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Exchange Rate Volatility and Agricultural Sector Output in Nigeria: Evidence from 1993 to 2023

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Abstract

This study investigates the impact of exchange rate volatility on agricultural sector output in Nigeria over the period 1993 to 2023. The agricultural sector plays a critical role in Nigeria's economy, yet its performance has been undermined by macroeconomic instability, particularly fluctuations in the exchange rate. Using time series data sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Bank, the study employs the Autoregressive Distributed Lag (ARDL) model to examine both the short- and long-run relationships between exchange rate volatility and agricultural output. The findings reveal that exchange rate volatility has a statistically significant negative effect on agricultural output in the long run. The study recommends the adoption of exchange rate stabilization policies, increased investment in domestic agricultural production, and strategic foreign exchange interventions to reduce the sector's vulnerability to currency fluctuations.

Keywords: *Exchange rate volatility, Agricultural sector output, Nigeria, Time series analysis, Macroeconomic instability, Cointegration.*

Introduction

The exchange rate is a crucial macroeconomic variable that influences production costs, trade competitiveness, and investment decisions in developing economies. In Nigeria, the agricultural sector remains a vital component of national development, contributing significantly to GDP, employment, and food security (World Bank, 2024). However, the sector's performance has been inconsistent, and one of the major challenges is the volatility of the exchange rate.

From 1993 to 2023, Nigeria's exchange rate regime has evolved from fixed and dual rates to managed and flexible systems. These transitions have led to fluctuations in the value of the naira, significantly affecting sectors dependent on imported inputs. The agricultural sector, which relies heavily on imported machinery, fertilizers, and agrochemicals, is particularly vulnerable (Adeniran, Yusuf, & Adeyemi, 2014). Exchange rate instability increases production costs, reduces investment confidence, and undermines long-term planning.

The agricultural sector in Nigeria plays a critical role in employment generation, food security, poverty alleviation, and foreign exchange earnings. Despite its importance, the sector's performance has remained suboptimal due in part to macroeconomic instability, particularly exchange rate volatility. The exchange rate, which reflects the value of the naira relative to other currencies, is a crucial determinant of input costs, investment decisions, and overall competitiveness in agriculture.

Over the past three decades, Nigeria has experienced considerable exchange rate fluctuations, driven by oil price shocks, trade imbalances, and foreign reserve pressures. These changes have significant implications for an import-dependent agricultural system that relies on inputs such as machinery, agrochemicals, and improved seeds. Understanding the relationship between exchange rate behavior and agricultural output is thus critical to designing effective policies that support the sector's growth and sustainability.

This study examines how fluctuations in the exchange rate have affected Nigeria's agricultural sector output from 1993 to 2023. It aims to provide empirical insights to guide policymakers in managing currency stability to ensure food security and sustainable agricultural development.

Although several policy interventions have been introduced to improve agricultural productivity, the persistent instability in the exchange rate has offset many of these gains. According to FMARD (2012), out of over 84 million hectares of arable land in Nigeria, only about 40% is under cultivation, and this underutilization is partly due to high input costs driven by exchange rate fluctuations. This study investigates the extent to which exchange rate volatility affects agricultural sector output in Nigeria between 1993 and 2023. It aims to provide empirical evidence to inform exchange rate and agricultural policy formulation in Nigeria.

Statement of the Problem

The persistent underperformance of the agricultural sector in Nigeria, despite substantial government interventions and reforms, raises questions about the underlying macroeconomic constraints inhibiting its growth. One such constraint is exchange rate instability. A volatile exchange rate can disrupt import costs, depress investor confidence, and erode the profitability of agricultural enterprises. Nigeria's transition from fixed to flexible exchange rate regimes over the years has resulted in sharp currency devaluations that affect input pricing and overall sectoral productivity.

While numerous studies have explored the general impact of macroeconomic variables on agriculture, limited attention has been paid specifically to the long-term influence of exchange rate movements on agricultural output in Nigeria. Moreover, inconsistencies in findings across empirical literature create the need for a focused and updated investigation covering the extended period of 1993–2023.

Agricultural productivity in Nigeria remains below its potential despite numerous interventions, such as the Agricultural Transformation Agenda and the Anchor Borrowers' Programme. One persistent constraint is macroeconomic instability, particularly exchange rate volatility. Nigeria's overreliance on imported agricultural inputs makes the sector highly sensitive to fluctuations in foreign exchange markets. For instance, the devaluation of the naira in 2016 significantly raised the prices of fertilizers and machinery, leading to higher production costs and lower output (CBN, 2017).

Unstable exchange rates create uncertainty for farmers, discouraging investment and expansion. Moreover, they affect the competitiveness of Nigeria's agricultural exports, particularly in regional and international markets. While depreciation can theoretically enhance exports, the gains are often offset by increased input costs in a largely import-dependent agricultural economy (Oladipo, Adebiyi, & Akinola, 2020). Despite the importance of the exchange rate in determining economic outcomes, there is a paucity of empirical studies focused specifically on its effect on agricultural output in Nigeria over a long time frame. This study fills that gap.

Objectives of the Study

i. To examine the long-run and short-run effects of exchange rate fluctuations on agricultural output in Nigeria.
ii. To provide policy recommendations for mitigating the adverse impacts of exchange rate volatility on agricultural productivity.

Research Question

What is the impact of exchange rate fluctuations on agricultural sector output in Nigeria?

Hypothesis

H_0: Exchange rate fluctuations have no significant impact on agricultural sector output in Nigeria.

Literature Review

Exchange rate

Exchange rate volatility refers to the extent and frequency of fluctuations in the value of a country's currency relative to others. Agricultural output, in this context, denotes the total value of crop and livestock production in an economy. The interaction between these variables is crucial because exchange rate movements influence both the cost of production inputs and the competitiveness of agricultural exports.

When the currency of one nation is compared to the currency of another nation, the value of the value of the economy's currency is referred to as the exchange rate. The relative strength or weakness of an economy's currency has a significant impact on the trade that the economy engages in with other countries as well as the prices that its people pay for purchases of imported goods. According to the findings of Diala et al. (2016), businesses and industries that are primarily dependent on imports. When there is a depreciation of the local currency, it results in the goods that are exported becoming more affordable, which in turn increases export and brings about increased profits. It is possible that this would boost the expansion of the economy, which would then lead to a rise in the returns on stock. On the other hand, when there is an appreciation of the local currency, the opposite would occur.

The significance of the exchange rate originates from the fact that it establishes a connection between the pricing structures of two distinct nations, so enabling international commerce practitioners to draw direct comparisons between the items that are being traded. To put it another way, it establishes a connection between domestic prices and international prices by way of the effects it has on the quantity of imports and exports. This is consistent with the definition of exchange rate that is provided by Adeniran et al. (2014). According to this definition, exchange rate is a variable that has a significant impact on the amount of agricultural output. The majority of the farm equipment that

are used for agricultural production are imported materials, which is the reason why this is the case. When it comes to agricultural production, Nigeria, which is classified as a third-world country, is not capable of competing with the superior technology that is currently available. The exchange rate is an extremely helpful tool for determining the value of agricultural production and equipment. However, fluctuations in exchange rates will, in any case, have a fact that Nigeria is heavily dependent on the importation of capital goods that are utilised in the agricultural production process.

Agriculture sector output

Agriculture, in its broadest sense, encompasses the cultivation of crops, animal husbandry, fishing, forestry, and wildlife conservation, all aimed at satisfying human needs. Beyond primary production, it includes the processing, preservation, storage, and marketing of agricultural products. Thus, agriculture is both a biological and economic activity involving the systematic production and preparation of plant and animal products for human consumption. Akinboyo (2018) defines agriculture as the science of utilizing land to cultivate plants and rear animals, aligning with the broader conceptualization of agriculture as a system that rechannels natural energy flows to support human livelihoods.

Eboh (2015) extends this understanding by describing agriculture as a productive and commercial enterprise comprising input provision, production, processing, marketing, and storage. This systemic perspective views agriculture as an integrated value chain of interrelated activities, contributing significantly to national economic performance. Similarly, Awolaja et al. (2018) emphasize the economic relevance of agricultural output, identifying it as the volume and value of goods produced for domestic consumption and export. Agriculture's significance in Nigeria is underscored by the country's abundant natural endowments—vast arable land, water resources, and diverse agro-ecological zones—as well as its contributions to GDP, employment, and foreign exchange earnings.

Olabanji et al. (2017) define agricultural output as the total value of unprocessed agricultural goods produced within a given period that are ready for consumption and export. Ekine (2018) corroborates this by describing output as the quantity of goods derived from crop cultivation and animal rearing. Agricultural output is a function of various production inputs, including capital, labour, farming experience, water management, and biological factors. Capital—comprising both financial resources and man-made assets such as machinery—is pivotal to production, yet remains scarce in many developing economies due to low savings and investment levels. This constraint often compels farmers to seek external financing to acquire essential inputs like seeds, fertilizers, and equipment. Labour, measured in man-days, is central to the production process and is enhanced by capital accumulation, which can delay diminishing returns in agricultural productivity.For the purpose of this study, agricultural sector output refers specifically to the Gross Domestic Product (GDP) of the agricultural sector within the study period,

Theoretical Review

This study is underpinned by three interrelated economic theories that explain the relationship between exchange rates, macroeconomic variables, and agricultural output: Purchasing Power Parity (PPP), the Law of One Price (LOOP), and Production Theory.

Firstly, the Purchasing Power Parity (PPP) theory, developed by Gustav Cassel in the early 20th century, posits that exchange rates between two currencies are in equilibrium when their purchasing power is the same in each country (Cassel, 1918). According to this theory, fluctuations in exchange rates affect the relative price of goods across borders, thereby influencing the cost of inputs and profitability in sectors such as agriculture. In essence, a depreciation in the exchange rate makes imported inputs more expensive, potentially reducing output unless counterbalanced by higher export revenues or domestic substitutes.

Closely related to PPP is the Law of One Price (LOOP), which asserts that identical goods should sell for the same price across different countries when expressed in a common currency, assuming no transportation costs or trade barriers (Isard, 1977). LOOP underlines the role of exchange rate movements in maintaining price parity across borders. Deviations from this principle may lead to arbitrage or inflationary pressures, which can directly affect agricultural production costs and investment decisions.

Furthermore, the Production Theory, rooted in classical and neoclassical economics and elaborated by scholars such as Johann von Thünen, David Ricardo, and later by Paul Douglas and Charles Cobb, explains that output is a function of inputs—namely land, labor, and capital—and external conditions such as technological progress and market stability (Cobb & Douglas, 1928). This theory suggests that macroeconomic variables like exchange rate, inflation, interest rate, and fiscal spending influence the efficiency and availability of productive resources. In the agricultural sector, adverse exchange rate movements or inflationary conditions can increase the cost of seeds, fertilizer, machinery, and other inputs, thereby constraining output.

Integrating these theories provides a comprehensive lens through which to understand how exchange rate volatility and macroeconomic dynamics interact to shape agricultural sector output in Nigeria.

Empirical Review

Adeniran et al. (2014) concluded that exchange rate depreciation negatively affects agricultural productivity in Nigeria due to increased input costs. Similarly, Oladipo et al. (2020) observed that volatility in the foreign exchange market discourages long-term investments in agriculture. Conversely, Obi and Nnaji (2015) noted that exchange rate depreciation can enhance export competitiveness, although this is more applicable in economies with a strong manufacturing base.

Globally, studies have shown that countries with stable exchange rate regimes tend to experience higher agricultural productivity due to reduced uncertainty in input pricing and investment (Coccia, 2017). However, the Nigerian experience appears more complex due to the import-dependence of its agricultural sector.

Empirical evidence on the relationship between exchange rate and agricultural output remains mixed. Oladipo and Akinbobola (2011) found a negative impact of exchange rate volatility on sectoral outputs in Nigeria, including agriculture. Similarly, Lawal (2014) concluded that currency depreciation increases production costs, leading to reduced output. However, Adetayo and Adegboye (2019) argued that exchange rate fluctuations have an insignificant impact on agriculture in the long run, suggesting that structural factors may be more influential.

This study contributes to existing literature by extending the time frame to 2023 and focusing exclusively on the exchange rate–agriculture output nexus using robust econometric methods.

METHODOLOGY

Research Design

This study employed the ex post facto research design, appropriate for analyzing past data to determine the impact of one variable on another without manipulation. Specifically, the research investigates the effect of exchange rate volatility on agricultural sector output in Nigeria using historical data. Since the variables under investigation have already occurred and cannot be controlled or manipulated, the design is suitable for examining existing relationships based on empirical evidence.

Nature and Sources of Data

The study covers a 30-year period (1993–2023) and utilizes secondary data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2023), National Bureau of Statistics (NBS), and the World Bank World Development Indicators (WDI).

Agricultural output is measured by the agricultural sector's contribution to Gross Domestic Product (AGDP).

Exchange rate is measured in Naira/USD, representing the value of Nigeria's currency relative to the US Dollar.

Model Specification

This study adapts the Hirschman unbalanced growth model, which posits that financial shocks like exchange rate movements can influence sectoral output. Following modifications in line with Hafeez and Sajid (2021), the functional relationship is specified as:

$AGDP_t = f(EXCHR_t)$

Where:

= Agricultural Output at time t

= Exchange Rate at time t

The model will be estimated using an ARDL approach to capture both short-run dynamics and long-run relationships between exchange rate and agricultural output.

Techniques for Data Analysis

Trend Analysis

Trend analysis was conducted to observe the historical movements in exchange rate and agricultural output over the 30-year period. This helped identify patterns and shifts that may suggest potential causality or structural changes.

Descriptive Statistics

Descriptive statistics, including the mean, median, minimum, maximum, standard deviation, and Jarque-Bera normality test, were used to assess the distribution and variability of the two key variables.

Correlation Analysis

Pearson correlation analysis was conducted to examine the strength and direction of the relationship between exchange rate and agricultural output before regression analysis.

Pre-estimation Tests

Unit Root Test

The Augmented Dickey-Fuller (ADF) test was employed to determine the stationarity of the series. This step is crucial to avoid spurious regression and to validate the use of ARDL.

Estimation Techniques

ARDL Bounds Testing

The ARDL bounds test for cointegration developed by Pesaran et al. (2001) was used to determine if a long-run equilibrium relationship exists between exchange rate and agricultural output. If the F-statistic exceeds the upper bound critical value, cointegration is confirmed.

Autoregressive Distributed Lag (ARDL) Model

The ARDL model was applied to estimate both the short-run coefficients and long-run equilibrium relationship between the two variables. The optimal lag length was selected based on the Akaike Information Criterion (AIC).

Error Correction Model (ECM)

If cointegration is established, an ECM is derived from the ARDL model to capture the short-run dynamics while maintaining the long-run equilibrium adjustment mechanism.

Post-Estimation Diagnostics

To validate the robustness of the model, several diagnostic tests were carried out:

Normality Test (Jarque-Bera) – To ensure the residuals are normally distributed.

Multicollinearity Test – To verify that exchange rate is not collinear with itself in lagged forms.

Heteroskedasticity Test (Breusch-Pagan) – To check for constant variance of residuals.

Autocorrelation Test (Breusch-Godfrey LM) – To detect serial correlation in residuals.

Ramsey RESET Test – To evaluate model specification and functional form.

CUSUM and CUSUMSQ Tests – To assess the parameter stability of the model over time.

Data Analysis

Trend analysis

The first step of the research was to investigate the historical patterns of the time series data on exchange rate and agricultural sector output in Nigeria from 1993 to 2023. In the context of examining developments over a prolonged period, trend analysis serves as a vital technique for analyzing time series data. It aims to (1) identify the general patterns and relationships between the exchange rate and agricultural output, and (2) project the future direction of these patterns based on historical trends.

Accordingly, this section presents and discusses the graphical representations and trend analysis of the exchange rate and agricultural sector output. The graph illustrates the movement and interaction of the two variables over the study period, providing insights into their historical behavior and potential implications for future policy considerations.

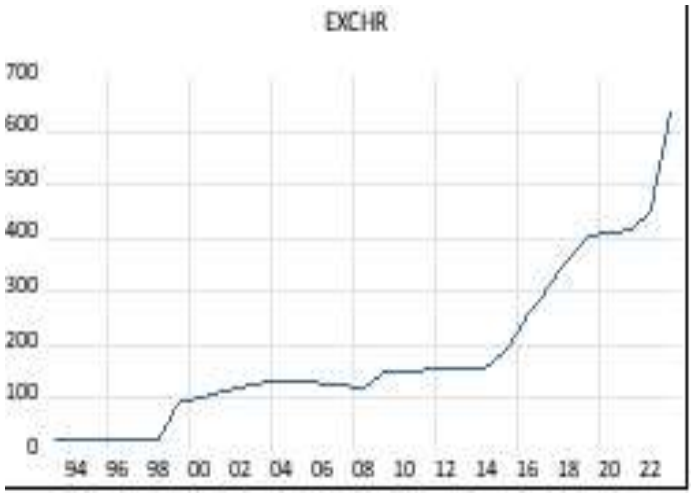

Figure 1: Trends Analysis between Exchange Rate and Agriculture Sector Output

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

Figure 1 illustrates the trend in agricultural sector output (LOGAO) over the period 1993 to 2023. The sector recorded its lowest growth rate of 0.2% in 1994, followed by a steady increase peaking at 9.2% in 2005. Thereafter, growth stagnated until 2023, when output reached its highest level of 10.1%.

In contrast, the exchange rate (EXCHR) exhibited relative stability between 1993 and 1998, before rising sharply to 100 in 2000. This sudden depreciation coincided with fluctuations in agricultural output, which rose irregularly from 0.1% to 2%, indicating a destabilizing effect. Between 2006 and 2008, EXCHR fluctuated between 120 and 140 before dropping to 110, during which agricultural output increased sharply to 9%, albeit with volatility. By 2022, the exchange rate surged to 600 and peaked further in 2023, while agricultural output plateaued at 10%. These dynamics suggest a negative correlation between exchange rate volatility and agricultural productivity, underscoring the sector's vulnerability to currency shocks due to its reliance on imported inputs and food items.

Descriptive statistics

Table 1: Summary of Descriptive Statistics

	AO	EXCHR
Mean	9404.617	183.2257
Median	11645.00	132.8880
Maximum	23654.00	638.0000
Minimum	1.180000	21.88443
Std. Dev.	8102.969	151.3315
Skewness	-0.093017	1.244199
Kurtosis	1.455415	4.018634
Jarque-Bera	3.126289	9.338410
Probability	0.209476	0.009380

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

In **Table 1**, the descriptive statistics reveal that Agricultural Sector Output (AO), measured as agriculture's contribution to GDP, recorded a mean value of 9,404.6, indicating a relatively stable and encouraging performance over the study period. The standard deviation of 8,102.97 suggests moderate variability, while a skewness of –0.09 implies a slight negative skew, indicating that periods of lower-than-average output were marginally more frequent. The kurtosis value of 1.46, being below the normal benchmark of 3, points to a distribution that is relatively flat, and the Jarque-Bera statistic (3.13; p = 0.209) confirms the normality of the AO distribution.

In contrast, the exchange rate (EXCHR) had a mean of 183.2, reflecting the sustained depreciation of the Naira over the period. Although the standard deviation of 151.3 suggests moderate fluctuations, the skewness of 1.24 indicates a pronounced right-skewed distribution, with more frequent high exchange rate values. The kurtosis value of 4.02 exceeds the normal value, implying the presence of heavy tails and a higher likelihood of extreme exchange rate movements. The Jarque-Bera statistic (9.33; p = 0.009) indicates a significant departure from normality, primarily due to skewness. These findings highlight the exchange rate's instability and its potential implications for agricultural output, particularly through its influence on the competitiveness and cost structure of local agricultural production.

Table 2: Correlation analysis Summary of Correlation

Probability	LOGAO	LOGTGE	EXCHR
LOGAO	1.000000		

EXCHR	0.661753	1.000000	
	0.0001	-----	

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

In Table 2, the correlation coefficient of 0.662 indicates a statistically significant and positive relationship between exchange rate (EXCHR) and agricultural sector output (LOGAO) in Nigeria from 1993 to 2023. This suggests that exchange rate fluctuations, particularly the depreciation of the Naira, are associated with variations in agricultural productivity. While the relationship is moderately strong, it implies that a weaker Naira may contribute to increased production costs—especially for imported agricultural inputs—thereby constraining output. These findings underscore the critical role of exchange rate management in sustaining agricultural sector performance amid external economic pressures.

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)
EXCHR	-5.075962	-3.574244	0.0016	I(1)

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

The estimated result in Table 3 found AO and EXCHR to be stationary at first difference (i.e. integrated of order one).

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. The results are presented in Table 4 below:

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(EXCHR)	0.070345	0.007009	10.03569	0.0006
D(EXCHR(-1))	0.131287	0.013157	9.978449	0.0006
D(EXCHR(-2))	0.088561	0.013015	6.804396	0.0024
				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 short-run Error Correction Model (ECM) results provide key insights into the dynamic relationship between exchange rate fluctuations and agricultural sector output in Nigeria over the period 1993 to 2023. The coefficient of the error correction term (CointEq(-1)) is statistically significant and negative (-0.662367, p = 0.0004), confirming the existence of a stable long-run equilibrium relationship and indicating that approximately 66.2% of any short-run disequilibrium is corrected within one period.

All included exchange rate variables—D(EXCHR), D(EXCHR(-1)), and D(EXCHR(-2))—exert statistically significant positive effects on agricultural output in the short run, with p-values well below 0.01. This suggests that both contemporaneous and lagged changes in the exchange rate positively influence agricultural output growth. Notably, the first lag of the differenced log of agricultural output (D(LOGAO(-1))) is negatively signed and significant, implying some level of output inertia or adjustment effect from previous periods.

The high R-squared value (0.967) and adjusted R-squared (0.901) indicate that the model explains a substantial proportion of the variations in agricultural output. The Durbin-Watson statistic (3.30) suggests the presence of negative serial correlation, which may warrant further diagnostic testing.

Overall, the results highlight that exchange rate movements have a statistically significant and positive short-run impact on agricultural sector output in Nigeria, with strong evidence of a corrective mechanism guiding output back to its long-run equilibrium path.

Table 5: Summary of the Long-Run Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHR	-0.069009	0.040466	-1.705365	0.1633

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

In Table 5, the estimated long-run coefficient of exchange rate (-0.069009) with a t-statistic of -1.705365 and a p-value of 0.1633 indicates a negative but statistically insignificant relationship between exchange rate and agricultural sector output in Nigeria from 1993 to 2023. This suggests that a one-naira depreciation in the exchange rate is associated, on average, with a 0.069% decline in agricultural output. Although insignificant, the negative coefficient aligns with prior findings, implying that exchange rate volatility may hinder agricultural productivity by increasing the cost of imported inputs, fueling inflation, and reducing market stability. This underscores the importance of a stable exchange rate regime to support agricultural sector growth.

Test of Hypothesis

H_{01}: exchange 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
EXCHR	-1.705365	0.1633

Source: Researcher's Computation (2024)

According to the results shown in Table 6, the value of the t-statistics coefficient is -1.705365, and the probability value that is connected with it is 0.1633. It is concluded that the null hypothesis is accepted since the probability value is higher than 0.05. Consequently, this demonstrates that the exchange rate has a significant but negative impact on the productivity of the agricultural sector with regards to Nigeria.

Discussion of Findings

The findings reveal a negative, though statistically insignificant, long-run relationship between exchange rate (EXCHR) fluctuations and agricultural sector output (LOGAO) in Nigeria during the period 1993 to 2023. Specifically, a 1% depreciation in the exchange rate corresponded with a decline in agricultural output, as evidenced by the negative coefficient and t-statistic, alongside a p-value exceeding conventional significance thresholds. This outcome aligns with the study by Victor et al. (2019), which similarly reported that exchange rate movements had no significant long-term effect on Nigeria's Agricultural Gross Domestic Product (AGDP).

The results suggest that while exchange rate volatility may influence agricultural performance, it is not the dominant constraint on sectoral productivity. Instead, structural challenges—such as poor infrastructure, limited access to agricultural financing, and inconsistent policy frameworks—are likely more critical impediments. Nonetheless, the persistent negative association between EXCHR and LOGAO underscores the potential risk that exchange rate instability poses to investor confidence and input costs in Nigeria's largely import-dependent agricultural sector.

Conclusion

This study has provided important insights into the relationship between exchange rate dynamics and the output of the agricultural sector in Nigeria over the period 1993 to 2023. The empirical analysis revealed that the exchange rate had a negative and statistically insignificant impact on agricultural sector output in the long run. This finding indicates that fluctuations in the exchange rate, while not statistically significant in influencing agricultural output over the long term, may still pose indirect threats to the sector's stability and growth.

Specifically, the analysis showed that a 1% change in the exchange rate corresponded, on average, with a decline in agricultural output during the review period. This suggests that exchange rate volatility—especially depreciation of the naira—may contribute to increased costs of imported agricultural inputs such as fertilizers, machinery, and improved seeds, thereby reducing the competitiveness and productivity of the sector.

The findings underscore the need for consistent and stable exchange rate policies that support the agricultural sector. Effective exchange rate management—through mechanisms such as foreign exchange reserve stabilization, export promotion policies, and targeted interventions in

currency markets—can help cushion the sector from the negative spillovers of exchange rate shocks.

In conclusion, ensuring exchange rate stability should be a key component of agricultural and macroeconomic policy in Nigeria. A stable and predictable exchange rate regime can provide the much-needed confidence for investors and producers alike, thereby fostering increased agricultural productivity, enhancing food security, and contributing to sustainable economic growth.

Policy Recommendations

Based on the findings of this study, the following policy recommendations are proposed:

1. Implement a Stable Exchange Rate Policy:

The Central Bank of Nigeria should pursue consistent exchange rate policies that minimize volatility and promote investor confidence in the agricultural sector.

2. Promote Local Input Production:

Reducing reliance on imported agricultural inputs by encouraging local manufacturing of fertilizers, seeds, and equipment can buffer the sector against exchange rate shocks.

3. Strengthen Foreign Reserves Management:

Efficient management of foreign reserves and timely interventions in the forex market can help stabilize the exchange rate and protect the sector from excessive exposure.

4. Support Export-Oriented Agriculture:

Incentivizing agricultural exports can help generate foreign exchange earnings and reduce pressure on the naira, creating a more favorable exchange rate environment.

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