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Investigating the Short-Run and Long -Run Effects of Inflation on Agricultural Sector Performance in Nigeria from 1993–2023

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Abstract

This paper critically investigates the long-run and short-run effects of inflation on agricultural sector performance in Nigeria over the period from 1993 to 2023. The study is motivated by the persistent macroeconomic instability in the country, particularly the volatility of inflation rates, and how such economic dynamics influence a vital sector like agriculture. Specifically, the research was guided by two research questions and one hypothesis aimed at examining the extent to which inflation impacts agricultural output in both the short and long run.Employing an ex post facto research design, the study relies on secondary time series data sourced from relevant national and international statistical agencies. The analytical framework is based on robust econometric techniques, including the Autoregressive Distributed Lag (ARDL) bounds testing approach to assess the presence of long-run relationships and the Error Correction Model (ECM) to capture short-run dynamics.The empirical results reveal that inflation exerts a statistically significant and negative impact on agricultural productivity in the long run, suggesting that sustained increases in the general price level undermine agricultural growth and output. Conversely, the short-run effects of inflation are found to be less consistent—ranging from weakly negative to marginally positive—highlighting the transitional and context-dependent nature of short-term inflationary shocks. These findings underscore the need for effective inflation-targeting policies and macroeconomic stability as a precondition for sustained agricultural development. The paper concludes with policy recommendations aimed at promoting price stability, improving agricultural resilience, and enhancing the effectiveness of monetary and fiscal interventions in Nigeria's economic planning.

Keywords: *Inflation, Agricultural Output, Nigeria, ARDL, Cointegration, Time Series Analysis.*

Introduction

Inflation, characterized by a sustained increase in the general price level of goods and services, plays a critical role in shaping macroeconomic stability and sectoral performance. In Nigeria, persistent inflation has emerged as a major economic challenge, with profound implications for key sectors, particularly agriculture. The agricultural sector, historically central to Nigeria's economy, contributes significantly to employment generation, food security, and export earnings. Despite its strategic importance, the sector has struggled to achieve optimal performance due to several structural and macroeconomic impediments, among which inflation is notably prominent.

From 1993 to 2023, the Nigerian economy has experienced episodes of both moderate and soaring inflation, driven by factors such as exchange rate depreciation, fiscal imbalances, fuel price hikes, and supply chain disruptions. The agricultural sector, which depends heavily on input stability, is particularly sensitive to these inflationary pressures. Rising inflation erodes farmers' purchasing power, increases the cost of inputs like seeds, fertilizers, and equipment, and reduces returns on agricultural investments. As noted by Jeremiah and Emmanuel (2015), inflation can lead to a direct increase in the cost of goods and services required for agricultural production, compelling both the government and private investors to allocate more funds to maintain output levels. This has been

exemplified by the recent surge in food prices, which has made staple commodities increasingly unaffordable for many Nigerians.

The impact of inflation extends beyond production costs. It affects the allocation of resources, investment decisions, and the real value of agricultural earnings. High inflation discourages long-term planning and capital investment in agriculture, contributing to the sector's underperformance. Additionally, the volatility associated with inflation can distort market signals, undermine consumer purchasing power, and hamper effective policy implementation aimed at promoting agricultural growth.

Nigeria's agricultural sector possesses immense potential, with over 84 million hectares of arable land, yet only about 40 percent of this is currently cultivated (FMARD, 2012). Despite policy interventions such as the Agricultural Transformation Agenda, the Anchor Borrowers' Programme, and the Green Revolution initiative, inflationary trends have continued to undermine progress. According to Christaensen and Demery (2017), Nigeria's heavy reliance on food imports and poor domestic productivity—exacerbated by inflation-induced cost pressures—have prevented the sector from fulfilling its traditional role of ensuring food self-sufficiency and generating export earnings.

Over the past three decades, fluctuating inflation rates have had varying effects on the sector's output. For example, periods of moderate inflation supported modest agricultural growth, whereas high inflation periods corresponded with stagnation or decline in output. Between 2012 and 2016, the agriculture sector recorded an average annual growth rate of 8.94 percent, but this momentum slowed considerably in subsequent years. In the second quarter of 2023, the sector experienced a real growth rate of just 1.5 percent (Central Bank of Nigeria, 2023), underscoring the persistent macroeconomic challenges affecting agricultural productivity.

Moreover, inflation diminishes the real value of government agricultural budgets, limits access to credit due to rising interest rates, and exacerbates rural poverty. According to Ezu and Nwobia (2023), inflationary pressures in recent years have not only increased the cost of agricultural finance but also weakened the naira, reducing the country's ability to import critical farm inputs and export competitive agricultural goods.

The agricultural sector in Nigeria serves as a cornerstone of the economy, contributing substantially to employment, food security, and gross domestic product (GDP). Despite its pivotal role, the sector has been persistently affected by macroeconomic instability, particularly inflation. Inflation, characterized by a general rise in the price level, adversely influences the cost of agricultural inputs, investment decisions, and consumer purchasing power. In an economy like Nigeria's, where agricultural productivity is already constrained by infrastructural and institutional challenges, inflation compounds the sector's vulnerability. Consequently, understanding the nexus between inflation and agricultural output is vital for evidence-based policy formulation. This study, therefore, seeks to explore the dynamic effects of inflation on the performance of Nigeria's agricultural sector over a thirty-year period.

Statement of the Problem

In recent decades, Nigeria has experienced persistent inflationary trends, raising significant concerns about their impact on various sectors of the economy. In agriculture, inflation leads to increased prices of seeds, fertilizers, machinery, and transportation, thereby escalating production costs. While numerous inflation-targeting strategies have been implemented by the Central Bank of Nigeria (CBN), their effectiveness in mitigating inflation's impact on agricultural output remains inconclusive. Furthermore, there exists a gap in empirical literature concerning the differentiated impact of inflation on agricultural performance in both the short and long run. This study aims to fill this gap by providing a comprehensive analysis of the relationship between inflation and agricultural sector output in Nigeria from 1993 to 2023.

Objectives of the Study

The specific objectives of this study are to:

i. Examine the short-run impact of the inflation rate on agricultural sector output in Nigeria.

ii. Ascertain the long-run impact of the inflation rate on agricultural sector output in Nigeria.

Research Questions

Based on the stated objectives, the study seeks to answer the following questions:

i. What is the short-run impact of the inflation rate on agricultural sector output in Nigeria?

ii. What is the long-run impact of the inflation rate on agricultural sector output in Nigeria?

Hypothesis

The study was guided by the following null hypothesis:

H_{01}: Inflation rate does not have a significant impact on agricultural sector output in Nigeria.

Literature Review

Inflation can be broadly categorized into demand-pull and cost-push inflation. While demand-pull inflation arises due to excessive aggregate demand, cost-push inflation results from increased production costs. In the context of agriculture, inflation typically manifests through rising input prices and unfavorable market conditions.

Inflation, defined as a sustained increase in the general price level of goods and services, is a central concern in macroeconomic management. When the inflation rate slows, it is referred to as disinflation, while a fall in absolute price levels is known as deflation (Mankiw, 2021). Inflation has significant implications for investor behavior and economic performance. High inflation erodes real incomes and diminishes purchasing power, prompting investors to liquidate assets in favor of liquidity-preserving strategies. In contrast, a stable or low inflation environment typically fosters asset accumulation, as it enhances purchasing power and market confidence (Blanchard & Johnson, 2022).

Inflationary trends are a global phenomenon, with many economies experiencing varying degrees of price instability. While some nations witness inflation as cyclical and short-lived, others contend with structurally embedded and persistent inflationary pressures (Jeremiah & Emmanuel, 2015; IMF, 2023). The monetarist perspective, prominently advocated by Milton Friedman (1956, 1960, 1971), attributes inflation to excessive growth in the money supply. When the rate of money supply expansion exceeds that of real output, the imbalance drives up prices. According to Friedman, "inflation is always and everywhere a monetary phenomenon," emphasizing the central role of monetary policy in price stability.

Governments often resort to monetary expansion to finance fiscal deficits, leading to an increase in nominal money stock. In the absence of a corresponding rise in productive output, this increase in aggregate demand exerts upward pressure on prices, further fueling inflation (Mishkin, 2022). In this context, inflation not only affects consumption and investment but also shapes the fiscal landscape.

In the agricultural sector, inflation raises the cost of essential inputs such as fertilizer, equipment, and labor, thereby increasing production costs and reducing output efficiency (World Bank, 2023). As prices of agricultural commodities rise, both government and private spending escalate to stabilize supply and demand. This inflation-induced pressure on public finances often results in fiscal deficits, particularly when expenditure outpaces revenue generation (Olayemi & Adebayo, 2022).

Moreover, inflation influences the real value of public debt. When inflation rises above expected levels, the real burden of existing debt declines, potentially reducing the cost of debt servicing. This may enable governments to increase borrowing in the short term (Cecchetti & Schoenholtz, 2021), although it risks longer-term macroeconomic instability if not adequately managed.

In sum, inflation has far-reaching implications for investment behavior, fiscal health, agricultural productivity, and debt sustainability. As such, maintaining price stability remains a core objective of macroeconomic policy in both developed and developing economies.

Theoretical Framework

This study is grounded in the Monetarist Theory of Inflation proposed by Milton Friedman (1963), which postulates that inflation is primarily a monetary phenomenon caused by excessive money supply. The theory emphasizes that uncontrolled inflation can erode the real value of money, thus affecting investment decisions in key sectors like agriculture. Additionally, the Production Theory asserts that output is a function of input prices and other macroeconomic variables, suggesting that inflation-induced cost changes can influence agricultural productivity.

Empirical Review

Several empirical studies have investigated the relationship between inflation and agricultural output across various economic contexts. Sharma and Mittal (2019) found that inflation significantly hampers agricultural growth by increasing the cost of essential inputs such as seeds, fertilizers, and machinery, thereby reducing farm profitability and discouraging productive investments. Additionally, they noted that high inflation erodes consumers' purchasing power, which in turn diminishes demand for agricultural products. Similarly, Ghulam and Hajra (2021) revealed that persistent inflation leads to market uncertainty, distorts pricing mechanisms, and undermines effective resource allocation within the agricultural sector.

In the Sub-Saharan African context, Osei and Agyeman (2020) examined the inflation-agriculture nexus in Ghana and found that inflation had a statistically significant negative effect on agricultural output, primarily due to rising input costs and reduced access to credit for farmers. Their study emphasized the need for macroeconomic stability to ensure sustainable agricultural development in the region. In Kenya, Njoroge (2018) observed that inflation contributed to fluctuations in farm gate prices and input affordability, thus affecting farmers' production decisions and output levels.

Focusing on Nigeria, several studies have provided nuanced insights. Adeniran and Yusuf (2019) found a negative and significant relationship between inflation and agricultural output in Nigeria, highlighting that inflation not only raises production costs but also disrupts food supply chains. Similarly, Okonkwo and Umeh (2021) employed the Autoregressive Distributed Lag (ARDL) model to assess the long- and short-run dynamics between inflation and agricultural output. Their results indicated that inflation adversely affects agricultural productivity, particularly in the long run, as it discourages investment in capital and modern technologies. Moreover, Adebayo and Olayemi (2022) emphasized that inflation volatility reduces farmers' real income and weakens their capacity to reinvest in production, thus creating a vicious cycle of low output and rising food prices.

Collectively, these studies suggest that inflation poses a significant threat to agricultural development, especially in developing economies where the agricultural sector is highly vulnerable to macroeconomic shocks. They underscore the importance of inflation-targeting policies and supportive fiscal measures to stabilize the agricultural economy.

Agricultural Sector Output

The agricultural sector encompasses a wide array of activities aimed at satisfying human needs through the cultivation of crops, rearing of animals, fishing, forestry, and wildlife conservation. Beyond primary production, it includes processing, storage, preservation, and marketing of agricultural commodities (FAO, 2020). According to Akinboyo (2018), agriculture can be defined as the scientific use of land for the cultivation of plants and animals, highlighting the human-mediated reconfiguration of natural ecosystems for productive purposes.

Contemporary definitions have broadened to frame agriculture as an integrated system involving the delivery of inputs, production, processing, and marketing of agro-based products. Eboh (2015) described agriculture as both a productive and commercial enterprise essential to national development. This integrated view aligns with the food systems approach, which emphasizes the interconnection between agricultural value chains and socio-economic outcomes (HLPE, 2017).

Agricultural sector output refers to the total quantity and value of agricultural goods—such as crops, livestock, forestry, and fisheries—produced within a given period for domestic use and export (Awolaja et al., 2018; World Bank, 2022). In Nigeria, the sector remains a cornerstone of the economy due to its contribution to GDP, employment generation, and export revenue, leveraging vast arable land, diverse agro-ecological zones, and a large labour force (National Bureau of Statistics [NBS], 2023).

According to Olabanji et al. (2017), agricultural output includes commodities that are market-ready before processing, while Ekine (2018) emphasized the role of time-bound production through crop cultivation and animal husbandry. These outputs result from the interaction of several production factors including labour, capital, technological inputs, ecological conditions, and water availability (IFPRI, 2021).

Capital, encompassing financial resources and man-made assets, is a fundamental driver of agricultural productivity. However, capital constraints—stemming from low national savings and investment rates—limit access to critical inputs such as seeds, fertilizers, and mechanisation tools, particularly in developing countries (OECD-FAO, 2023). Farmers often resort to borrowing from financial institutions to mitigate this challenge.

Labour remains central to agricultural production, particularly in labour-intensive systems typical of Sub-Saharan Africa. Measured in man-days, its efficiency improves with capital accumulation and technological adoption, which help delay the onset of diminishing returns (World Bank, 2020).

For the purpose of this study, agricultural sector output is operationalised as the Gross Domestic Product (GDP) derived from agriculture within the study period, capturing total outputs from crop production, livestock, forestry, and fisheries (NBS, 2023).

Methodology

Research Design

This study adopted the ex post facto research design to investigate the impact of inflation rate on agricultural sector output in Nigeria from 1993 to 2023. As defined by Kerlinger (1964), ex post facto research observes the effect of past events—here, historical inflation—on a dependent variable without manipulating any variables. This design is appropriate because it relies solely on secondary data and does not involve experimental control.

Nature and Sources of Data

The study utilized secondary time series data covering the period 1993–2023. Data on agricultural output, measured as the agricultural sector's contribution to Nigeria's Gross Domestic Product (AGDP), and inflation rate, measured by the annual percentage change in the Consumer Price Index (CPI), were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2023), the National Bureau of

Statistics (NBS), and the World Bank's World Development Indicators (WDI).

Model Specification

Guided by Hirschman's unbalanced growth theory, this study postulates that macroeconomic instability—proxied by inflation—can influence agricultural output. Adapting from Hafeez and Sajid (2021), a log-linear multiple regression model is specified to assess the long-run and short-run relationship between inflation and agricultural output:

\text{LOG}(AGDP_t) = \alpha + \beta \cdot INFR_t + \epsilon_t

Where:

AO= Agricultural Output at time t
INFR= Inflation Rate at time t
é= Error term

Techniques for Data Analysis

Trend Analysis

Trend analysis was conducted to observe historical movements and patterns in both inflation and agricultural output, providing a foundational understanding of their trajectories over time.

Descriptive Statistics

Descriptive statistics (mean, median, standard deviation, minimum, maximum, and Jarque-Bera test) were used to assess the distributional properties of the variables and ensure normality of the dataset before model estimation.

Correlation Analysis

Pearson's correlation was employed to examine the strength and direction of the linear relationship between inflation rate and agricultural output.

Econometric Estimation Procedure

Unit Root Test

The Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979) was conducted to determine the stationarity of the variables. Ensuring that the series are not spurious is crucial for reliable model estimation.

ARDL Bounds Cointegration Test

The Autoregressive Distributed Lag (ARDL) bounds test (Pesaran, Shin, & Smith, 2001) was used to test for a long-run relationship between inflation and agricultural output. If the computed F-statistic exceeds the upper bound critical value, cointegration is confirmed.

ARDL Model Estimation

The ARDL model, which allows for different lags of the dependent and independent variables, was estimated. The optimal lag length was selected using the Akaike Information Criterion (AIC). This approach accommodates mixed orders of integration (I(0) or I(1)) and small sample sizes.

Error Correction Model (ECM)

Once cointegration was established, an Error Correction Model was specified to estimate the short-run dynamics and adjustment speed to long-run equilibrium. The error correction term (ECT) indicates how quickly deviations from long-run equilibrium are corrected.

Post-Estimation Diagnostic Test

Normality Test

The Jarque-Bera test was used to verify that the residuals of the estimated model follow a normal distribution. Non-normality may suggest model misspecification or outliers.

Multicollinearity Test

Although only one independent variable (inflation rate) is used, the variance inflation factor (VIF) was checked to confirm the absence of multicollinearity.

Heteroskedasticity Test

The Breusch-Pagan test was applied to assess the presence of heteroskedasticity in the residuals. Homoscedasticity is required for efficient and unbiased OLS estimates.

Autocorrelation Test

The Breusch-Godfrey serial correlation LM test was conducted to detect autocorrelation in the residuals. Serial correlation, if present, may bias standard errors and affect statistical inference.

Specification Error Test (RESET)

The Ramsey RESET test was used to check the adequacy of the functional form of the ARDL model. A significant F-statistic would suggest model misspecification.

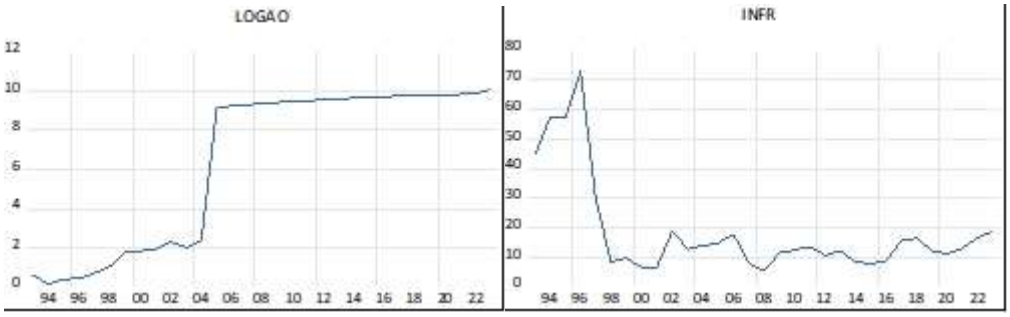
Stability Test

The CUSUM and CUSUMSQ tests were conducted to assess the parameter stability of the model over the sample period. Stability is confirmed if the plots remain within the 5% significance bounds.

Data Analysis

Trend analysis

Figure 1: Trend Analysis between Inflation Rate and Agriculture Sector Output
Source: Researcher's Computation (2024) Employing E-Views 12



Between 1993 and 2023, the relationship between inflation rate (INFR) and agricultural sector output (AO) in Nigeria revealed a generally inverse trend. In 1996, the inflation rate peaked at 73%, coinciding with a significant decline in agricultural output to 0%, indicating that high inflation adversely affected agricultural productivity. Conversely, during periods of reduced inflation—particularly in 2008 when the rate declined to 5%—agricultural output rose to 9.5%, suggesting that lower inflation created a more favourable environment for agricultural growth. However, by 2023, inflation increased to 19%, while agricultural output reached a record high of 10.1%, following a prolonged period of stagnation. This anomaly may indicate a shift in the historical inflation-output dynamic, possibly due to improved policy interventions or adaptive strategies within the agricultural sector, despite inflationary pressures.

Descriptive statistics

Table 1: Summary of Descriptive Statistics

	AO	INFR
Mean	9404.617	18.57419
Median	11645.00	12.90000
Maximum	23654.00	72.80000
Minimum	1.180000	5.400000
Std. Dev.	8102.969	16.48371
Skewness	-0.093017	2.104637
Kurtosis	1.455415	6.366530
Jarque-Bera	3.126289	37.52486
Probability	0.209476	0.000000

Source: Researcher's Computation (2024) Employing E-Views 12i

In Table 1, the Agriculture Sector Output (AO), which measures the agricultural contribution to the Gross Domestic Product (AGDP) of Nigeria, has a mean value of 9404.6. This indicates that, on average, the Nigerian economy has been relatively stable and promising throughout the period under study. The standard deviation of 8102.969 suggests a moderate level of variability around this mean. While there have been fluctuations in the Agriculture Sector Output, they have not been extreme. For instance, in years of favorable weather conditions, the AO might exceed the mean, while in times of drought or other challenges, it may fall below.

Moreover, the skewness of -0.09 reveals that the distribution of AO is negatively skewed. This means that there are more instances of below-average agricultural growth rates compared to higher ones. For example, factors such as market demand, government policies, and climate conditions can influence this skewness. The kurtosis value of 1.455, below the normal value of 3, indicates a relatively normal distribution. In practical terms, this implies that the

majority of the data points cluster around the mean without significant outliers.

The Jarque-Bera statistic of 3.13, with a probability value of 0.209476, further supports the notion of a normally distributed AO. This statistical test confirms that the data aligns with a near normal kurtosis.

Table 2: Summary of Correlation

Probability	LOGAO	INFR
LOGAO	1.000000	

INFR	-0.551015	
	0.0013	

Source: Researcher's Computation (2024) Employing E-Views

Table 2: shows that the correlation coefficient value of -0.551015 and the accompanying p-value of 0.0013 suggest that the correlation between LOGAO and INFR is significant, strong, and negative. This conclusion was reached after the correlation was determined to be significant, strong, and negative. This negative correlation suggests that as the consumer price index increases, agricultural produce becomes too expensive for the consumer to afford. Inflation also erodes purchasing power and increases production cost.

Unit root test result

Table 3: Summary of Unit Root Test

Variable	ADF Test Statistics	5% critical value	P-Value	Order of integration
AO	-4.933684	-3.574244	0.0023	I(1)
INFR	-3.017019	-2.967767	0.0450	I(0)

Source: Researcher's Computation (2024) Employing E-Views 12

The estimated result in Table 3 found AO to be stationary at first difference (i.e. integrated of order one), while INFR was found to be stationary at levels (i.e. integrated of order zero).

Model Estimation Result

Parsimonious ARDL error correction regression result for the models

The ARDL-ECM result examines how the ARDL model changes to a long-run equilibrium.

Table 4: Summary of Short Run ECM Results:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.70084	2.335477	11.43271	0.0003
@TREND	2.548706	0.236588	10.77276	0.0004
D(LOGAO(-1))	-0.627958	0.078908	-7.958105	0.0014
D(INFR)	0.093641	0.012737	7.351687	0.0018
D(INFR(-1))	0.208473	0.020626	10.10709	0.0005
D(INFR(-2))	0.094592	0.014871	6.360808	0.0031
				0.0004
CointEq(-1)*	-0.662367	0.059474	-11.13715	
R-squared	0.966943	Mean dependent var		0.344971
Adjusted R-squared	0.900829	S.D. dependent var		1.265300
F-statistic	14.62545	Durbin-Watson stat		3.297563
Prob(F-statistic)	0.000141			

Source: Researcher's Computation (2024) Employing E-Views 12

In Table 4, the regression analysis examines the relationship between inflation rate and agricultural sector output in Nigeria from 1993 to 2023, using an error correction model (ECM) to capture both the short-run dynamics and the long-run equilibrium relationship. The results provide critical insights into how inflation influences agricultural performance in the country over time.

In the short run, the findings indicate that inflation exerts a positive and statistically significant effect on agricultural output. Specifically, the coefficient for the current period inflation rate (D(INFR)) is 0.0936, suggesting that a one-unit increase in the inflation rate is associated with a 0.0936 unit increase in agricultural output. This relationship is statistically significant at the 1% level ($p = 0.0018$), underscoring the reliability of this effect. Furthermore, the lagged values of inflation—both one-period (D(INFR(-1))) and two-period (D(INFR(-2))) lags—also show positive and significant effects, with coefficients of 0.2085 and 0.0946, respectively. These results imply that not only does current inflation drive agricultural output upward, but the effects of past inflation persist over time, strengthening the short-term influence.

In the long run, the model includes a cointegration term, represented by CointEq(-1), which measures the speed at which any deviation from the long-run equilibrium is corrected. The coefficient of this term is -0.6624 and is statistically significant ($p = 0.0004$), indicating a robust long-run relationship between inflation and agricultural output. The negative sign implies that when agricultural output deviates from its long-run equilibrium due to inflationary shocks, approximately 66.2% of the deviation is corrected in the subsequent period. This suggests a fast and stable adjustment process, reinforcing the presence of a meaningful long-term linkage.

In terms of model performance, the R-squared value of 0.9669 shows that about 96.7% of the variation in agricultural output is explained by the model, while the adjusted R-squared of 0.9008 confirms the model's strong explanatory power even after adjusting for the number of predictors. The F-statistic (14.63) is statistically significant ($p = 0.000141$), validating the overall model specification. However, the Durbin-Watson statistic of 3.30 suggests potential issues with negative autocorrelation in the residuals, which may require further diagnostic checks.

Overall, the analysis reveals that inflation positively influences agricultural sector output in both the short and long run. While moderate inflation may enhance output by increasing agricultural revenues or stimulating nominal activity, it is essential to recognize that persistent or volatile inflation could undermine the real productivity and planning capacity within the sector. Policymakers are therefore advised to adopt inflation management strategies that stabilize price levels while supporting sustained agricultural growth.

Table 5: Summary of the Long-Run Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFR	-0.326008	0.237898	-1.370369	0.0024

Source: Researcher's Computation (2023) Employing E-Views 12

In Table 5, the Inflation Rate coefficient is -0.326008, with a t-statistics of -1.370369 and a p-value of 0.0014, indicating a statistically significant negative influence on AO. This suggests that a 1% increase in INFR, on the average, decreased LOGAO approximately. This is consistent with the a priori expectation that high inflation rate leads to high alarming cost of agricultural output. The significance of this result highlights the critical importance of a proper regulation of inflation rate to support long-term growth in the agriculture sector.

The model is stable.

Test of Hypothesis

H_{01}: Inflation rate does not have a significant impact on the agriculture sector output in Nigeria.

Table 6: Summary of Statistical Test of Hypotheses Result

Variable	t -Statistic	Probability
INFR	-1.370369	0.0024

Source: Researcher's Computation (2024)

According to the data shown in the Table 6, the value of the t-statistics coefficient is -1.370369, and the p- value that is connected with it is 0.0024. It indicates that the null hypothesis is rejected since the probability value is lower than 0.05. It is clear from this that the rate of inflation does have a major influence on the productivity of the agricultural sector in Nigeria.

Discussion of Findings

The study revealed a negative and statistically significant long-run relationship between the inflation rate (INFR) and agricultural sector output (LOGAO) in Nigeria from 1993 to 2023. A 1% increase in inflation corresponded with a decline in agricultural output, supporting the a priori expectation that high inflation elevates production costs and disrupts sectoral growth. This finding aligns with Sharma and Mittal (2019), who identified inflation-induced fluctuations in interest and exchange rates as detrimental to sectoral development.Consistent with prior studies (Ojo & Alege, 2014; Iheanacho, 2017), the results confirm that inflation undermines agricultural productivity by eroding farmers' purchasing power, raising input costs, and limiting investment in modern technologies (Okodua & Ewetan, 2013). Persistent inflation introduces price uncertainty, discouraging long-term investment (Gbadebo & Okonkwo, 2009), while input-output price disparities reduce incentives to expand production, particularly in a structurally inflation-prone economy like Nigeria (CBN, 2022).

Moreover, inflation exacerbates fiscal imbalances by increasing recurrent government spending, thereby reducing capital investment in agriculture (Ezeabasili et al., 2012), and diminishes the real value of agricultural budget allocations (Akinbobola, 2012).

These findings highlight the need for sound monetary and fiscal policies to curb inflation and foster agricultural growth. Strategies such as inflation targeting, improved logistics, investment in rural infrastructure, and prudent fiscal governance are essential for ensuring price stability and stimulating sectoral development (World Bank, 2020).

Conclusion

In conclusion, this study affirms that macroeconomic stability, especially low and predictable inflation, is a fundamental prerequisite for achieving sustained growth in agricultural output. Addressing inflation-related challenges through coordinated policy responses will not only enhance the sector's productivity but also contribute to the broader objective of economic diversification in Nigeria.

Policy Recommendations

Based on the findings, the following policy recommendations can be made:

1. Promote Improved Agricultural Technologies:
FMARD should encourage the adoption of modern technologies such as mechanized equipment, improved seeds, and precision farming tools to enhance productivity and lower production costs, thereby minimizing the impact of inflation on output.

2. Implement Price Stabilization Measures:
The government should introduce mechanisms like minimum support prices and buffer stock programs to reduce price volatility, protect farmers from inflation shocks, and ensure stable market conditions.

3. Expand Access to Affordable Agricultural Credit:
Financial institutions, in collaboration with the CBN, should provide inflation-adjusted, low-interest loans to farmers, enabling them to maintain output despite rising input costs.

4. Invest in Agricultural Infrastructure and Value Chains:
Strengthening rural infrastructure—roads, storage, irrigation—will reduce distribution costs and post-harvest losses, helping to stabilize prices and mitigate the effects of inflation on agricultural commodities.

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