IMPACT OF GOVERNMENT AGRICULTURAL POLICY ON AGRICULTURAL OUTPUT IN NIGERIA: THE ROLE OF INSTITUTIONAL QUALITY

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Abstract

This study investigates the impact of government agricultural policy on agricultural output in Nigeria from 1980 to 2023, utilizing the ARDL model. The focus was on agricultural credit guarantee schemes, agricultural lending rates, government agricultural expenditure, and institutional factors such as corruption control, political stability, and rule of law. The result shows, In the short run, agricultural credit guarantee schemes, agricultural lending rates, and government agricultural expenditure showed no significant effects on agricultural output. However, institutional factors such as corruption control, political stability, and rule of law displayed marginally significant positive effects, suggesting that better governance enhances the effectiveness of agricultural credit schemes and improves agricultural output. In the long run, agricultural credit guarantee schemes showed a marginally significant positive impact on agricultural output, with a coefficient of 0.224, while agricultural lending rates had a marginally significant positive effect of 0.182, although both effects were relatively weak. Government agricultural expenditure, despite being positive, had no significant long-term impact. The result also indicates that, the interaction of Corruption control, political stability, and rule of law with agricultural credit guarantee schemes had significant long-run effects on agricultural output, with coefficients of 0.654, 0.752, and 0.663, respectively. The study therefore, recommends that, efforts to reduce corruption, improve political stability, and strengthen the rule of law should be prioritized to create a conducive environment for agricultural growth.

Keywords: *Agricultural Policies, Agricultural Output, Institutional Quality, Food Security and Nigeria*

Introduction

The Nigerian economy, prior to the oil boom of the 1970s, was predominantly agrarian, with agriculture serving as the primary source of export earnings and livelihood for the majority of the population. During the early years of independence, agricultural exports such as cocoa, groundnuts, and palm oil constituted the major sources of foreign exchange, and the sector provided employment for more than 70 percent

of the population (Mogues, Fan, & Benin, 2015; Mathew & Mordecai, 2016). Even after the discovery of oil, agriculture continued to play an essential role in national development, contributing substantially to Nigeria's GDP and food security. However, the over-reliance on oil revenues gradually led to neglect of the agricultural sector, resulting in stagnation, low productivity, and declining contributions to national income (World Bank, 2024).

Over the decades, agriculture has remained central to Nigeria's socio-economic landscape. It currently contributes about 22 percent to GDP, with more than 70 percent of the population engaged in the sector (World Bank, 2024). The sector is diversified into four main subsectors: crops, livestock, forestry, and fisheries. Crops account for more than 70 percent of output, while livestock contributes about 16 percent, fisheries 7 percent, and forestry 3 percent. Despite this, the sector's contribution to GDP has witnessed fluctuations, declining from 32.4 percent in 1980 to about 25.5 percent in 2022, largely due to policy inconsistencies, infrastructural deficits, and weak institutional frameworks (NBS, 2022; FAO, 2023; ADB, 2023).

The importance of agriculture is further underscored by its role in poverty reduction, rural employment, and food security. Yet, the sector is constrained by inadequate mechanization, poor infrastructure, low access to finance, pest and disease outbreaks, and adverse climatic conditions (Raheem et al., 2014; Wujat, 2015). The lack of timely access to credit facilities has particularly undermined farmers' ability to adopt modern farming techniques and improve yields. Credit and insurance are widely recognized as essential enablers of agricultural growth, as they provide farmers with the confidence to invest in high-quality seeds, fertilizers, and mechanized tools, while also mitigating risks associated with weather shocks and market volatility (Adjognon et al., 2017; Awoke, Awoke, & Obaji, 2019; Raifu & Aminu, 2020; Nadabo & Salisu, 2021; Obi-Egbedi & Owosho, 2023).

To address these challenges, the Nigerian government has introduced several agricultural policies and programmes, including the Agricultural Credit Guarantee Scheme Fund (ACGSF), Operation Feed the Nation (OFN), and the National Accelerated Food Production Programme (NAFPP). These initiatives aimed to enhance food security, increase production, and support farmers' access to finance. For instance, the ACGSF, established in 1977, sought to reduce lending risks for commercial banks by guaranteeing loans to farmers (Rahji & Fakayode, 2009; Chandio et al., 2016). However, despite these interventions, farmers particularly smallholders still face limited access to credit, high interest rates, and stringent collateral requirements, highlighting the ineffectiveness of past policies.

Statement of the Problem

The global food crisis is intensifying, demanding long-term strategic responses. In Nigeria, agriculture remains vital to GDP and employment but faces challenges such as low productivity, poor infrastructure, limited technology, and financial constraints. Although government policies subsidies, credit schemes, R&D, and infrastructure projects have sought to boost output, results have been mixed due to weak institutional quality. Historical neglect following the oil boom in the 1970s led to declining agricultural output, rural-urban migration, and reduced non-oil exports. Persistent obstacles include poor input supply, limited credit, outdated technology, post-harvest losses, weak extension services, inadequate infrastructure, high loan interest rates, and environmental risks. Ultimately, institutional strength governance, transparency, and efficiency remains critical for achieving sustainable agricultural growth and food security in Nigeria.

Objectives of the Study

The overall aim of this study is to assess the impact of government agricultural policies on agricultural output in Nigeria, considering the role of institutional quality. The specific objectives are as follows to:

i. Examine the effect of government agricultural policy on agricultural output in Nigeria.
ii. Ascertain the impact of institutional quality on agricultural output in Nigeria.

Literature Review

Conceptual Clarifications

Agricultural Output: Agricultural output encompasses the value or volume of goods produced in the agricultural sector, including crops, livestock, fisheries, and forestry (FAO, 2023). It serves as a measure of productivity and a critical indicator of food security, poverty reduction, and rural development. Measurement approaches include both physical quantities (e.g., tons of rice, liters of milk) and monetary valuations adjusted for inflation (Miller & Adetola, 2021). Rising agricultural output is typically linked to improved farming techniques, technological innovation, and supportive government policies (Ifejika & Osagie, 2023).

Determinants of Agricultural Output: Multiple factors influence agricultural output in Nigeria, including rainfall patterns, fertilizer use, technological adoption, literacy levels, capital expenditure, and access to credit (Igwe & Esonwure, 2012; Kareem et al., 2013). Studies have shown that rural-urban migration, low pricing practices, and poor infrastructural facilities further constrain productivity (Imahe & Alabi, 2005; Ojo, 1994; Nwaru & Omuoha, 2010). Weak policy implementation has also been identified as a major limitation in achieving sustainable growth in the sector (Iwuchukwu & Igbokwe, 2012).

Institutional Quality: Institutional quality refers to the effectiveness, efficiency, and transparency of governance structures. In agriculture, it entails the ability of government and regulatory bodies to implement policies, enforce property rights, and ensure accountability (Franko, 2007). Poor institutional quality, characterized by corruption, political instability, and weak enforcement, increases investment risks and reduces the success of policies. Conversely, strong institutions foster agricultural growth by ensuring policy continuity and reducing transaction costs (Ajayi & Ojo, 2021; Ojo & Olaleye, 2022).

Agricultural Policies and Institutional Interactions

Agricultural policies in Nigeria have evolved from colonial-era commodity stabilization schemes to post-independence programmes aimed at achieving food security and industrialization (Ayoola, 2001; Iwuchukwu & Igbokwe, 2012). In the post-colonial era, initiatives such as the ACGSF were introduced to mitigate farmers' credit constraints. While the scheme was designed as a risk-sharing mechanism, its success has been hindered by bureaucratic inefficiencies, delayed disbursements, and poor monitoring (Ngugi & Wainaina, 2024). More recent trends emphasize integrating digital technologies into credit schemes and combining agricultural credit with climate risk insurance to enhance resilience (Munyua & Wainaina, 2023; UNDP, 2022).

Despite these policies, the agricultural sector continues to face structural challenges, including poor storage facilities, market inefficiencies, and unstable input prices (Oni, 2013; Ebere & Osundina, 2014). These constraints often render government interventions ineffective, especially when institutional frameworks are weak. Scholars argue that institutional quality plays a critical moderating role: strong institutions amplify the benefits of subsidies, credit guarantees, and expenditure programmes, while weak institutions allow leakages, corruption, and policy failures (Durojaiye & Olamide, 2024; Akinyemi & Adebayo, 2024).

Theoretical Framework

This study is anchored on the New Institutional Economics (NIE) theory**,** which emphasizes how institutional environments shape economic performance (North, 1990). NIE posits that transaction costs, information asymmetry, and enforcement mechanisms determine the effectiveness of policies. Within Nigeria's context, credit schemes such as the ACGSF reduce lending risks but are only effective when institutional frameworks support transparency and accountability (Swinnen et al., 1999). The theory thus provides a useful lens for analyzing the interaction between agricultural policies and institutional quality in shaping output.

Complementary theories include the Endogenous Growth Theory (Romer, 1990; Aghion & Howitt, 1992), which highlights the role of innovation, human capital, and government policy in driving long-run growth,

and Keynesian theory**,** which underscores the importance of government spending in stimulating demand and productivity (Nelson & Plosser, 1984). Wagner's Law further supports the idea that public expenditure on agriculture should expand with economic development, creating new functions and enhancing existing ones (Ram, 1987).

Methodology

Research Design

This study employed a quantitative time-series design using data from 1980–2023 to examine the impact of government agricultural policies on Nigeria's agricultural output, considering the role of institutional quality.

Method and Sources of Data Collection

The method of data collection used for the study is secondary. Annual time series data from 1980 to 2023. The data used were sourced from Central Bank of Nigeria (CBN), Food and agricultural organization (FAO 2024), and World Governance indicator (WGI). The variables were agricultural output (AGO) from food and agricultural organization (FAO), agricultural credit Guarantee Scheme Fund (ACGSF) from Central Bank of Nigeria (CBN), Agricultural Lending Rate (AGLR) from CBN, and Government Agricultural Expenditure (GAE) also from (CBN) and Institutional Quality (INQ) from world Governance indicator (WGI).

Methods of Data Analysis

The study employed the Autoregressive Distributed Lag (ARDL) technique, suitable for variables with mixed integration orders [I(0) and I(1)]. It enables simultaneous short- and long-run estimation, addresses omitted variable bias and autocorrelation, accommodates multiple lags, and is reliable for small samples. Following Pesaran, Shin, & Smith (1999), the conventional linear ARDL
(p,q) model can be summarily constructed thus

$$y_t = \sum_{j=1}^{n} \gamma_i y_{t-j} + \sum_{j=1}^{q} \beta_i \, x_{t-j} + e_t \quad (3.1)$$

In equation (1) above, y_t represents the dependent variable and x_t represents the vector of the independent variable. Similarly, γ_i and β_i represent the coefficient of vectors for scalars and exogenous variables and e_t is a disturbance term. The error correction of the model can be presented as follow:

$$\Delta y_t = \emptyset y_{t-1} + \alpha_t^* x_t + \sum_{j=1}^{n-1} \gamma_t^* \Delta y_{t-i} + \sum_{j=1}^{q-1} \beta_t^* \, \Delta x_{t-i} + e_t \quad (3.2)$$

Results and Discussion

Table 1 Descriptive Statistics

Variable	Obs	Mean	Std.dev	Min	Max
AGO	44	13.79951	2.80758	8.634407	17.01813
ACGSF	44	9.671758	1.634541	5.890125	12.41342
AGLR	44	4.934651	2.869003	2.440879	11.58941
GAE	44	9.999086	2.026339	-.8599532	5.431098
CRCN	44	17.84091	9.476883	4.12543	16.42567
PLST	44	17.38636	8.837594	5.87956	13.94154
RLLW	44	15.72727	8.356487	8.53211	10.09854

Source: Author's Computation using stata version 17

Table 1 summarizes descriptive statistics for eight variables across 44 observations, covering agricultural performance, credit, expenditure, and governance indicators. Agricultural Output (AGO) shows moderate variability, while ACGSF is relatively stable. Agricultural Lending Rate (AGLR) fluctuates widely, reflecting inconsistent borrowing costs. Government Agricultural Expenditure (GAE) records some negative values, indicating deficits or minimal spending. Governance indicators Corruption Control (CRCN), Political Stability (PLST), and Rule of Law (RLLW) display high variability, highlighting differences in institutional quality. Overall, the data reveal moderate stability in agricultural and credit measures but significant fluctuations in governance and lending conditions, underscoring their complex influence on agricultural productivity.

Table 2. Augmented Dickey-Fuller Unit Root Test Result

Variables	**Unit root test at level *I(0)***		**Unit root test at 1st diff *I(1)***			**Probability value**	
	ADF	**Critical value @ 5%**	**ADF**	**Critical value @ 5%**	**Ordered of integration**	***I(0)***	***I(1)***
LAGO	-1.223	-3.532	-4.396	-3.536	*I(1)*	0.9057	0.0022
LACGSF	-2.413	-3.532	-4.565	-3.536	*I(1)*	0.3730	0.0012
LAGLR	-2.102	-3.532	-4.536	-3.536	*I(1)*	0.5452	0.0013
LGAE	-4.414	-3.532	-	-	*I(0)*	0.0021	_
CRCN1LACGSF	-1.725	-3.532	-4.590	-3.536	*I(1)*	0.7397	0.0011
PLST1LACGSF	-1.299	-3.532	-4.431	-3.536	*I(1)*	0.8881	0.0020
RLLW1LACGSF	-2.316	-3.532	-5.891	-3.536	*I(1)*	0.4249	0.0000

Source: Author's Computation using stata version 17

The unit root test results in Table 2 show that most variables are non-stationary at level but become stationary after first differencing, making them integrated of order 1 (I(1)). Specifically, LAGO, LACGSF, and LAGLR were all non-stationary at level but attained stationarity after first differencing. Similarly, the governance interaction terms—CRCN1LACGSF, PLST1LACGSF, and RLLW1LACGSF were also non-stationary at level but became stationary at first difference, confirming their I(1) status.

In contrast, LGAE was the only variable that proved stationary at level, with an ADF statistic below the critical value, indicating integration of order 0 (I(0)). Thus, the overall results confirm that all variables except LGAE require differencing to achieve stationarity, underscoring a mix of I(0) and I(1) series suitable for ARDL estimation.

Table 3: Bound Test Results

							F= 7.226 t= -6.728	
	10%		5%		1%		P-value	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F	7.388	3.637	2.860	4.265	3.987	5.751	0.000	0.002
t	-7.546	-4.032	-2.899	-4.462	-3.622	-5.335	0.000	0.001

Source: Author's Computation using stata version 17

Table 3 presents the Bound Test results, which confirm the presence of a long-run relationship among the variables at the 5% significance level. The F-statistic (7.226) is greater than the critical values for both I(0) and I(1) bounds (3.637 and 4.265), leading to the rejection of the null hypothesis of no cointegration. Similarly, the t-statistic (-6.728) is more negative than its corresponding critical values (-4.032 for I(0) and -4.462 for I(1)), further reinforcing the conclusion that the variables are cointegrated. The associated p-values (0.000 for the F-statistic and 0.001 for the t-statistic) are highly significant, providing strong statistical evidence in support of this finding.

The implication of this result is that the variables share a stable, long-term equilibrium relationship, even though short-term fluctuations may occur. This means that while temporary imbalances or shocks may affect the variables in the short run, they will eventually adjust and converge back to equilibrium. The existence of cointegration highlights the importance of accounting for long-run linkages when modeling or analyzing policy impacts. Ignoring these relationships could lead to inaccurate results, whereas recognizing them ensures more reliable analysis, forecasting, and policy recommendations.

Table 4. Residual, Coefficient, and Stability Diagnostics Tests

Table 4.4.1: Residual, Coefficient, and Stability Diagnostics Tests

Serial Correlation Test	F-statistic Prob:	0.5405
Heteroskedasticity Test	F-statistic Prob:	0.3052
Multicollinearity test	Mean VIF:	1.47
Jarque-Bera normality test:		0.7619

Source: Author's Computation using stata version 17

The diagnostic tests in Table 4 confirm that the model meets key assumptions for reliability and validity. The serial correlation test yielded an F-statistic of 0.5405 with a high p-value, showing no evidence of autocorrelation in the residuals. Similarly, the heteroskedasticity test reported an F-statistic of 0.3052 with a p-value above 0.05, indicating that the variance of residuals is constant across observations. These results suggest that the model is free from autocorrelation and heteroskedasticity problems, ensuring unbiased and consistent coefficient estimates.

Furthermore, the multicollinearity test produced a mean Variance Inflation Factor (VIF) of 1.47, well below the threshold of 10, confirming that the independent variables are not highly correlated and regression estimates are precise. The Jarque-Bera normality test also showed a p-value of 0.7619, suggesting that residuals are normally distributed. Overall, these diagnostic outcomes demonstrate that the model is robust, satisfying all essential statistical assumptions. This enhances confidence in the validity of its coefficients and strengthens its usefulness for interpretation, policy analysis, and forecasting.

Table 5. Short Run Dynamics Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
d_LAGO (LD)	.01971	.2474399	-0.08	0.937
d_LACGSF(D1)	.04349762	.5021064	-0.87	0.396
d_LAGLR(D1)	.0644449	.2962546	-0.22	0.830
d_LGAE	.0783246	.2045019	0.38	0.706
d_CRCN1LACGSF	.3334344	.0076627	1.45	0.059
d_PLST1LACGSF	.2859585	.008296	2.72	0.081
d_RLLW1LACGSF	.2928012	.0048425	3.58	0.059

Source: Author's Computation using using stata version 17

The short-run dynamics presented in Table 5 reveal that traditional agricultural policy variables such as agricultural credit guarantee schemes, lending rates, and government agricultural expenditure do not exert statistically significant effects on agricultural output in the short run. Despite positive coefficients, their high p-values indicate weak or negligible immediate impacts, likely due to delayed implementation, inefficiencies, or structural barriers within the agricultural sector. Similarly, past changes in agricultural output do not significantly predict short-term performance, underscoring that agricultural output responds more to long-term trends than to short-term fluctuations. These findings suggest that short-term agricultural

productivity is less responsive to conventional policy interventions and more dependent on structural and systemic factors.

Conversely, institutional quality emerges as an important determinant, though its effects are only marginally significant at the 10% level. Interactions between agricultural credit schemes and corruption control, political stability, and the rule of law all demonstrate positive relationships with agricultural output. This highlights the role of governance in enhancing the effectiveness of agricultural credit and policy initiatives. Efforts to reduce corruption, promote political stability, and uphold the rule of law create enabling conditions for agricultural policies to function effectively, thereby fostering higher productivity. While their short-run influence is modest, these institutional factors underscore the critical importance of governance quality in shaping agricultural outcomes and provide a foundation for more sustained long-term growth.

Table 6. Estimated Long Run Relationship Results

Dependent: D.d_LAGO

Panel A: Long Run Coefficients			
Variable	Coefficient	t-Statistic	Prob.
ECT(-1)	-.369876	-3.19	0.004
C	.2114999	0.91	0.372
d_LACGSF	.2243677	1.30	0.086
d_LAGLR	.1816116	1.07	0.099
d_LGAE	.2135678	2.50	0.621
d_CRCN1LACGSF	.6543685	3.44	0.005
d_PLST1LACGSF	.751729	4.52	0.008
d_RLLW1LACGSF	.662949	3.51	0.007
Panel B: Goodness-of-fit Measures			
*R*2		84%	
Adjusted R^2		80%	

Source: Author's Computation using using stata version 17

The long-run results indicate that agricultural output adjusts significantly toward equilibrium, with the error correction term showing a 37% speed of adjustment per period, confirming the system's long-term stability. Traditional policy variables such as agricultural credit schemes and lending rates exert marginal positive

effects at the 10% significance level, whereas government agricultural expenditure remains insignificant despite its positive coefficient. This suggests that while credit and lending provide some support, their long-run impacts are weak, and government spending alone does not translate into sustainable productivity gains without complementary measures.

In contrast, institutional factors are strong long-run drivers of agricultural output. Interactions between agricultural credit schemes and governance indicators—such as corruption control, political stability, and the rule of law—are positive and statistically significant at the 5% level. This emphasizes the crucial role of governance quality in ensuring that agricultural credit programs are effectively implemented and lead to productivity improvements. With an R-squared of 84% and an adjusted R-squared of 80%, the model demonstrates high explanatory power, underscoring that institutional quality, alongside supportive credit mechanisms, is vital for sustaining agricultural growth in Nigeria over the long run.

Discussion of Findings

The results in Tables 4.2 and 4.3 reveal distinct short- and long-run effects of government agricultural policies and institutional quality on agricultural output. In the short run, agricultural credit guarantee schemes, lending rates, and government expenditure showed no significant effect on output, suggesting that policy interventions do not produce immediate productivity gains. This aligns with studies arguing that credit access and government spending often take time to yield results due to implementation delays, high transaction costs, and weak rural infrastructure. Conversely, institutional factors such as corruption control, political stability, and the rule of law displayed marginal short-run significance, implying that improvements in governance structures can help enhance the effectiveness of credit and expenditure policies, even if the impact is modest at first.

Over the long run, agricultural credit guarantee schemes showed a positive and marginally significant effect on output, indicating that credit access supports sustained productivity improvements as farmers accumulate capital and adopt better inputs and technologies. Lending rates also became marginally significant, though their impact was context-dependent, reflecting the balance between affordable credit access and borrowing costs. Government agricultural expenditure, however, remained insignificant in the long term, underscoring the inefficiencies and delayed impacts of public spending unless complemented by governance improvements and targeted investments.

Institutional quality variables emerged as the strongest long-run determinants of agricultural output, with corruption control, political stability, and the rule of law all showing significant positive effects. These results highlight the pivotal role of governance in ensuring efficient credit allocation, creating a stable

environment for long-term investment, and protecting property rights and contracts. Taken together, the findings suggest that while credit and expenditure policies matter, institutional reforms hold the key to unlocking Nigeria's agricultural potential. Strengthening institutions, reducing corruption, and promoting stability can amplify the effectiveness of financial and policy interventions, ensuring sustained agricultural growth.

Conclusion

This study concludes that government agricultural policies and institutional quality jointly influence agricultural output in Nigeria, though their effects differ between the short and long run. In the short term, agricultural credit schemes, lending rates, and government expenditure show little impact due to implementation delays and inefficiencies, while institutional factors such as corruption control, political stability, and the rule of law demonstrate immediate positive effects by enhancing the effectiveness of policies.

Over the long run, agricultural credit schemes and lending rates gradually become more significant, supporting sustained investments and productivity growth. However, government expenditure continues to show limited influence, reflecting persistent inefficiencies in policy execution. Strong institutional quality consistently emerges as the key driver of growth, providing the foundation for policies and credit interventions to succeed. The findings highlight the need for policymakers to strengthen governance, reduce corruption, and ensure political stability alongside targeted investments to achieve sustainable agricultural development and food security in Nigeria.

Recommendations

The study recommends the following thus

i. The government should prioritize anti-corruption measures, promote political stability, and enforce the rule of law to create an enabling environment where agricultural policies and credit schemes can be effectively implemented.
ii. Policymakers should expand and streamline the Agricultural Credit Guarantee Scheme to ensure timely disbursement of funds, particularly targeting smallholder farmers, while also providing training on financial literacy and credit management.
iii. Agricultural spending should be restructured to focus on infrastructure, research, and technology that directly improve farm productivity. Monitoring and evaluation frameworks should be strengthened to reduce leakages and ensure resources reach intended beneficiaries.

iv. Reforms in agricultural financing and policy design should be tied to institutional improvements, such as transparent procurement systems and secure property rights, to ensure that both short-term interventions and long-term strategies translate into sustained agricultural output.

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