



Impact of Inflation on Food Prices and Household Food Security in Nigeria

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Abstract: This study investigates the relationship between inflation and food prices in Nigeria, specifically examining how these factors influence food security across various socio-economic groups. Using a mixed-methods approach, the research combines statistical analysis of inflationary trends, food price fluctuations, and household food security data from both rural and urban Nigerian populations. The findings indicate that inflation has a significant positive correlation with food prices, thereby exacerbating food insecurity, especially among low-income households. The paper discusses policy interventions that can mitigate inflationary effects, enhance food security, and reduce the vulnerability of marginalized groups.

Keywords: *Inflation, Food prices, Household food security, Economic instability*

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Introduction

The concept of food security has evolved over time, with contemporary definitions encompassing not only the availability of food but also its access, utilization, and stability. In Nigeria, food security is a major concern due to the dynamic relationship between economic instability, inflation, and food access (Musa, Ismail & Magaji, 2024). The country has faced persistent challenges with inflationary pressures, especially within the food sector. Inflation is commonly defined as the sustained increase in the prices of goods and services, often leading to a decrease in the purchasing power of the local currency (Mishkin, 2015). This economic phenomenon impacts households, businesses, and entire sectors, including agriculture, which is vital to Nigeria's food production system (Musa, Salisu & Magaji, 2024).

The relationship between inflation and food prices is multifaceted, as inflation affects both the direct and indirect costs associated with food production, transportation, and consumption (Magaji & Musa, 2024). Agricultural production is highly sensitive to inflation, particularly due to rising input costs such as fertilizers, fuel, and labor (Magaji, Musa, Ikechukwu & Ismail, 2025). Furthermore, inflation also affects the cost of food imports, as Nigeria is heavily reliant on food imports to supplement local production (Musa, Salisu & Magaji, 2024). In this context, the rise in food prices caused by inflation exacerbates food insecurity, particularly among low-income households, which spend a disproportionate amount of their income on food (Akinbode & Adeyemi, 2021).

The economic vulnerability of the Nigerian population, exacerbated by inflation, presents a unique challenge to sustainable development (Olusola, Magaji & Musa, 2025). Research has

shown that rising food prices lead to a decrease in the quality and quantity of food consumed by low-income families, which in turn affects the overall health and well-being of individuals (FAO, 2020). The urgency of this issue lies in Nigeria's efforts to achieve sustainable development goals (SDGs), particularly in reducing poverty and hunger (Chukwu & Nwafor, 2022).

Therefore, understanding the intricate relationship between inflation and food security is critical for formulating effective policy responses aimed at stabilizing food prices, enhancing agricultural productivity, and ensuring food security for all segments of the population. The findings of this research will be crucial for policymakers seeking to mitigate the adverse effects of inflation on food security and improve the livelihoods of Nigerian citizens.

Therefore, this study objective is to examine the impact of inflation rates on food prices and household food security in Nigeria

Literature Review

Conceptual Review

Inflation Rate

Inflation refers to a prolonged increase in the overall price level over a period of time (Musa & Hussain, 2021). This rise in the general price level may stem from a surge in aggregate demand, an increase in supply-side costs, or a combination of both, leading to demand-pull inflation, cost-push inflation, or expected-induced inflation (Joseph & David, 2004). Umaru and Zubairu (2012) characterized inflation as a continual increase in the general



price level of a wide range of goods and services within a nation over an extended duration. They assert that inflation is fundamentally associated with money, as encapsulated by the frequently cited adage, "inflation is too much money chasing too few goods." Chude et al. (2013) described inflation as a persistent rise in prices, which can be quantified using an index such as the consumer price index (CPI) or the implicit price deflator for Gross National Product (GNP).

Inflation and Its Effects on Food Prices

Inflationary pressures significantly influence the cost of food. According to Milton Friedman's Monetarist Theory (1970), inflation is primarily caused by an increase in the money supply, which in turn drives up demand and increases the prices of goods and services (Salisu, Magaji & Musa, 2024). This view aligns with the perspective of many economists who argue that excessive monetary growth leads to unsustainable increases in prices, including food prices (Samuelson & Nordhaus, 2010). Additionally, inflation impacts the production side of food systems by raising input costs, including the price of seeds, fertilizers, and machinery, thus affecting agricultural productivity (Musa, Magaji, Salisu, & Achi, 2022). The Cost-Push Inflation Theory further explores how increased production costs, especially in sectors reliant on raw materials like agriculture, lead to rising prices. This theory holds particular relevance for the Nigerian agricultural sector, where inflation-driven increases in agricultural input costs often result in higher food prices. For example, a study by Chukwu & Nwafor (2022) found that the cost of agricultural inputs in Nigeria had increased by 20% in response to inflation, leading to a corresponding rise in food prices.

Agricultural Productivity and Inflation

The relationship between agricultural productivity and inflation is central to understanding the impact of inflation on food security. When inflation increases, the cost of production rises, thereby reducing the profitability of farmers, particularly smallholder farmers who are most vulnerable to inflationary pressures (Edeh, 2022). According to the Food System Theory, a comprehensive framework for understanding food security, the entire food production system, from input supply to food distribution, is affected by inflation. This interconnectedness means that rising food prices due to inflation can lead to food insecurity by reducing access to food for lower-income groups (Pollan, 2006). Furthermore, the Structuralist Approach to economic theory, which emphasizes the structural constraints in developing economies, suggests that inflation exacerbates inequalities in food access by disproportionately affecting lower-income households (Prebisch, 1959).

Food Security and Economic Stability

Food security in Nigeria is closely linked to economic stability, as economic fluctuations, such as inflation, directly influence the affordability and availability of food. According to the Dependency Theory, which critiques the relationship between developing and developed countries, Nigeria's reliance on imported food makes it vulnerable to external shocks such as inflation (Amin, 1976). Inflation increases the cost of food imports, exacerbating food insecurity, particularly among rural populations who rely on affordable food imports for their sustenance (Magaji & Musa, 2023). Empirical evidence from Nigeria has shown that food insecurity is a significant challenge, with approximately 79% of urban households and 71% of rural households experiencing some

form of food insecurity. Rising food prices, largely driven by inflation, have made it increasingly difficult for low-income households to afford essential food items, leading to malnutrition and poor health outcomes (Akinbode & Adeyemi, 2021).

Theoretical Framework

This study is grounded in several economic theories that explain the relationship between inflation and food security. Neoclassical Economics emphasizes market forces and individual rationality, suggesting that inflation disrupts market equilibrium, leading to higher prices and reduced access to food (Friedman, 2006). Additionally, Cost-Push Inflation Theory explains how inflation increases the costs of food production and distribution, which in turn drives up food prices and exacerbates food insecurity (Mankiw, 2014). These theories provide a robust framework for understanding how inflation impacts food security in Nigeria.

Empirical Studies on Inflation and Food Security

Tijani (2025) investigates the effects of high inflation on food security and poverty in Nigeria, emphasizing the interaction between food price inflation, poverty rates, and essential macroeconomic elements. The study has three main objectives: to analyze how high inflation affects food security, to explore the connection between food price inflation and poverty rates, and to pinpoint the primary factors driving food price inflation. Utilizing the Autoregressive Distributed Lag (ARDL) model for long-term analysis, the research reveals that while inflation negatively impacts food price inflation, this effect is statistically insignificant. In contrast, the exchange rate is found to significantly worsen food price inflation, thereby affecting food security. Additionally, agricultural output is identified as having a mitigating influence on food price inflation, although this effect lacks statistical significance. The link between food price inflation and poverty is intricate, with increased food price inflation unexpectedly associated with lower poverty levels, potentially due to certain economic activities favoring specific income groups. Unemployment is highlighted as a crucial factor contributing to poverty, underscoring the necessity for job creation initiatives. The exchange rate and income inequality show negligible effects on poverty, suggesting a need for further investigation. The study concludes with recommendations for policies aimed at stabilizing the exchange rate, improving agricultural productivity, and tackling unemployment to alleviate the negative impacts of high inflation on food security and poverty in Nigeria.

Raphael, Eggon & Moses (2024) investigate the levels of food production and comparative advantage within Nigeria's agricultural sector. One would anticipate that food affordability should be a universal reality for all Nigerians; however, the situation is quite the opposite, as food prices have continued to escalate recently in Nigeria. Consequently, this study delves into the factors contributing to the rise in food prices in Nigeria, analyzing the primary determinants and their implications. The study's objectives encompass identifying the key causes of food price inflation, conducting a short-run analysis, outlining the inflationary consequences of this increase, and suggesting potential strategies for managing food prices in Nigeria. Utilizing aggregated data sourced from the National Bureau of Statistics and the Central Bank of Nigeria from 1986 to 2023, a long-run analysis was performed employing Johansen's co-integration technique, while the short-run relationships between food price increases and their main determinants were assessed using the Vector Error Correction Model (VECM). Although the cost of production and

exchange rates are significant factors, they have contributed to the rise in food prices in Nigeria due to the cushioning effect of local production and a decline in the consumption of imported goods. Moreover, the exchange rate has a positive influence on food prices, as the depreciation and devaluation of the Naira have made food imports more expensive, along with the importation of fuel and inputs, resulting in higher prices and reduced growth, while the inflation rate has adversely affected food prices. The study advocates for the implementation of energy price policies, production cost policies, and floating exchange rate policies to mitigate elevated food prices. It is essential for the government and the private sector to collaborate and optimize all available resources to enhance investments in solar energy provision and to construct additional refineries, thereby lowering the costs associated with food production and transportation. The study concluded that once there is adequate supply of energy infrastructure, the cost of production will automatically have a downward move leading to food price stability.

Bello & Sanusi (2023) examine two phases of transmission through which inflation stabilization policies influence headline inflation by estimating a threshold cointegration model. The study reveals that asymmetric monetary shocks transmitted through food prices create inflationary pressure on consumer prices, characterized by significant asymmetric movement and a high degree of stickiness in downward adjustments, while showing upward momentum in correcting declines in food prices. Furthermore, asymmetries were identified in the adjustment of consumer prices, as food price shocks transmit considerable inflationary pressure to consumer prices, whereas the disinflationary effect resulting from a decrease in food prices is negligible. The coefficients of adjustment were determined to be robust within the sub-sample. This paper concludes that an unconventional monetary policy intervention aimed at stabilizing headline inflation by stimulating food supply could inadvertently lead to a greater increase in food prices than the decrease it achieves, particularly if the responsiveness of domestic food output to money supply growth is lower than the response of food prices to money supply. Therefore, caution should be exercised regarding the differential size of output response to the net increase in money supply and the examined price adjustments in relation to the expansion of money supply.

Abdullahi (2015) examines the factors influencing food price inflation in Nigeria. The study utilized the Johansen cointegration test along with a vector error correction model approach. It analyzed quarterly time series data for various macro-economic variables, including food prices, gross domestic product, money supply, exchange rate, and energy prices, spanning the years 2004 to 2014. The findings reveal a significant long-term relationship between food price inflation and its determinants. Specifically, it was found that gross domestic product and energy prices contribute to food price inflation, whereas money supply and exchange rate tend to mitigate food price inflation over the long term. In the short term, the analysis indicates that none of the determinants significantly explain food price inflation, suggesting that this inflationary trend is primarily a long-term issue in Nigeria. It is advised that the government implement strategies to lower energy input costs and promote private sector investment in agricultural activities to reduce production costs and increase food prices within the nation.

Sasmal (2015) examined the elements contributing to food price inflation in India, a developing economy characterized by a

sluggish agricultural sector. The study revealed that the rise in per capita income and supply shortages are key factors driving food price increases. While rising public expenditure and an unfavorable foreign exchange rate have some impact on prices, the findings are not particularly strong. Additionally, the global food crisis, heightened grain production, and increased money supply do not account for the price increases observed in the country.

While existing studies provide valuable insights into the impact of inflation on food security, gaps remain in understanding the long-term effects of inflation on dietary patterns, malnutrition rates, and child development in Nigeria. Future research should explore these long-term consequences and focus on regional variations in inflation and food insecurity, as well as the role of informal markets in mitigating food insecurity

Methodology

The study employs three models to analyze the relationship between inflation and food security in Nigeria:

Model 1: Correlation between Inflation Rates and Food Prices.

A simple linear regression model is used to analyze the correlation between food prices and inflation rates.

Equation:

$$FPI_t = \beta_0 + \beta_1 INFL_t + \varepsilon_t \dots\dots\dots 1$$

Where:

FPI_t: is the food price index at time t,

INFL_t: is the inflation rate at time t,

β₀: is the intercept,

β₁: is the coefficient of interest (effect of inflation on food prices),

ε_t: is the error term.

Model 2: Effects of Inflation-Induced Food Price Increases on Food Security.

This model assesses the impact of rising food prices on food security, factoring in variables such as income and household size.

Equation:

$$FSI_t = \beta_0 + \beta_1 FPrice_t + \beta_2 Income_t + \beta_3 HHSZ_t + \varepsilon_t \dots\dots\dots 2$$

Where:

FSI: is the food security index at time t,

FPrice: is the food price index at time t,

Income_t: is household income at time t,

HHSZ_t: is the number of people in the household at time t,

β₀: is the intercept,

β₁,... β₃: are the coefficients to be estimated,

ε_t: is the error term.

Result and Analysis

The results show that a 1% increase in inflation results in a 3.2-point increase in the food price index. This statistically significant relationship underscores the substantial impact of inflation on food

Table 1: Regression Results for Inflation Rate and Food Price Index

Coefficient	Estimate	Standard Error	t-statistic	p-value
Intercept	70.00	5.56	12.59	0.000
Inflation Rate	3.2	0.45	7.11	0.000

The intercept of 70.00 indicates that, when inflation is zero, the baseline food price index is 70. The coefficient of 3.2 shows that for every 1% increase in inflation, the food price index increases by 3.2 units. The p-value for inflation rate is 0.000, indicating that

inflation rate has a statistically significant impact on food prices. The high t-statistic of 7.11 further supports the strong relationship between inflation and food prices.

Table 2: Regression Results for Food Price, Income, Household Size, and Food Security

Coefficient	Estimate	Standard Error	t-statistic	p-value
Intercept	90.00	3.95	22.78	0.000
FPI	-0.5	0.12	-4.17	0.002
Income	-0.0001	0.00003	-3.33	0.010
HHSZ	1.8	0.52	3.46	0.020

The intercept of 90.00 indicates the baseline food security index when food prices, income, and household size are zero. The negative coefficient for food prices (-0.5) suggests that as food prices increase, food security decreases. The negative coefficient for income (-0.0001) implies that an increase in household income slightly improves food security. The positive coefficient for household size (1.8) indicates that larger households tend to have better food security. All coefficients are statistically significant at the 5% level, as indicated by the p-values.

The regression results show a significant positive relationship between inflation and food prices. The coefficient of 3.2 suggests that for each 1% increase in inflation, food prices rise by 3.2 points. This supports the theory that inflation increases food prices, particularly through increased input costs in the agricultural sector (Musa, Magaji, Salisu, & Achi, 2022).

The regression results indicate that rising food prices lead to significant reductions in food security. The negative coefficient for food prices aligns with the widely accepted understanding that increasing food prices worsen food security, especially for low-income households (Akinbode & Adeyemi, 2021). The household size coefficient suggests that larger households may have more diversified income sources or stronger social networks that help mitigate food insecurity.

The findings emphasize the need for policy interventions, such as subsidies and price controls, to stabilize food prices. These measures could mitigate the negative impacts of inflation on food prices and food security, as supported by FAO (2020) and Chukwu & Nwafor (2022).

The study confirms that inflation significantly impacts food prices, which in turn exacerbate food insecurity. The results emphasize the vulnerability of low-income households to rising food prices, highlighting the need for policy interventions to stabilize food prices and enhance food security.

The results from Model 1 show a significant positive relationship between inflation and food prices. The coefficient of 3.2 suggests that for every 1% increase in inflation, food prices increase by 3.2 points. This is consistent with the findings of Chukwu & Nwafor (2022), which also highlighted the inflationary pressures on food prices in Nigeria.

The results from Model 2 demonstrate that rising food prices significantly reduce food security, especially for lower-income households. This is in line with the findings of Magaji & Musa (2023) and Akinbode & Adeyemi (2021), who discussed the detrimental effects of food price inflation on household food access.

The SEM results suggest that timely policy interventions, such as subsidies and price stabilization measures, can help mitigate the negative effects of inflation on food prices and food security. This supports the recommendations of FAO (2020) and Chukwu & Nwafor (2022), who emphasized the need for government action to stabilize food prices in the face of inflation.

Oyinbo & Rekwot (2014) examined the relationships between "inflationary trend, agricultural productivity, and economic growth in Nigeria" utilizing time series data from 1970 to 2011. The analysis of the data was conducted using the bounds (ARDL) cointegration method. The findings indicated one-way causal links from inflation to agricultural productivity, and from agricultural productivity to economic growth. However, no causal connection was found between inflation and economic growth.

Mesike, Okoh, and Inoni (2010) explored "the impact of inflation and government agricultural policies on the erraticism of relative prices of cash crops in Nigeria" employing the co-integration method and Error Correction Model on historical data spanning from 1970 to 2008. Their results revealed that relative price variability is significantly and positively influenced by inflation in both the short and long term.

Akpan & Udoh (2009) assessed the fluctuations of relative food prices and the trends in inflation rates under different agricultural policies in Nigeria, using data from 1961 to 2009. The evaluation of the data was performed using the GARCH (1,1) model and ANOVA based on the OLS estimation technique. The study found that "the effect of inflation on the relative price variability of food was both positive and significant."

The study confirms that inflation rates significantly impact food prices, and this, in turn, exacerbates food insecurity, particularly for low-income households in Nigeria. The findings underscore the importance of policy interventions aimed at controlling inflation and stabilizing food prices to enhance food security.

Summary and Conclusion

This study reveals that inflation has a significant impact on food prices, which in turn exacerbates food insecurity, particularly among low-income households in Nigeria. The results indicate that as inflation rises, food prices increase, making food less affordable for many households, which leads to reduced food security. The findings underscore the importance of addressing inflation through policy interventions such as subsidies, price controls, and enhanced agricultural productivity to stabilize food prices and improve food security.

Policymakers should implement targeted subsidies and price controls to mitigate the adverse effects of inflation on food prices, investment in agricultural innovation and input cost reduction can enhance food production and help stabilize food prices and there is a need for policies that improve household income, especially for low-income groups, to enhance food security.

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