, 2015). Malnutrition is widespread in the entire country and rural areas are especially vulnerable to chronic food shortages, malnutrition, unbalanced nutrition, erratic food supply, poor quality foods, high food costs, and even total lack of food (Akinyele, 2009).

The literature shows that while mechanized agriculture systems in Nigeria have been improved, food import continues to constitute a drain to Nigeria's foreign exchange reserve, weakening the economy ultimately arising from problems of imported inflation. Like many other

developing nations, Nigeria has witnessed significant fluctuation in food prices, which has raised serious concerns because high food costs may have disastrous impacts on market access and food security in Nigeria's rural and urban areas. In an effort to address the issue of food price fluctuation, the government has initiated several monetary policies and nationwide campaigns and intervention programmes in order to promote agriculture mechanization for self-sustenance. This drive also seeks to boost the economy, increase food productivity and enhance food security in the country (Emami, Almassi and Bakhoda, 2018).

According to Rwanyamugabo and Mugabi, (2018), high and rising prices of food commodities and staple products have often served to undermine food security of a nation, by propagating malnutrition, and hunger and ultimately, threatening the livelihood of vulnerable low-income households by eroding their already meager purchasing power. High food volatility reduces individuals' purchasing power of food and it has a distribution effect which favours the non-poor more than the poor masses in low-income countries (Hyun and Nanak, 2008). As such food inflation has a huge impact on perpetuating abject poverty and household food insecurity because the majority cannot access basic needs both food and non-food items (Rwanyamugabo and Mugabi, 2018).

Food prices are mostly set informally with little regulation and are vastly different within similar markets as well as from urban to rural areas. As a result, the limited analyses that have been done offer little insight into the specific causes of food price inflation and are inadequate when it comes to researching shocks and their various characteristics to explain how monetary policy shocks may diffuse or otherwise affect their persistence. As a result, most rural and urban poor households buy few quantities of food and other commodities from the market due to over increasing food prices (World Bank, 2003).

Krueger (2005) posited that in "its own right inflation was damaging in that it distorts the calculus of profitability and encourages short-term investments to the detriment of long-term investments as well as diminishing the value of relative price signals". Therefore, rather than holding stocks as long-term assets that make up for loss of purchasing power, investors should hold them as appealing buys in the short to medium term.

There is an inverse relationship between higher inflation and lower share prices and this as observed by Feldsten (1978) was not due to chance, also Kimani and Mutuku (2012) discovered the negative relationship between food inflation and stock market performance in Kenya. Thus, 'until the transmission linkages-from the instruments of monetary policy to financial markets,

and financial markets to the rest of the economy-have been developed, monetary policy as it is perceived is unlikely to be very effective (Crow,1988).

Over the past ten years, the price of basic food items has increased, leading to food insecurity in Nigeria. It is expected that food inflation will continue to rise in the coming years, not unless the government re-strategizes its approach to food imports and how it supports the local agriculture industry, which has recently been via the closure of borders with neighboring African countries (Golub, Mbaye, and Golubski 2019). Behind growing security threats and institutional weaknesses is another significant factor fueling Nigeria's escalating food crisis. Violence and war have had devastating effects, despite the fact that climate change also affects the environment and farming communities.

The farmers-herders clash is usually identified as one of the significant causes of food insecurity in the country. Armed bandits and Boko Haram rebels may have intensified their threats against Nigeria's food shortage by launching specific assaults against farmers and agrarian communities. Food shortages are causing humanitarian crises to worsen in the terror-stricken Northeast, but attacks on farmers are not the best solution. Farmers in the Northeast risk having their throats slashed by terrorists, while those in the Northwest must pay levies before they can enter their farmlands. In other parts of the country, there are episodes of violent struggles between farmers and pastoralists (Odoh and Chigozie, 2012).

The main objective of the study is to examine the effect of monetary policy on food inflation in Nigeria between the periods 1980-2021. Therefore, the study was guided by the following research questions; Is there a relationship between monetary policy instruments (management) and food inflation in Nigeria? Does monetary aggregate (MS) has any major impact on the food inflation in Nigeria? Is there a definite effect of the exchange rate on food inflation in Nigeria? What is the effect of monetary policy rate (MPR) fluctuation on food inflation in Nigeria?

Going further, the study is sectioned into literature review, methodology, findings and conclusion.

2. Literature Review

Ahsan, Iftikhar, and Kemal studied the variables affecting Pakistani food prices in 2012. They looked at the factors affecting both supply and demand that affect food prices in Pakistan. They looked at their relationship over a lengthy period of time, from 1970 to 2010, using an

autoregressive distributed lag model. According to their findings, the primary factor affecting food costs in both the long and short ranges is the money supply. They also learn that, although having a negligible immediate impact, subsidies can eventually help bring down food prices. Absent imports, the domestic market is under pressure from growing global food prices, which pushes up domestic food prices. However, imported inflation could occur if food crops are imported at increased overseas prices. Statistics that are significant.

Oyinbo and Rekwot (2014) investigated the connections between Nigeria's inflationary propensity, agricultural output, and GDP growth utilizing time series data from 1970 to 2011. The results of the research indicate that there is a one-way causality between inflationary trend and agricultural productivity as well as between agricultural productivity and GDP growth, but not between inflationary trend and GDP growth.

Eckstein and Heien (1978) identify a number of factors that accounted for food inflation in the US in 1973, including monetary policy, actions by both the US and foreign governments, the Soviet grain deal, world economic conditions, devaluation of the US dollar, and rapid income growth as the American economy moved out of a recession.

Lamm and Westcott (1981) find that increased factor prices affect food prices and, moreover, that increased farm-level prices and substantial rises in nonfarm resource prices appear to explain why food prices were affected more than nonfood prices in the 1970s.

Lapp's (1990) results show that variations in the growth rate of money supply either anticipated or unanticipated did not affect the average price level received by farmers relative to other prices in the economy during 1951–85. Unexpected money growth has a significant positive impact on the relative pricing of agricultural commodities, but only briefly. According to his research, there are no variations in the relative prices of agricultural items that are economically significant, and the estimated effect is essentially nonexistent.

Khan and Qasim (1996) conclude that food inflation is driven by money supply, value-added in manufacturing, the wheat support price, and the price of utilities. While the inflation that is Non-food is greatly influenced by the money supply, real GDP, prices of import, and prices of electricity.

Using ordinary least squares, Khan and Gill (2007) analyze the impact of money on both food and general price indices for the period 1975–2007. They place a great emphasis on comparing

the CPI (food) to the overall CPI and found that M1 is strongly more connected with the latter than the former.

Gómez (2008) finds that the inflation and exchange rates in China and India are significant in explaining food inflation in Colombia. The 2007 spike in food inflation in Colombia, he points out, was also caused by a drought and an expansionary monetary policy, but its impacts were relatively short-lived. The nation's changing consumption habits, which brought about increment in meat demand relative to the cereals demand and caused to food inflation, are a result of the rising per capita income in the nation. Growing the agriculture sector would help less developed nations and minimize food inflation.

Naim (2008) argues that factors that may account for the recent inflation include rising energy prices, nonfood hedging policies against drought years, speculation in food commodity markets, and the US's corn ethanol policy.

Trostle (2008) examines the rising world market prices of food commodities, and points out that some factors reflect slower growth in production and more rapid growth in demand, which increases food prices. Food prices have recently been impacted by the need for feedstock for biofuels globally as well as unfavorable weather in 2006 and 2007. The US dollar's declining value, rising energy costs, rising agricultural production costs, rising FX holdings by significant food importers, and recent policy changes by some nations that are into exports and imports are additional factors that have contributed to food inflation.

Another study on Pakistan by Mushtaq, Ghafoor, Abedullah, and Ahmad (2011) show that the real money supply, real exchange rate, and openness affect wheat prices in the long run. Abdullah and Kalim (2011), however, argue that money supply does not determine food prices, and that factors such as per capita GDP, food imports and exports, and support prices determine food prices instead.

Bhatt and Kishor (2015) finds that both food and energy prices have significant permanent components, whereas manufacturing exhibits transitory components. Additionally, it detects a significant price feedback between manufacturing and food. It promotes a long-term trend inflation gauge that takes manufacturing, food, and energy prices into permanent consideration. This will facilitate improved future inflation forecasting and better monetary policy execution (Taylor rule-based inflation targeting).

3. Methodology

The study made use of time series data from relevant data documenting agencies and departments within the scope of the study. Measurable indicators (or their proxies in the case of non-measurable) of the effect of monetary policy on food inflation in Nigeria between the periods 1980-2021, using the non-linear autoregressive distributed lag model approach (NARDL) model whereas, the variable Food Inflation (FINF) was used as the dependent variable, others were used as the exogenous variables (MPR, TBR, EXG and M2). The of time series data was sourced from the CBN Statistical Bulletin, the NBS and the World Bank data between the periods 1980 to 2021.

Furthermore, the NARDL modeling procedure was the analytical method employed. Nonlinear Autoregressive Distributed Lag Model is abbreviated as NARDL. In order to determine if there is asymmetry or not in the relationship between food inflation and certain monetary policy variables in Nigeria, the study used the distributed lag (NARDL) model. The nonlinear cointegrating model's undeniable advantage of allowing for short- and long-run asymmetry, which can assist us handle the issue surrounding the fulcrum subject matter of this type of inquiry, was a factor in the decision to use this approach. It was further popularized by Hendry (1980) and extended by the duo of Pesaran and Shin (1999) and Pesaran et al. (2001). Unlike the OLS method, the model includes both the I(0) and I(1) variables.

According to Koutsoyiannis (2003), model specification entails separating out the endogenous variables from the exogenous variables needed for the model as well as the theoretical predictions regarding the sign and amount of the parameter(s) of the function(s). On that basis, the study modifies the empirical work of Abdullahi and Umar (2022) to formulate its structural equation below. The modified structural equation is further approximated to that of Pesaran et al. (2001) and Toda-Yamamoto (1995) to be consistent with analytical framework of NARDL.

A general form of an NARDL model is:

NARDL (p,q);

$$Y_t = \alpha_0 + \sum_{j=0}^q \beta_j L^j X_t + \sum_{i=1}^p \gamma_i L^i Y_t + \varepsilon_t \text{-----} (1)$$

Where; L represents the lag operator

The model specification for the study is as follows:

$$Finf_t = \theta + \beta_1 MPR_t + \beta_2 TB_t + \beta_3 EXG_t + \beta_4 M2_t + \varepsilon_t \text{-----} (2)$$

Where; $Finf_t$ =Food inflation rate in the country

MPR_t = Monetary Policy rate

TB_t = Treasury Bill

EXG_t = Exchange rate

$M2_t$ = Broad Money supply

ε_t = Residual

As a result, the above equation is transformed in the basic form of NARDL regression model thus:

$$y_t = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_k y_{t-p} + \alpha_0 x_t + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} + \dots + \alpha_q x_{t-q} + \varepsilon_t \text{-----} (3)$$

Therefore,

$$\begin{aligned} Finf_t = & \beta_0 + \beta_1 Finf_{t-1} + \dots + Finf_{t-p} + \sigma_0 MPR_t + \sigma_1 MPR_{t-1} + \dots + \sigma_q MPR_{t-q} + \vartheta_0 TB_t + \\ & \vartheta_1 TB_{t-1} + \dots + \vartheta_{q2} TB_{t-q2} + \gamma_0 EXG_t + \gamma_1 EXG_{t-1} + \dots + \gamma_{q3} EXG_{t-q3} + \rho_0 M2_t + \\ & \rho_1 M2_{t-1} + \dots + \rho_{q4} M2_{t-q4} + \varepsilon_t \text{-----} (4) \end{aligned}$$

The NARDL procedure consists of two stages. The first stage, as earlier stated, shows the presence of the long run relationship between variables of concern, and is examined by computing the F-statistics to test the significance of the lagged levels of variables of the series in the error correction form of the underlying NARDL model (Karfakis and Phipps, 1999).

4. Findings

Stationarity Test Result

Apparently, the study utilized the statistical criteria of ADF, PP and KPSS in ensuring that none of the indices used were differenced at order two I(2). The results are presented below,

Table 1: Stationarity Test Result

Variables	Level							First Difference							
	ADF test			KPSS test		PP test		ADF test		KPSS test		PP test			
	SIC lag	t-Stat	Critical value	t-Stat	Critical value	t-Stat	Critical value	t-Stat	Critical value	t-Stat	Critical value	t-Stat	Critical value		
F_INFL	2	-3.47***	-2.613	-3.75***	-3.19	-3.55***	-3.23	-	-	-	-	-	-		
LOGM2	3	-2.33	-3.61	-0.22	-0.74	-3.59	-3.61	-2.01**	-2.94	-	2.52***	-3.19	-2.01**	-2.94	
EXCH	2	-2.81	-3.61	-0.36	-0.73	-5.57**	-3.61	-2.20**	-2.94	-	0.92***	-3.19	-2.20**	-2.94	
TBILL	2	-2.79	-2.94	-2.73	-3.95	-2.76	-2.94	-	2.76***	-2.94	-2.73**	-1.95	-2.76**	-2.94	
MPR	1	-3.17	-3.53	-2.61	-3.19	-3.45	-3.83	-	2.53***	-3.53	-3.22**	-3.19	-	2.99***	-2.15

Source; author’s compilation, 2022

Key: *=stationary at 10% critical value; ** =stationary at 5% critical value and *** =stationary at 1% critical value respectively.

The result above in table 1 above shows that it was only food inflation that became stationary at level I(0) whereas, others are not but I(1) respectively. Having seen that, we proceeded to conduct other pretests of NARDL since, the procedure does not require a general perception of the order of integration of variables which are of significance in the Engle-Granger (EG) and Fully Modified OLS (Narayan, 2004; Pesaran and Pesaran, 1997). Every other techniques require that the variables share the same order of integration; however, Pesaran and Pesaran (1997) point out that the residual based cointegration tests are almost sufficiently inefficient and can lead to misleading result at times, especially when there are more than two I (1) variables under consideration. in order to deal with this issue, Pesaran et al. (1996, 2001) suggested this method that does not need the variables to be classified in I(0) or I(1). They Pesaran and Shin (1999) argued that the NARDL technique can be reliably used in small samples to estimate and test hypothesis on the long run coefficient in the both cases where the underlying regressors are I(0) or I(1); as such we were good to go.

Table 2: Bound Tests for Long-run Cointegration

Model	Chi-squares	Prob.	F-Statistics	Prob.
D(F_INFL) D(EXCH) D(TBILL) D(LOGM2) D(MPR)) F_INFL(-1) EXCH(-1) TBILL(-1) LOGM2(-1) MPR(-1)	5.59873**	0.0000	7.34382***	0.0000
Nayaran, 2005			K=6; n=39	
Critical Value	Lower Bound		Upper Bound	
1%	5.198		6.845	
5%	3.615		4.913	
10%	2.958		4.100	

Source; author compilation, 2022

Notes: *, **, and *** denote significant at 10%, 5%, and 1% levels, respectively. Critical values are comb inly obtained from Narayan (2005) (Table Case III: Unrestricted intercept and no trend; pg. 1988) and from Pesaran et al. (2001), Table CI(ii) Case II.

From table 2, the f-statistics exceeds the upper bound at both 5% and 1% respectively such that we can infer the evidence of a long run relationship amongst the indices of concern.

Table 2: Non-Linear Autoregressive Distributed Lag (NARDL) Regression Output

Dependent Variable: D(F_INFL)

Method: Least Squares

Date: 05/10/22 Time: 17:25

Sample (adjusted): 1981 2020

Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.568592	0.756429	3.395683	0.0000
D(F_INFL)	0.443319	0.116389	3.808947	0.0000
F_INFL(-1)	0.051223	2.74E-08	1.902054	0.0000
EXCH(-1)	-0.043274	6.73E-09	-0.634164	0.0230
LOGMS(-1)	-0.079411	1.75E-05	-1.021395	0.0192
TBILL(-1)	0.008541	0.113344	0.075357	0.4412
MPR(-1)	0.054605	2.51E-05	2.205499	0.0037
EXCH(-2)	95.39824	17.31700	5.508936	0.9171
D(LOGMS)	-0.052112	1.45E-06	-3.690571	0.0009
MPR(-2)	-4.463312	8.29E-03	-5.382611	0.0000

R-squared	0.699866	Mean dependent var	3.161693
Adjusted R-squared	0.632094	S.D. dependent var	5.465751
S.E. of regression	3.315267	Akaike info criterion	5.415636
Sum squared resid	340.7209	Schwarz criterion	5.756879
Log likelihood	-97.60489	Hannan-Quinn criter.	5.538071
F-statistic	10.32673	Durbin-Watson stat	0.704431
Prob(F-statistic)	0.000001		

Source: Author's Computation, 2022

The outcome of the NARDL regression is shown in Table 1 above. It demonstrates that the model has a very high coefficient of determination. The R-squared of around 0.6999866 (70%) and the adjusted R-squared of approximately 0.63 (63%) show this. The R-squared calculates the proportion of differences in the explanatory variables that may be attributed to changes in the dependent variable. Therefore, it could be claimed that our series fit the model fairly well. The F-statistic has a value of 10.33 and a probability value of 0.00001, or less than 1%. This suggests that the overall statistical significance of our regression model is greater than 1%. Consequently, changes in the dependent are jointly explained by all the explanatory factors. More crucially, the computed coefficients of the explanatory variables demonstrated that, with the exception of the Treasury bill, almost all were statistically significant at the customary 1% or 5% levels and virtually all adhered to 'a priori' theoretical expectation.

According to the predicted NARDL, the long run multiplier indicates that, while keeping all other variables fixed, an increase in the exchange rate in Nigeria will result in a 4.3 percent decrease in food inflation. More crucially, the outcome revealed that the delayed effects of food inflation were considerable during the study period. Nevertheless, the result is determined to be statistically significant for the periods (short and long run) at both the 5% and 1% levels of significance. It is equally consistent with the a priori theoretical underpinnings for the money supply and the exchange rate, but not so much for the respective treasury bills and monetary policy rate. For example, a unit change in the money supply will result in a change of 7.9 percent in food inflation while holding other variables constant in the long-run. The level of food inflation will change by an average of 0.85 and 5.4 over time, respectively, for every unit change in the Treasury bill and the monetary policy rate.

The monetary policy rate was found to be statistically inconsequential in the short run, despite the fact that both the exchange rate and the money supply were found to be statistically significant over the long run. That is to say, the degree of food inflation, which rises in a relatively short period of time and then diverges, is mostly determined by the exchange rate and the amount of money provided to the economy. The obvious implication of this is that the country's present level of food inflation cannot be changed with the current monetary policy rate. Following the discovery of bound co-integration between the variables, we moved on to estimate the level equation (model) using OLS and the regular restricted ECM.

As a result, the coefficient of the ECT was negative and statistically significant as expected. Therefore, to achieve long term convergence (equilibrium), any imbalance between the regressand and regressors must be addressed within a certain time frame. The level model, which further enhanced the calculated NARDL cointegration equation, satisfies this requirement. The one-period error correction term ECTt-1's coefficient is negative (-0.0913) and statistically insignificant at the 1% level. The system is stable sufficiently and have the potential to converge into the long term equilibrium after some shocks/disturbances, according to the ECTt-1's negativity. The figure -0.09 suggests that each period (year) sees a restoration of around 9% of the disequilibrium. This shows that the adjustment rate is only moderately slow, as it typically takes 11 years and 11 months to reach long-term equilibrium following severe shocks caused by the money supply and exchange rate, respectively, implosion factors.

Hypothesis Testing

Based on the research questions raised, the following hypotheses were tested thus;

H₀₁: There is no relationship between monetary policy and food inflation in Nigeria.

Granger causality results and empirical data from both short- and long-run regression models demonstrate a significant association between monetary policy tools and food inflation in Nigeria. For instance, if all other variables remain constant, an increase in the exchange rate in Nigeria will result in a 4.3 percent decrease in food inflation. According to Akinbode, Olabisi, Adekunle, and Jimoh (2021), etc., the outcome is constant. Therefore, we reject the null hypothesis that there is no connection between Nigerian monetary policy and food inflation. More significantly, long-term convergence between Nigeria's monetary tools and food inflation was established.

H₀₂: Monetary aggregate (Money supply) has no impact on food inflation in Nigeria.

The outcome demonstrates that the total money supply was statistically significant throughout the long and short terms. Additionally, through its relative impact on the regressand-food inflation, it sufficiently demonstrated the theoretical a priori expectation in its mathematical signs in both periods. For instance, a change of one unit in the money supply over time will result in a change of 7.9 average percent in the rate of food inflation. In a similar vein, the study discovered that the same holds true on average in the very short run by 0.84 percent. However, if an economy manages to reduce the amount of money in circulation by 10%, it can anticipate a long-term increase in food inflation of up to 20%. The null hypothesis was therefore rejected

because the result is consistent with the work of Samal, Ummalla, and Goyari (2022); Khan, Yusuf, Mohammed, Khan, and Thao (2019); and Ebipre and Amaegberi (2020).

H₀₃: Exchange rate has no effect on food inflation in Nigeria

Even though the exchange rate was shown to be statistically significant in both the short and long runs of the investigation, money supply and money supply were only found to be so in the long run. In other words, the rate of exchange does have an impact on estimating the rate of food inflation in Nigeria. This directly implies that the level of food inflation in the nation is substantially determined by the present exchange rate. Therefore, controlling the currency rate also involves controlling Nigeria's rate of food inflation. Evidently, during the reviewed time, money supply and exchange rate move in lockstep. The conclusion of the foregoing is that Nigerians must be given the means to spend in order to promote growth. We reject the null hypothesis that there is no association between exchange rate and food inflation in Nigeria because the conclusion is consistent with Abdullahi and Umar's findings (2022).

H₀₄: Monetary policy rate (MPR) fluctuation has no effect on food inflation in Nigeria

The outcome showed that changing the monetary policy rate by a unit caused a change in food inflation of 5.4 percent. Again, based on the results of the bound test, we can draw the conclusion that there is evidence of a long-term relationship between the variables under consideration (monetary instruments) because the f-statistics surpasses the upper bound at 5% and 1%, respectively. The unrestricted ECM is fit because, more crucially, the serial independency test was successful, including the outcome of the NARDL model's dynamic stability. Additionally, the coefficient of the ECT_{t-1} error correcting term at the one percent level was highly statistically significant. The negativity of the ECT_{t-1} shows that the system is stable sufficiently and have the potential to converge after a few shocks or disturbances over the long term.

It was also discovered that the value -0.09 implies that roughly 9% of the disequilibrium is restored in each period (year), but the pace of adjustment is a little slow, taking an average of 11 years to reach long-run equilibrium after some major shocks resulting from the implosion variables such as money supply, exchange rate, monetary policy rate, and treasury bills, etc. In line with the findings of Emerenini and Eke (2014), who discovered that money supply and exchange rate influence inflation during the study period, we do reject the null hypothesis that

there is no long run (equilibrium) relationship between the monetary policy rate and the other monetary instruments.

5. Conclusion

According to the findings, the current state of the exchange rate and money supply are effective tools for halting the tide of food inflation in Nigeria because they both have a major negative impact on food inflation in Nigeria. Similar to this, Nigeria's monetary policy rate was found to be crucial in influencing food inflation, particularly in reducing its impact on the CPI as a whole. Treasury bills, however, failed to converge over time, with the immediate conclusion that the current treasury bills are essentially insufficient to compel necessary adjustment in food inflation.

It appears that careful monitoring or control of the amount or level of the money supply in the economy is necessary to produce a sizable shift in the management of food inflation. Last but not least, the system is stable sufficiently and have the potential to converge over the long term even after occasional shocks or disruptions. It was also discovered that the value -0.09 implies that approximately 9% of the disequilibrium is restored in each period (year), but the speed of adjustment is slightly slow, resulting in a long-term equilibrium taking an average of 11 years to reach after some major shocks caused by the implosion monetary variables, as previously noted.

Therefore, it can be said that Nigeria's current monetary policy has an impact on food inflation. Last but not least, the system's error correcting mechanism is sufficiently developed and reliable to allow for long-term convergence following specific shocks or disturbances. Additionally, it was discovered that convergence occurs after some significant shocks related to the monetary implosion in an average of 11 years, which is similar with Samal et al.'s findings from 2022. The long-term association between Nigeria's monetary policy rates and food inflation is supported by empirical data. Both the money supply and the monetary policy rate have a favorable impact on food inflation in Nigeria, which is both positive and significant. Consequently, it was suggested that Nigeria's monetary policy

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