Original Research Article

Macroeconomic Determinants of Food Price Inflation in Nigeria

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Abstract

The study examined the impact of some macroeconomic variables of food inflation in Nigeria. Exchange rate (ExR), broad money supply (BMS), interest rate (InR), and food production index (FoPI) were employed as dependent variables, while food price inflation was employed as the dependent variable. Data on the variables from the period 1996 to 2023 were sourced from the Central Bank of Nigeria (CBN) Statistical bulletin, and the World Bank, World Development Indicators for Nigeria. The Augmented Dickey-Fuller unit root test was used to test for stationarity of the variables, which revealed that the variables were integrated of order I and order II, which necessitated the adoption of the Autoregressive Distributed Lag (ARDL) bounds test for long run relationship. Result of the bounds test confirmed that the variables have long run relationship. Outcome of the ARDL estimates revealed that an increase in exchange rate resulted to an increase in food price inflation in the country, while an increase in broad money supply, interest rate and food production index all had significant impacts in reducing food price inflation in the country. The study therefore, recommends among others that the Nigerian government through the monetary authorities should avoid devaluation of the currency given that exchange rate worsens food price inflation in the country.
Keywords: Food price inflation, food production index, exchange rate, broad money supply.

1.0 INTRODUCTION

The persistent rise in food price inflation has negative implications on the standard of living, purchasing power of households and the general wellbeing of individuals around the world. Food price inflation is a type of inflation, that affects food items. It is often the most noticeable form of inflation, and tends to impact lower income individuals the hardest.

Over the years, skyrocketing food prices in Nigeria have attracted considerable interest from the general public, media, policymakers, and government, given its potential consequences on Nigerian household consumers and their living standard which has been on the downturn owing to the rising volatility in prices of agricultural products (Omotayo, Omotoso, Daud, Omotayo, & Adeniyi, 2022). However, the effects of this growing variability in the prices of agricultural products are not only limited to macroeconomic instability, but also extend to small farmers and household consumers who spend a larger portion of their income on consumption. As a result, changes in food costs cause substantial changes in inflation targeting (Mustafa, 2021).

In recent times, there is an observed resurgence and steepness in food prices, which appeared to have occurred at the backdrop of a relatively easy monetary policy and massive fiscal stimulus. These policies were implemented by many countries following the global food supply disruption associated with the COVID-19 pandemic (Bello & Sanusi, 2023). Theoretically, monetary and real shocks are mainly associated with rising food prices (Samal & Goyari, 2022). However, both the monetarist and structuralists models can be used to explain these. According to the structuralist, money supply is considered passive, and real shocks in a given industry generally drive-up food price inflation. Consequently, prices for other commodities increase. Monetarists, on the other hand, contended that increase in general prices (including food prices) might occur as a result of an independent increase in the supply of money leading to increased aggregate demand, which raises the relative prices of other commodities (El-Rasheed, *et al.*, 2023).

The Nigeria government over the years have made concerted efforts to curb food price inflation in the country. Despite government's effort and necessary

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steps to reduce price hike of foods and minimize the effects of higher prices on the citizens, food prices in the country continue to surge higher. Food Inflation in Nigeria averaged 13.72 percent from 1996 until 2024, reaching an all-time high of 40.87 percent as of June 2024 (NBS 2024). Factors responsible for the continuous surge in food prices have been examined by several scholars. For instance, in an effort to identify strategies that might decrease the unfavorable rising food costs, researchers like Bane (2018), and Oloko, Ogbonna, Adedeji, and Lakhani (2021) have looked into the relationship among oil, inflation, and food prices. Nonetheless, most of the studies which considered oil prices as one of the driving factors of food price inflation did not reach a consensus concerning its impact on food prices. For instance, while scholars like Shehu, Shafii, and Yau (2019) argued that the price of oil and the cost of food are significantly related, others like Mustafa (2021), and Oloko *et al.,* (2021) posits that fluctuations in the price of oil had little impact on food inflation.

Other relevant literatures, have argued that a number of variables could be blamed for the recent increases in both domestic and foreign food prices. For example, greater energy costs raise the cost of energy-related inputs and increases the cost of producing agricultural goods. The growing and wealthier global population also have an impact on the production and consumption of agricultural products. Moreso, climate change-related global warming can potentially have a detrimental impact on agricultural production and lead to an increase in food costs (Ertuğrul & Seven, 2021). Apart from Covid-19, other factors that have contributed to food price inflation include: weather and farmer-herder clash (Jamisson *et al*, 2018), high cost of production (Downie, 2017), high cost of importation and exchange rate (Shittu, 2018).

From the foregoing, it is pertinent to note that while some variables like insurgencies, herdsmen and farmer clashes are country specific, others like climate change and exchange rate are general.

It is against this backdrop, that this study investigates the factors that contribute to Nigeria's rising food prices. Specifically, it seeks to examine how macroeconomic variables such as exchange rate, interest rate, broad money supply and food production index impact on food price inflation in the country.

2.0 EMPIRICAL LITERATURE
In developing countries like Nigeria, studies on the determinants of food price inflation are a recent phenomenon. These studies however have reported mixed findings. Some of the findings are presented below.

Adopting analytical perspective, Odojoma, Solomon, and Ekong (2025) analysed the factors responsible for rising food prices in Nigeria. Inflation, exchange rate fluctuations, agricultural policies, and psychological behaviours were employed as the independent variables. The study revealed that the devaluation of the Nigerian currency contributed to the high cost of imported food items, while panic buying and hoarding which were employed as proxies for psychological behaviour exacerbated price volatility. The study also revealed that government policies such as agricultural subsidies, trade regulations, and price controls also influenced food price dynamics in the country. It was also discovered that market distortions occurred when these policies are inconsistent and poorly coordinated. Based on these findings, the study suggested among others that enhancing agricultural productivity, stabilising the currency, managing market behaviour, and implementing effective price stabilisation mechanisms would help in curbing rising food prices in Nigeria.

Using data from 2018 to 2022, Alfa and Alexander (2024) investigated how insecurity influenced the trend of food price inflation in Nigeria in the post-covid 19 era. The independent data employed in the study comprised prices of selected grains (maize, beans, rice and wheat), and prices of selected fast foods (noodles, semovita, garri, spaghetti, egg, milk, and CocaCola), while failed state index was employe as a measure of insecurity. From the graphs and charts, it was found that, on the average, there was a more than 100 percent increase in the prices of wheat, rice, maize and beans in the Nigerian market. It was also revealed that the average prices of noodles and spaghetti increased by 68.8 percent and 27.3 percent respectively. Further findings revealed that apart from CocaCola whose price rose by approximately 27 percent, the average prices of semovita, garri, egg, and milk, more than doubled within the period under review. Based on this, the study concluded that insecurity and the COVID-19 pandemic were responsible for the high food price inflation in Nigeria. To avert this trend, the study suggested among others that measures to tackle insecurity in the country be adopted.

Akosile (2023) conducted a study to identify the factors that determine Nigeria's food inflation. Data on interest rates, exchange rates and crude oil prices from the period 1991 to 2023 were estimated using the Autoregressive Distributed Lag (ARDL) model. The outcome of the estimation indicated that while interest rates had significant adverse effect on food inflation, crude oil prices on the other hand impacted significantly and positively on food inflation in the country. Findings however revealed that exchange rate exhibited dual effects on food inflation. In the short run, exchange rate contributed to the increase in food prices, while in the long run, it contributed to a significant reduction in food prices. In view of this, the study recommended that in order to address the problem of food inflation in the

country, there is the need to adopt macroeconomic policies that would integrate interest rate adjustments, stabilisation of the exchange rate, as well as measures that would control the effect of fluctuations in crude oil price.

Applying the Variable Augmented Autoregressive- Extended Generalised Autoregressive Conditional Heteroskedasticity (AR(1)–GARCH-X) and panel regression models, Tabash and Adelakun (2022) examined how domestic and external factors influenced aggregated food inflation and disaggregated food prices in Nigeria. The outcome of the study showed that domestic food prices were significantly affected by the prices of global food and crude oil. It was also discovered that food price volatility experienced positive and significant impacts from exchange rate and domestic petrol prices. Thus, to address the problem of rising food inflation, the study recommended among others the need for massive investment in domestic agriculture to boost local production and meet local demands.

In another study, Elrasheed, Abdullahi, and Mustapha (2024) utilised the linear autoregressive distributive lag model to investigate inflation dynamics and food prices in Nigeria. Estimating secondary data from 1990 to 2021, the study found that in the short-run, increase in oil prices had a significant positive influence on food prices, while its long run impact was inconsequential. On the other hand, food prices were significantly influenced by increased money supply, both in the short and long run. Again, it was discovered that rising exchange rate had and inverse impact on food prices in the long run. The study therefore, recommended among others that maintaining lower prices and ensuring its sustainability would help mitigate food price increases.

Adopting a non-linear approach, Umar and Umar (2022) investigated the effect of exchange rate on food price inflation in Nigeria. Employing quarterly data from 2008Q1 to 2020Q4, the study found that gross domestic product, exchange rate and food inflation are cointegrated in the long run. Further findings indicated that gross domestic product had a significant negative impact on food inflation, while exchange rate exerted a significant and asymmetric positive impact on food inflation in Nigeria. Drawing from these findings, the study recommended among others that the Central Bank of Nigeria should apply tight monetary policies of price stability to help sustain low food inflation rate in the country.

In the same vein, Israel and Charity (2024) examined how food inflation impacted on the Nigerian economy. Data which were obtained from the National Bureau of Statistics (NBS), and the Central Bank of Nigeria (CBN) for the period 1990 to 2023 were estimated using the multiple regression technique.

Findings from the regression result showed that gross domestic product, exchange rate, inflation rate, and interest rate jointly explained about 63.4% of the behaviour of food price inflation which impacted negatively on economic growth in Nigeria. Given these findings, the study among others, advocated for strong monetary and fiscal policies that are aimed at curbing food inflation in the country.

Using data from 1990 to 2023, Udochukwu *et. al.* (2024) investigated the influence of monetary policy rate on food inflation in Nigeria. The impact of the independent variables - monetary policy rate, broad money supply, exchange rate, treasury bills, and agricultural productivity- on the dependent variable – food inflation- were analysed using the Autoregressive Distributed Lag (ARDL) technique. The outcome of the study showed that in the short term, the impact of monetary policy rate on food inflation was negative and significant. Conversely, exchange rate and broad money supply were found to have insignificant positive impacts on food inflation. Treasury bills however, was found to exhibit a significant positive impact on food inflation. The long term ARDL results showed that both the monetary policy rate and broad money supply have a negative but insignificant impact, while agricultural productivity exerted a significant negative influence on food inflation. On the other hand, the exchange rate had a significant positive impact, and treasury bills, though positive, remained insignificant in their effect on long-run food inflation.

Using secondary data from 1970 to 2019, Ajibade, Ayinde, and Abdoulaye (2020) utilised the GARCH technique to examine the factors that cause volatility in the prices of staple foods in Nigeria. It was revealed by the study that the major drivers of volatility in food prices in the country are insurgency, political instability in neighbouring countries, trade liberalisation, GDP per capita, inflation rate, government effectiveness, crop production, crude oil price and exchange rate. The study therefore, recommended among others that reduction in food price volatility through sustainable and increased agricultural production can be achieved if the Nigerian government can curb insecurity and ensure a peaceful nation.

3.0 METHODOLOGY
3.1 Research Design
Given that the research is interested in the macroeconomic determinants of food price inflation in Nigeria, the study employs the ex-post facto research design. The ex-post facto research design is often employed or used to establish a cause-and-effect relationship between a dependent variable and independent variable(s).

3.2 Theoretical Framework

The theoretical framework for this study anchors on the structuralist theory of inflation. This theory was developed by Myrdal and Straiten in 1987. The structuralist theory explains the long-run inflationary trends in developing countries in terms of structural rigidities, market imperfection and social tension, relative inelasticity of food supply, foreign exchange constraints, protective measures, and rise in demand for food, fall in export earnings and political instabilities. The structuralists argue that by the very nature of these economies, the less developed countries are prone to inflation.

The reason assigned for this argument is that there exist structural rigidities or bottlenecks namely; economic, institutional and sociopolitical factors in these countries, which in one way or the other impede the expansion of output (Gyebi & Boafo, 2013). This theory views inflation from the supply side of the economy and identifies some mechanisms that trigger inflation as a low inelastic supply of food items and agricultural products owing to bottlenecks in the agricultural sector and foreign exchange shortages.

3.3 Variables in the Model

For the purpose of this study, the dependent variable in the model is food price inflation (FPI), while the independent variables include exchange rate (ExR), interest rate (InR), broad money supply (BMS), and food production index (FoPI).

3.4 Model Specification

The model specification presents the relationship between the dependent and independent variables. First, we specify the functional relationship between the dependent (food price inflation) and independent variables (exchange rate, interest rate, broad money supply and food production index) as:

$$FPI = f(ExR, InR, BMS, FoPI) \qquad (1)$$

Secondly, we specify the econometric form of the model as

$$FPI_t = \beta_0 + \beta_1 ExR_t + \beta_2 InR_t + \beta_3 BMS_t + \beta_4 FoPI_t + U_t \qquad (2)$$

Where: FPI = Food Price Inflation over a period of time
ExR = Exchange Rate over a period of time
InR = Interest Rate over a period of time
M2 = Broad Money Supply over a period of time
FoPI = Food Production Index over a period of time
U = Error Term
t = Time Frame
β_0 = Intercept parameter
β_1-β_4 = Slope parameters or coefficients of the respective independent variables

3.5 Sources of Data

Due to the nature of the study, times series data from secondary sources are used. Data on Food Price inflation, Exchange Rate, Interest Rate and Broad Money Supply were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin 2023 edition, while data on Food Production Index was sourced from World Development Indicators of the World Bank.

4.0 PRESENTATION AND DISCUSSION OF RESULTS

4.1 Test for Multicollinearity

In this study, the correlation matrix would display the correlation coefficients between each pair of the independent variables (ExR, BMS, InR, and FoPI). If most of the correlation values are low to moderate (i.e., less than 0.8 in absolute value), it implies that multicollinearity is not a serious concern, and the independent variables can be included in the same regression model without significantly affecting the accuracy of the estimates.

Table 1: Multicollinearity Test using Correlation matrix

	ExR	BMS	InR	FoPI
ExR	1.000000			
BMS	0.362818	1.000000		
InR	-0.539876	-0.635561	1.000000	
FoPI	0.499137	0.524914	-0.617149	1.000000

Source: Author's own computation, using E-View 10.

From the matrix, none of the correlation coefficients exceed the conventional threshold of ±0.8, indicating that there is no evidence of severe multicollinearity among the independent variables. This indicates that the regression model is unlikely to suffer from distortion in the estimation of coefficients due to multicollinearity. From the results in table 5, some of the variables show moderate correlations, none of the values are close enough to ±1.0 to indicate harmful multicollinearity. Therefore, all variables can be retained

in the model, and their individual effects on food price inflation in Nigeria can be reliably estimated.

4.2 Test of Stationarity using ADF Unit Root Test

The time series under consideration should be checked for stationarity before one can attempt to fit a suitable model. That is, variables have to be tested for the presence of unit root(s) and the order of integration of each series. In this study, the Augmented Dickey Fuller (ADF) unit root test was employed to test for the time

series properties of model variables. These results are presented in table 1 below using Eviews-10.

Table 2: Unit Root Test using Augmented Dickey-Fuller (ADF) Test

Variables	Augmented Dickey-Fuller Test		Lag	Order of int.	Remark
	@ level	@ 1st Diff			
Log(FPI)	-5.740016	-	Maxlag=6	I (0)	Stationary
Log(ExR)	-2.582792	-4.992584	Maxlag=6	I (1)	Stationary
Log(InR)	-0.826376	-3.864299	Maxlag=6	I (1)	Stationary
Log(BMS)	-3.327499	-6.599190	Maxlag=6	I (1)	Stationary
Log(FoPI)	-3.367572	-3.941566	Maxlag=6	I (1)	Stationary
	1% level	-4.339330			
Test of CV	5% level	-3.587527			
	10% level	-3.229230			

Source: Author's own computation using E view 10

The result in table 2 shows that log(FPI), representing food price inflation, is stationary at level with an ADF statistic of -5.740016, which is lower than the 1% critical value of -4.339330. This means food inflation does not require differencing and is integrated of order zero, I(0). For the other variables log(ExR), log(InR), log(BMS), and log(FoPI) they are not stationary at level since their ADF statistics at level are greater than the 5% critical value. However, after first differencing, each of these variables became stationary, as their ADF statistics at first difference are less than the critical values. Therefore, they are all integrated of order one, I(1).

The test results imply that the dataset contains a mixture of I(0) and I(1) variables, which supports the appropriateness of conducting a cointegration test in the next phase of analysis to determine whether a long-run equilibrium relationship exists among the variables. The mix of stationarity orders also indicates that a traditional OLS estimation may not be valid, and more robust models such as the Autoregressive Distributed Lag (ARDL) model may be appropriate for further analysis.

4.3 Cointegration Estimation (ARDL Bounds Test)

The condition for using the ARDL is satisfied. Hence, the cointegration bounds tests will be employed and the F-statistic will determine whether the variables have a long run relationship.

Table 3: ARDL Bounds Test result for cointegration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	55.56636	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's own computation using E view 10

The ARDL bounds test result reveals an F-statistic value of 55.56636, which is significantly higher than the upper bound critical values at all conventional significance levels (10%, 5%, 2.5%, and 1%). Specifically, the F-statistic exceeds the I(1) critical value of 4.37 at the 1% significance level, indicating strong evidence against the null hypothesis of no levels relationship. This implies that there exists a long-run relationship between food price inflation and its determinants in Nigeria. The result justifies the application of the ARDL model for further analysis to explore both short-run dynamics and long-run coefficients.

4.4 Long Run ARDL Results

The ARDL long run model is used to examine the long-term relationship between food price inflation (FPI) and its macroeconomic determinants exchange rate (ExR), interest rate (InR), broad money supply (BMS), and food production index (FoPI) in Nigeria. This model is particularly suitable for this study because the variables are integrated at different orders, I(0) and I(1), but none is I(2), as confirmed by the ADF unit root test. The result of the long run ARDL estimates is presented below in table 4.

Table 4: Long Run ARDL Results for the model

ARDL Long Run Form and Bounds Test				
Dependent Variable: DLOG(FPI)				
Selected Model: ARDL(2, 3, 3, 3, 3)				
Case 2: Restricted Constant and No Trend				
Sample: 1996 2023				
Included observations: 25				
Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LOG(ExR)	1.097986	0.116825	9.398531	0.0001
LOG(BMS)	-0.213695	0.073087	-2.923845	0.0265
LOG(InR)	-0.408018	0.107136	-3.808410	0.0323
LOG(FoPI)	-1.136826	0.299354	-3.797600	0.0366
C	5.492464	1.881388	2.919368	0.0267
EC = LOG(FPI) - (1.0980*LOG(EXR) -0.2137*LOG(BMS) -0.4080				
*LOG(INR) -1.1368*LOG(FOPI) + 5.4925)				

Source: Author's own computation using E view 10

The ARDL long-run regression results presented in Table 4 examine the long-term influence of key macroeconomic variables on food price inflation (FPI) in Nigeria, using a 5% level of significance. The dependent variable is the log of food price inflation, while the independent variables include the log of exchange rate (ExR), broad money supply (BMS), interest rate (InR), and food production index (FoPI).

The coefficient for exchange rate is 1.097986 units with associated probability value is 0.0001, which is below the 5% significance level. This indicates that the exchange rate has a statistically significant and positive long-run effect on food price inflation. A 1 percent increase in the exchange rate (reflecting depreciation of the naira) leads to an estimated 1.10 percent increase in food price inflation, which is consistent with the idea that currency depreciation raises the cost of imported food and agricultural inputs.

On the other hand, the coefficient for broad money supply is -0.213695 with a probability value of 0.0265. Since this p-value is also less than 0.05, broad money supply is statistically significant. The negative sign suggests that an increase in money supply is associated with a reduction in food inflation in the long run. This outcome may reflect the role of money supply in enhancing agricultural credit or improving liquidity conditions that support food production and distribution.

The coefficient for interest rate is -0.408018, and the p-value is 0.0323. This result is statistically significant at the 5% level, indicating that an increase in interest rate reduces food price inflation in the long run. This could be due to a contractionary monetary effect that dampens aggregate demand or inflationary pressures.

The coefficient for food production index is -1.136826 with a p-value of 0.0366, which is also significant. This means that a 1 percent increase in food production reduces food inflation by about 1.14 percent. This result explains the importance of agricultural output in stabilising food prices in Nigeria.

In summary, the ARDL long-run model shows that exchange rate has a significant positive effect on food price inflation, while broad money supply, interest rate, and food production index all have significant negative effects on food inflation in Nigeria at the 5% level.

4.5 ARDL-ECM Test for Short Run

Since the results of the ARDL Bound test of the model indicated that a long-run cointegration relationship existed between the dependent and explanatory variables, the ARDL-ECM test was carried out to adjust for the short run. The results obtained are presented in table 5.

Table 5: ARDL Error Correction Regression for the Model

ARDL Error Correction Regression
Dependent Variable: DLOG(FPI)
Selected Model: ARDL(2, 3, 3, 3, 3)
Case 2: Restricted Constant and No Trend
Sample: 1996 2023
Included observations: 25
ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(FPI(-1))	0.875927	0.055004	15.92486	0.0000
DLOG(ExR)	0.840645	0.093113	9.028233	0.0001
DLOG(ExR(-1))	-0.574283	0.109850	-5.227861	0.0020
DLOG(ExR(-2))	0.158510	0.092409	1.715316	0.1371
DLOG(BMS)	-0.123075	0.287645	-0.427870	0.6837
DLOG(BMS(-1))	-3.564161	0.348305	-10.23288	0.0001
DLOG(BMS(-2))	-0.516907	0.294806	-1.753383	0.1301
DLOG(InR)	1.977841	0.277175	7.135719	0.0004
DLOG(InR(-1))	0.665006	0.287361	2.314187	0.0599
DLOG(InR(-2))	1.002077	0.238329	4.204592	0.0057
DLOG(FoPI)	1.649931	0.609968	2.704946	0.0353
DLOG(FoPI(-1))	-4.303507	0.442244	-9.731073	0.0001
DLOG(FoPI(-2))	-4.779278	0.596904	-8.006771	0.0002
CointEq(-1)*	-2.125676	0.085979	-24.72307	0.0000
R-squared	0.991986	Mean dependent var		0.074793
Adjusted R-squared	0.982515	S.D. dependent var		0.709078
S.E. of regression	0.093762	Akaike info criterion		-1.597100
Sum squared resid	0.096704	Schwarz criterion		-0.914530
Log likelihood	33.96375	Hannan-Quinn criter.		-1.407784
Durbin-Watson stat	1.988860			
* p-value incompatible with t-Bounds distribution.				

Source: Author's own computation using E view 10

The ARDL Error Correction Model (ECM) results presented in Table 5 explained both the short-run dynamics and the speed of adjustment of food price inflation (FPI) in Nigeria in response to changes to its macroeconomic determinants: exchange rate (ExR), interest rate (INR), broad money supply (BMS), and food production index (FoPI).

The coefficient of the error correction term is -2.125676 and is highly significant with a probability value of 0.0000. This coefficient is negative and statistically significant, which confirms the existence of a stable long-run relationship among the variables. The magnitude of -2.13 indicates a very fast adjustment process, suggesting that any deviation from the long-run equilibrium is corrected by approximately 213% within one period (typically one year in annual terms). While this adjustment speed seems unusually high (greater than one), it may suggest model over-adjustment or highly responsive short-run dynamics.

The R-squared value is 0.991986, meaning that approximately 99.2% of the variation in food price inflation is explained by the model. This indicates a very good fit of the model to the data. The adjusted R-squared value is 0.982515, which accounts for the number of predictors in the model and still indicates a strong explanatory power. The slight difference between the R-squared and adjusted R-squared values suggests that the inclusion of additional lagged terms does not overly distort the model's goodness of fit.

The Durbin-Watson statistic is 1.988860, which is very close to the ideal value of 2 indicates that there is no serious problem of autocorrelation in the residuals of the regression. The absence of serial correlation supports the reliability and robustness of the model's estimates.

In summary, the ARDL-ECM results show that there is a strong long-run equilibrium relationship among the variables, as indicated by the negative and significant error correction term. The model explains a high proportion of the variability in food inflation, and there is no significant evidence of autocorrelation. These outcomes confirm that macroeconomic variables such as exchange rate, interest rate, broad money supply, and food production index significantly influence food price inflation in both the short run and long run in Nigeria.

4.6 DISCUSSION OF FINDINGS

The study examined the macroeconomic determinants of food price inflation in Nigeria using both the ARDL long-run model and the ARDL error correction mechanism (ECM) regression. The findings from these models provide substantial evidence on how variables such as exchange rate, interest rate, broad money supply, and food production index influence food price inflation over time.

From the ARDL long-run results, exchange rate was found to have a positive and statistically significant effect on food price inflation at the 5% level. Specifically, a 1% increase in the exchange rate leads to approximately a 1.10% increase in food price inflation. This finding is consistent with the structural dependence of Nigeria on imported food and agricultural inputs. Exchange rate raises the cost of imports, which in turn increases domestic food prices.

Broad money supply exhibited a negative and significant relationship with food inflation. A 1% increase in money supply leads to a 0.21% reduction in food inflation in the long run. Although this result may seem counter-intuitive, it is possible that increased money supply facilitates credit access for agricultural producers, thereby increasing output and reducing food prices over time.

The interest rate also showed a negative and significant effect on food price inflation, suggesting that higher interest rates reduce food price inflation. A 1% increase in the interest rate was associated with a 0.41% decline in food price inflation. This result reflects the contractionary role of interest rates in curbing inflationary pressures through demand management.

Food production index had the strongest negative long-run impact on food inflation. A 1% increase in food production reduces food price inflation by approximately 1.14%. This emphasises the importance of agricultural productivity in maintaining food price stability. Increased food supply directly offsets demand pressures, leading to lower prices.

The ARDL-ECM regression supported these long-run findings by showing that the error correction term (CointEq(-1)) was negative and statistically significant at the 5% level. The coefficient of -2.13 indicates a rapid speed of adjustment, meaning that deviations from the long-run equilibrium are corrected swiftly. This confirms the existence of a stable and meaningful long-run relationship among the variables.

Additionally, the short-run dynamics in the ECM model showed that exchange rate changes in the current and past periods significantly influenced food price inflation. Interest rate and food production also had statistically significant short-run effects, reinforcing their importance in inflation control. Although the broad money supply was not statistically significant in the short term, its long-run influence remained valid.

In summary, the findings reveal that food price inflation in Nigeria is significantly influenced by macroeconomic factors, particularly the exchange rate, interest rate, money supply, and food production index. While the exchange rate exerts upward pressure on food prices, increased agricultural output, appropriate monetary expansion, and interest rate adjustments can effectively moderate food inflation.

5.0 CONCLUSION AND RECOMMENDATIONS

Drawing from the findings of the regression results, the study concludes that overall, the selected macroeconomic variables employed in the model play a critical role in influencing food price inflation in Nigeria, both in the short and long run. Based on this conclusion,

the following suggestions are put forward for possible policy implementation:

1. The Nigeria government through the monetary authorities should avoid any further devaluation of the Nigerian currency (Naira). This could be achieved through the reduction in the external borrowings of the Nigerian government, which often comes with conditions of devaluation of the Nigerian currency. Another alternative is for the federal government to investment in critical sectors of the economy that have the capacity to drive food production in the country, such as the agricultural sector and the manufacturing sector.

2. The monetary authority should capitalise on the supply of money in the economy. Specifically, appropriate level of money supply in the economy should be determined by the monetary authority. This is necessary as broad money supply plays a role in the reduction of food price inflation in the country.

3. The leadership of the Central Bank of Nigeria should increase her monetary policy rate as this in effect cause lending rate by deposit money banks (DMBs) to increase. The increase in interest rate serves as incentive for people to save, therefore, contracting current demand and consumption, which in turn causes food price inflation to decline.

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