Social Sciences Journal of Policy Review and Development Strategies | **SSJPRDS**
p-ISSN: 2488-9636 | e-ISSN: 2488-9628
Volume 7, Number1 May, 2026

Impact of Agricultural Financing on Crop Productions in Nigeria (1986-2023)

[1]Dole Faith, [2]Ezie Obumneke, & [3]Aigbedion I. Marvelous
[1,2&3]Department of Economics,
Bingham University Karu

Article DOI: 10.48028/iiprds/ssjprds.v7.i1.09

Abstract

Agricultural financing plays a critical role in enhancing crop production and ensuring food security in Nigeria's predominantly agrarian economy. Limited access to effective and sustainable financing mechanisms remains a persistent challenge that constrains agricultural productivity in Nigeria. This paper investigates the impact of agricultural financing on crop production in Nigeria. Employing an Autoregressive Distributed Lag (ARDL) approach, the analysis reveals that while all financing variables positively influence crop production in the short run, these effects are statistically insignificant. In contrast, commercial bank credit exhibits a statistically significant positive impact on crop production in the long run, underscoring the pivotal role of sustained and accessible private sector financing in fostering agricultural growth. The findings highlight structural constraints, inefficiencies, and delayed fund absorption as factors limiting the short-term effectiveness of agricultural financing. The paper recommends policy measures aimed at enhancing commercial bank lending through incentives and risk mitigation, reforming and expanding the ACGSF for improved accessibility and efficiency, and optimizing government expenditure to address critical infrastructural and technological needs. Furthermore, promoting financial literacy, inclusive financial products for smallholder farmers, and public-private partnerships are emphasized as vital strategies to maximize the developmental benefits of agricultural financing. Addressing these institutional and structural challenges is essential for unlocking the full potential of agricultural financing to achieve sustainable crop production, food security, and rural development in Nigeria.

Keywords: *Agricultural financing, Crop production, Agricultural Credit Guarantee Scheme Fund, Commercial bank credit, Government expenditure, ARDL model*

Corresponding Author: Dole Faith

Background to the Study

Agricultural financing is essential for global agricultural economies, providing necessary resources like credit, subsidies, insurance, and infrastructure investments that enhance farming efficiency and sustainability (World Bank, 2021). Key indicators, such as bank loans for agriculture, government support for rural development, and microfinance for agribusinesses, have consistently driven growth in this sector worldwide (Food and Agriculture Organisation [FAO], 2020). The World Bank (2021) reports that these financial tools contributed to a 15% increase in global agricultural output from 2000 to 2020, improving food security for over 8 billion people. Furthermore, the FAO emphasizes that effective financing leads to better input utilization, such as fertilizers and high-yield seeds, potentially boosting average crop yields by up to 20% in funded regions (FAO, 2020). Thus, agricultural financing not only mitigates risks associated with climate variability but also fosters value chain integration from production to market access, underscoring its vital role in achieving Sustainable Development Goal 2, which aims to eliminate hunger (World Bank, 2021).

In Sub-Saharan Africa, agricultural financing is notably insufficient, despite the sector employing over 60% of the workforce and contributing nearly 25% to the regional GDP (African Development Bank [AfDB], 2022). Formal credit for agriculture averages less than 10% of total lending, which hampers mechanization and technology adoption across the continent (AfDB, 2022). The African Development Bank (2022) highlights that this funding shortfall results in a low annual growth rate of just 4%, below the 6% required to meet the targets of Agenda 2063. While rural microfinance initiatives are on the rise, they only serve 15% of smallholder farmers, forcing many to turn to informal lenders who charge interest rates exceeding 30% (International Fund for Agricultural Development [IFAD], 2021). These challenges heighten vulnerability to droughts and pests, emphasizing the urgent need for increased and targeted financial support to unlock the region's agricultural potential (AfDB, 2022).

In Nigeria, Africa's most populous nation, agricultural financing is critically inadequate, with credit to the sector accounting for less than 5% of total bank lending as of 2023 (Central Bank of Nigeria [CBN], 2023). The Agricultural Credit Guarantee Scheme Fund (ACGSF) provided only NGN 120 billion from 2015 to 2022, resulting in stagnant annual growth of just 1.8%, despite agriculture contributing 24% to the GDP (CBN, 2023). Other financial sources, such as loans from the Bank of Agriculture and commercial banks, show persistent gaps, with smallholders receiving less than 20% of available funds due to collateral requirements (Ogunbiyi & Oladele, 2020). Data from the Central Bank of Nigeria (2023) also indicates that inflation has reduced real lending rates, discouraging investment, while inconsistent policies undermine programs like the Anchor Borrowers' Programme. These issues not only restrict access to necessary inputs but also perpetuate rural poverty, affecting over 80 million farming households (Ogunbiyi & Oladele, 2020).

Crop production is essential to Nigeria's agriculture, supporting over 70 million smallholder farmers and contributing around 21% to the GDP, according to the Federal Ministry of Agriculture and Rural Development (2017). The country has a large amount of arable land

and produces about 50 million tonnes of maize, 8 million tonnes of rice, 60 million tonnes of cassava, and 45 million tonnes of yams each year, making it the leading crop producer in Africa. However, crop yields remain low due to reliance on rain-fed farming, with maize yielding an average of 2 tonnes per hectare compared to the global average of 5.8 tonnes (International Crops Research Institute for the Semi-Arid Tropics, 2022). Challenges such as poor seed quality, limited access to fertilizers, and climate-related issues contribute to stagnant production levels of 200 million tonnes annually, despite increasing demand. This situation worsens food insecurity, as per capita crop availability has decreased due to urbanisation (National Bureau of Statistics, 2024).

The connection between agricultural financing and crop production in Nigeria reveals a significant gap, as financing options do not sufficiently support crop value chains, even with initiatives like the Green Imperative Project in place. This funding shortfall has led to a 12% decrease in per capita food availability from 2010 to 2023, worsening food price inflation and causing distress in rural areas (NBS, 2024). Limited financial support restricts the adoption of mechanized tilling, modern storage facilities, and climate-resilient crop varieties, undermining the sector's resilience. Research shows that improved access to credit could increase crop production by 25%, but bureaucratic hurdles and lenders' risk aversion remain significant obstacles (Ogunbiyi & Oladele, 2020).

In the past decade, the government has made efforts to address these challenges and improve crop production in Nigeria. Notable examples include the establishment of the Bank of Agriculture in 2001 and directives from the Central Bank of Nigeria aimed at channeling credit into the sector. These initiatives focus on enhancing the value chain, developing cost-effective infrastructure, and increasing extension services. Additional schemes, such as the Agricultural Credit Guarantee Scheme Fund, the Commercial Agriculture Credit Scheme, and the Anchor Borrowers' Programme, have also been implemented to promote financial viability and efficiency as of 2022 (CBN, 2022). However, the crop sub-sector in Nigeria remains less financially stable and efficient compared to other emerging economies, as evidenced by its yield growth of 1-2 %, compared to Vietnam's 5 % and Brazil's 6 % (The Global Economy, n.d.; FAO, 2023). This indicates that despite having vast arable land and production capacity, the crop sub-sector in Nigeria is underperforming, necessitating an examination of how agricultural financing can enhance crop production in Nigeria from 1986 to 2024.

Literature Review

Conceptual Review

Crop Production

Crop production in Nigeria, defined by scholars as the cultivation of crops for sustenance, income generation, and industrial purposes, forms the foundation of the country's agricultural sector. Ibeawuchi *et al.* (2015) highlight that crop production includes staple food crops such as maize, cassava, yam, and rice, alongside cash crops like cocoa, groundnuts, and oil palm, underscoring its essential role in ensuring food availability and fostering agro-industrial development. This dual function addresses both domestic consumption and foreign

market demands. PwC Nigeria (2020) further emphasizes crop production as the leading segment of Nigeria's agricultural sector, contributing 87.6% of the sector's total output and providing employment to a significant portion of the labor force, thereby reinforcing its importance for economic growth and livelihoods. However, crop production faces numerous constraints, including inadequate infrastructure, limited access to modern technologies, and climatic variability (Olaoye, 2014). The predominance of traditional farming methods and the fact that over 80% of farmers are smallholders with poor access to finance and quality inputs such as seeds and fertilizers, restrict productivity and innovation (PwC Nigeria, 2020). Addressing these challenges through improved rural infrastructure, enhanced financial access, and investment in agricultural research and development is critical for sustainable growth in Nigeria's crop production in Nigeria.

Agricultural Financing

Agricultural financing plays a vital role in the economic growth of agrarian countries like Nigeria, where financial access greatly affects productivity and the livelihoods of rural communities. Researchers have offered various definitions of this concept. Dominic *et al.* (2023) define agricultural financing as the provision of financial resources, such as credit, government spending, and loan guarantees, aimed at boosting productivity, although they do not discuss specific financial instruments or barriers to access. Marafa (2022) broadens the definition to include short-, medium-, and long-term loans across the agricultural value chain, addressing both on-farm and off-farm activities, but does not consider the impact of policies and institutional frameworks. Akintunde *et al.* (2025) focus on rural funding for agricultural development and social welfare, emphasizing the need for structured support systems while neglecting risks like loan defaults. Okoro and Nwadiubu (2022) take a more comprehensive approach, outlining subsidized loans, credit lines, guarantees, and grants for production, processing, and marketing, yet they do not address the role of digital platforms or technological advancements in financing.

This paper defines agricultural financing as the provision of resources—including government spending, the Agricultural Credit Guarantee Scheme Fund (ACGSF), and commercial bank loans—to enhance productivity, foster rural development, and ensure sustainable growth. In Nigeria, the ACGSF helps reduce lending risks, encouraging banks to offer loans by sharing risks and lowering collateral requirements for smallholders, although challenges like implementation delays and economic instability remain (Abu, 2017; Eyo, 2020; Okunlola & Ayetigbo, 2024). While commercial bank loans can boost productivity, they face limitations due to regulatory and resource constraints (Ogar & Charles, 2018; Balana & Oyeyemi, 2022). Government investments in farm inputs, veterinary services, and breeding programs enhance production despite issues of inefficiency and corruption (Nuhu *et al.,* 2022; Onuoha, 2025). These mechanisms improve access to finance, inputs, and the efficiency of the value chain, thereby supporting sustainable agricultural development in Nigeria.

Empirical Review

There are a lot of studies on the impact of agricultural financing on the production in Nigeria, which are conducted in different ways within many decades. Osabohien *et al*. (2020) examined financing between 1990 and 2019 using the Canonical Cointegration methodology and discovered that agro-financing contributes to output significantly, though the authors did not divide the results into subsector. Asaleye *et al.* (2020) analysed cash crop financing using a Vector Error-Correction Model (VECM). They discovered that fishing changed in financing affected employment more than output in palm-oil industry whereas cocoa, cotton and groundnut reacted more in terms of production. Comprehensively, the long-run equations positively indicated a connection between cash-crop financing and performance but the financing of oil palm and cocoa had the opposite effect of lowering employment.

Fully Modified Ordinary Least Squares (FMOLS) and Engle-Granger co-integration tests of 1986-2018 were used by Uzomba *et al.* (2020) to investigate the effect of agricultural financing on agricultural output in Nigeria. Findings indicated that there is an increase in crop, livestock, and fishing output with government spending and agricultural credit but a decrease in foreign direct investment (FDI). In the forestry sector credit is a positive factor but the government expenditure and FDI reduce production. The co-integration tests affirm the existence of long-term relations that show that funding has a strong influence on sectoral performance in the long run. Danladi *et al.* (2021) used ARDL and Granger tests with 1981-2019 data to determine the effect of agricultural financing on productivity in Nigeria. It was discovered that short-run effect of both public and private financing is positive even though it is non-significant. Over the long run, agricultural productivity increases greatly through the private financing. The government funding is still insignificant, and increased interest rates discourage agricultural and animal production.

Afolabi *et al*. (2021) examined the relationship between financing, food security, and growth between 1994-2018, deploying Error-Correction Model (ECM) and Granger causality. Both commercial bank loans and the African Collective Guarantee Scheme of Financing (ACGSF) affect food exports in the long run significantly, but not in short-term periods. There is also the significant effect of the government spending on exports, which enhance exports in the long term but does not affect exports in the short run. Ogbonnaya *et al.* (2022) investigated the relationship between agricultural credit financing and agricultural production in Nigeria from 1981 to 2021.Utilizing Variance Decomposition and the VEC Granger Causality Test. Findings revealed that increase of the ACGSF and commercial bank lending by 1 % increases agricultural production by 0.07 % and 0.04 %. An extra unit of money supply rises up the output by 2.8 % whereas the domestic private-sector credit lowers it by 2 %. The commercial bank credit has negative short-run and positive long-run effects on crop output, which was documented by Saka and Aladelusi (2022) but was not significant in the ACGSF utilizing ARDL. Deploying ARDL, Anthony and Tijjani (2022) stated that commercial bank credit, ACGSF, government expenditure, and inflation do not have any significant impact on food security in Nigeria. X-raying using VAR on data 1983 to 2018, Abdulrafiu and Christopher (2022), established that there are significant long-run positive effects of government financing and commercial bank credit on productivity in Nigeria. Utilising regression analysis,

Omodero and Ehikioya (2022) identified that food security depends on production, and funding is not a determining factor having investigated the influence of agricultural financing and production on food production in Nigeria, utilizing data spanning from 2007 to 2019. Nnachi *et al.* (2023) discovered that financing facilitates production of cattle, grains, and roots significantly, but not cocoa, poultry, and oil-palm using ARDL on data from 1981 to 2021.

Zwingina (2023) found out that the increase in government expenditures has an insignificant effect on real GDP, and commercial bank credit and ACGSF loans have a significant positive effect using multivariate regression. Dominic *et al*. (2023) noted that government spending increases aggregate production on farms in Kogi State, yet there is no significance in the ACGSF and bank credit utilizing ECM. According to Okunlola and Ayetigbo, (2024), agricultural credit is highly effective in the long-run effects on the growth of GDP, government spending exhibits a less significant positive impact, and guarantee schemes are not always significant using ARDL. Onwuemene *et al.* (2024) affirmed that the ACGSF and commercial bank loans have a positive impact on the GDP of agriculture in the long run using VECM. Aigbovo and Edohen (2025) realised that the lending of commercial banks enhances both in the short run and the long-run agricultural GDP positively, government expenditure positively but insignificantly, and ACGSF payment affects it with an insignificant effect using ARDL on quarterly data from Q1 2009 to Q4 2023.

Even though existing studies have focused on the importance of agricultural finance in Nigeria, the studies have generally focused on the overall crop production in the country and have provided little information regarding the specific impacts of the Agricultural Credit Guarantee Scheme Fund (ACGSF), commercial bank finance, and government expenditure on crop production or its elasticity to the aforementioned variables. These findings have also been inconsistent, with little consideration of the short- and long-run impacts of the variables on crop GDP during periods of economic instability. This paper fills the existing gap in the literature by specifically focusing on the crop sector and the joint impacts of ACGSF, commercial bank finance, and government expenditure on crop GDP during the period 1986-2023 using the Autoregressive Distributed Lag model.

Theoretical Underpinning

Agriculture-Based Economic Development Theory was proposed by Wiggins (2006). The theory underlines the importance of technical, institutional, and financial incentives in boosting productivity among smallholders, especially in developing economies. In Nigeria, where agriculture plays a vital role in providing jobs, ensuring food security, and promoting economic diversity, this theory is particularly significant (Afolabi *et al.*, 2021). It points out that financial support, such as access to credit, subsidized inputs, and modern farming practices, can enhance food production and create jobs across various agricultural sectors. Additionally, government and institutional assistance—through credit programs, infrastructure development, training, and value chain integration—further enhances the competitiveness of smallholders (Asaleye *et al.*, 2020; Aigbovo & Edohen, 2025). The theory connects agricultural growth to broader economic changes by contributing to job creation, foreign exchange earnings, revenue generation, and food security, while also encouraging

technological advancements like precision agriculture. From an empirical standpoint, crop output can be modeled as a production function that includes financial (C), institutional (I), and technological (T) inputs.

$$Y = f(C, I, T) \text{----------} (1)$$

Where, Y signifies crop output, C represents financial incentives (such as credit, subsidies, and mechanization), I denotes institutional support (like infrastructure, training, and value chain integration), and T refers to technological improvements. It is assumed that productivity increases with these inputs, although it may face diminishing returns. This relationship can also be represented in a Cobb-Douglas format as:

$$Y = A \cdot C^{\alpha} \cdot I^{\beta} \cdot T^{\gamma} \text{----------} (2)$$

Where A indicates baseline productivity, and α, β, and γ are elasticities that measure how responsive output is to changes in each input. This model effectively illustrates the interconnected roles of finance, institutions, and technology in fostering agricultural growth and broader economic transformation.

Methodology

The paper adopted ex-post facto research design. This functions as a research approach to determine how variables affect each other. The paper utilized secondary data obtained from Central Bank of Nigeria 2023 statistical bulletin with the data spanning from 1986 to 2023. The paper employed Autoregressive Distributed Lag model (ARDL) to examine the impact of agricultural financing on crop production in Nigeria. The paper model for the paper emanated from the theoretical framework and patterned after the paper of Okunlola and Ayetigbo (2024) with the functional form of the model expressed as:

$$CP = f(ACGSF, CBAS, GEA) \text{----------} (3)$$
$$lnCP = f(lnACGSF, lnCBAS, lnGEA) \text{----------} (4)$$

The paper took the log form of the variables to transform the data into manageable size for the analysis. Given the function form of model 4, the equation form of the above models is stated as thus:

$$lnCP_t = \beta_0 + \beta_1 lnACGSF_t + \beta_2 lnCBAS_t + \beta_3 lnGEA_t + \varepsilon_t \text{----------} (5)$$

From equation 5, β_0 is the intercept, $\beta_1 - \beta_3$ are the parameters with ε_t as the error term. Where; CP is crop production, ACGSF represents agricultural credit guarantee scheme fund, BCAS signifies commercial bank credit to agricultural sector and GEA is government expenditure on agriculture.

Presentation and Interpretation of Results

The paper presented the outcomes obtained from the analysis in which interpretation of the results was performed. Given this, the paper analysis is presented logically as thus. Outcomes emanating from the descriptive analysis are displayed in Table 1.

Table 1: Descriptive Statistics

	CP	ACGSF	CBAS	GEA
Mean	10508.34	2680699.	314.7451	2781806.
Maximum	47779.28	8194470.	2255.357	9800907.
Minimum	25.97239	35517.60	1.830300	72.27226
Std. Dev.	12902.82	2679883.	524.2339	3411335.
Skewness	1.373037	0.511295	2.314753	0.812588
Kurtosis	4.037543	1.832136	7.873030	2.046490
Jarque-Bera	13.64425	3.815197	71.53302	5.621432
Probability	0.001089	0.148436	0.000000	0.060162

Source: Author's Computation (2026)

Table 1 shows that Crop production (CP) has an average of N10,508.34 billion with a significant range from a low of N25.97 billion to a high of N47,779.28 billion and a high standard deviation of N12,902.82 billion, indicating substantial volatility likely influenced by factors such as climate, policy changes, and market fluctuations. The distribution is positively skewed (1.37) and shows leptokurtic characteristics (kurtosis 4.04), with the Jarque-Bera test indicating a strong rejection of normality (p = 0.001). The Agricultural Credit Guarantee Scheme Fund (ACGSF) has a much higher average of N2,680,699 billion, ranging from N35,518 billion to N8,194,470 billion, with significant variability (std. dev. N2,679,883 biilion), mild positive skewness (0.51), a platykurtic distribution (kurtosis 1.83), and normality not rejected (p = 0.148). Commercial bank credit to agriculture (CBAS) shows a low average of N314.75 biilion, extreme volatility (std. dev. N524.23 billion), a strong positive skew (2.31), and marked leptokurtosis (7.87), with a decisive rejection of normality (p = 0.000), reflecting occasional sharp increases in lending. Government expenditure on agriculture (GEA) has the highest average (N2,781,806 billion) and the widest variability (std. dev. N3,411,335 billion), with moderate positive skewness (0.81), a near-platykurtic shape (kurtosis 2.05), and borderline non-normality (p = 0.060). Overall, these trends highlight ongoing instability in crop production, unpredictable public spending, limited but sometimes significant private credit, and structural inefficiencies in converting substantial nominal financing into stable agricultural growth. This context supports the use of logarithmic transformation in this non-normal and volatile data series. The descriptive analysis was followed by a stationarity test as indicated in Table 2.

Table 2: Results of Unit Root Tests

Variable	ADF @ Level	ADF @ First Difference	Order of Integration
LOG(CP)	-3.665459 {0.0089}		I(0)
LOG(ACGSF)	-1.596593 {0.4742}	-5.341981 {0.0001}*	I(1)
LOG(CBAS)	-0.690978 {0.8367}	-6.921787 {0.0000}*	I(1)
LOG(GEA)	--0.725540 {0.8278}	-5.772127 {0.0000}*	I(1)

Source: Author's Computation (2026)

The ADF test statistics and their corresponding p-values are reported for each variable at the level and first difference. The outcome revealed that for crop production (CP), the ADF statistic is significant at the 5% level (p-value < 0.05), indicating that CP is stationary at level and integrated of order zero, I(0). For the remaining variables—Agricultural Credit Guarantee Scheme Fund (ACGSF), Commercial Bank Credit to Agricultural Sector (CBAS), and Government Expenditure on Agriculture (GEA)—the ADF statistics are not significant at the 5% level at level, suggesting that they are non-stationary at level. However, these variables attained stationarity at integrated of order one, I(1), as they require differencing once to achieve stationarity. The estimation of the bounds test results is tabulated in Table 3.

Table 3: Bound Test Result

ADRL Bound Test				
F-statistics	K		Critical Value	
7.654555	3	Significance level	Lower bounds	Upper bounds
			I(0)	*I*(1)
		10%	2.37	3.2
		5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Note: K is the number of Independent variables

Source: Author's Computation (2026)

The result of the ARDL bounds test is presented in Table 3. The computed F-statistic is 7.654555, which is greater than the upper critical bounds value at the 1% significance level (4.66), 2.5% (4.08), 5% (3.67), and 10% (3.20). This indicates that there is evidence of a long-run relationship among the variables in the model. Therefore, the null hypothesis of no cointegration is rejected, confirming the existence of a long-run equilibrium relationship between crop production, Agricultural Credit Guarantee Scheme Fund (ACGSF), Commercial Bank Credit to Agricultural Sector (CBAS), and Government Expenditure on Agriculture (GEA) in Nigeria. The paper proceeded to estimate both the long and short run model and the outcomes are recorded in Tables 4 and 5.

Table 4: Short-run Estimates of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(CP(-1))	0.056693	0.141857	0.399653	0.6929
DLOG(ACGSF)	0.045839	0.062191	0.737063	0.4682
DLOG(ACGSF(-1))	0.235404	0.067954	3.464142	0.0020
DLOG(CBAS)	0.304735	0.089986	3.386477	0.0024
DLOG(CBAS(-1))	0.157323	0.091438	1.720545	0.0982
DLOG(GEA)	0.005658	0.012489	0.453014	0.6546
DLOG(GEA(-1))	0.002706	0.013065	0.207138	0.8376
CointEq(-1)*	-0.120693	0.038037	-3.173007	0.0041
R-squared	0.537527			
Adjusted R-squared	0.421909			

Source: Author's Computation (2026)

The short-run estimates from the ARDL model show a moderate fit for the dynamics of crop production in Nigeria, with an R-squared value of 0.5375. This indicates that about 53.8% of the short-run changes in the differenced log of crop production (ΔlnCP) can be attributed to both current and past changes in agricultural financing variables (ΔlnACGSF, ΔlnCBAS, ΔlnGEA), along with the lagged dependent variable and the error correction term. This suggests that the model effectively captures significant short-run relationships without overfitting. The results displayed that the coefficient for D(ACGSF) is 0.045839 with a p-value of 0.4682, indicating that it is not statistically significant at the 5% level. This suggests that a one % increase in the Agricultural Credit Guarantee Scheme Fund is associated with an increase in crop production by approximately 0.045 %, though this relationship is not statistically significant in the short run. The coefficient for D(CBAS) is 0.304735 with a p-value of 0.0024, also indicating a positive and statistically significant effect at conventional levels. This implies that a one % increase in Commercial Bank Credit to the Agricultural Sector is linked to an increase in crop production by about 0.304 %, with the effect statistical significant in the short run. The coefficient for D(GEA) is 0.005658 with a p-value of 0.6546, suggesting a positive and statistically insignificant effect of Government Expenditure on Agriculture on crop production in the short run. The coefficient for the cointegration equation is -0.120693 with a highly significant p-value of 0.0041. This negative coefficient indicates that the model is correcting towards long-run equilibrium, meaning that if the system deviates from equilibrium, it will adjust back over time at a rate of 12.06%. This is important for understanding the long-term dynamics of crop production in Nigeria, as it suggests that while short-run fluctuations may occur, there is a tendency for the system to revert to a stable state.

Table 5: Long-run Estimates of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(ACGSF)	0.070290	0.309056	0.227435	0.8217
LOG(CBAS)	0.799745	0.241260	3.314864	0.0025
LOG(GEA)	0.049968	0.076375	0.654239	0.5181
C	3.972150	3.597438	1.104161	0.2786

Source: Author's Computation (2026)

The long-run estimation noted that the coefficient for ACGSF is 0.070290 with a p-value of 0.8217, indicating that it is not statistically significant at conventional levels. The coefficient for CBAS is 0.799745 with a p-value of 0.0025, showing that it is statistically significant at the 5% level. This result suggests that a one % increase in commercial bank credit to the agricultural sector is associated with an increase in crop production by approximately 0.80 % in the long run. The coefficient for GEA is 0.049968 with a p-value of 0.5181, indicating that it is not statistically significant at conventional levels. The constant term is 3.972150 with a p-value of 0.2786, which is also not statistically significant, suggesting that other unobserved factors may influence crop production in Nigeria. The estimated model was subjected to diagnostic test with the results presented in Table 6.

Table 6: Diagnostics Test Results

Diagnostic Tests		
Test	*F-statistics*	*Probability*
Breusch-Godfrey Serial Correlation LM Test	1.109822	0.3011
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.122193	0.9961
Jarque-Bera	1.191515	0.5511
Ramsey RESET Test	6.084108	0.2000

Source: Author's Computation (2026)

The result of the diagnostics tests demonstrates that all null hypotheses for these tests are accepted for serial correlation, heteroskedasticity, normality and correct model specification. Since the p-values (0.3011, 0.9961, 0.5511 and 0.2000) are greater than the conventional significance level of 0.05, the null hypotheses are retained. This indicates no significant serial correlation, the residuals have constant variance, no departure in residual normality and there are no significant specification errors in the model, meaning the functional form of the model is appropriate.

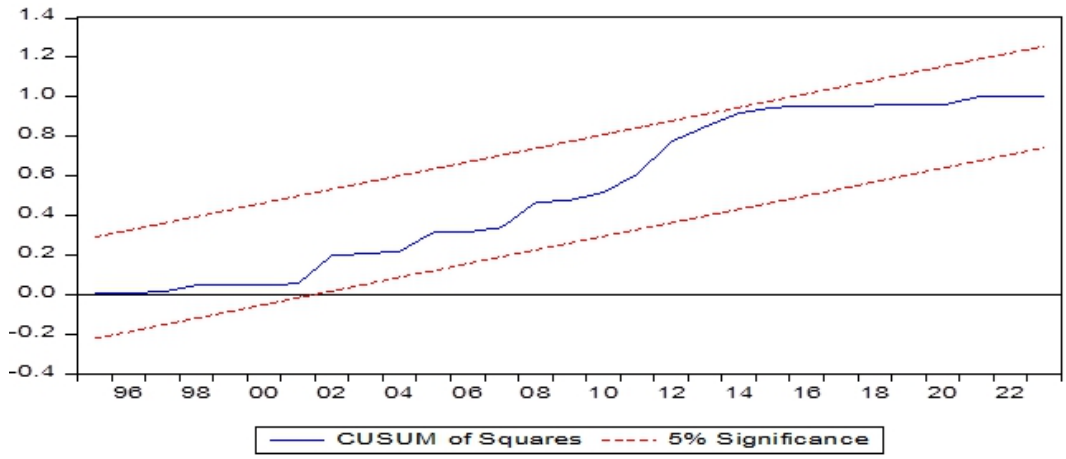

Figure 1: CUSUM of Squares
Source: Author's Computation (2026)

The stability of the model was further confirmed by the CUSUM of squares where the blue line falls within the red lines all through the study period. This suggests that there is no indication of structural breaks or instability in the parameters, which means that the estimated coefficients remain stable over time. Therefore, the ARDL results, especially regarding the short-term impacts of agricultural financing and the gradual yet important error correction, are dependable, even considering Nigeria's history of policy changes, economic fluctuations, and difficulties in the agricultural sector.

Discussion of Findings

The research shows that the agricultural credit guarantee scheme fund has a positive but not significant impact on crop production in Nigeria. While the scheme does contribute to agricultural output, its influence is not strong enough to be statistically significant during the studied period. This limited effect is attributed to various systemic issues, such as poor credit management, high transaction costs, loan defaults, insufficient collateral, and the hesitance of formal lenders to support smallholder farmers. Additional challenges, including complicated loan applications, low financial literacy, and a lack of awareness about the scheme, further diminish its effectiveness. These findings are consistent with the Agriculture-Based Economic Development Theory, which suggests that financial incentives can gradually boost productivity through technical and institutional support. However, these results contrast with those of Uzomba *et al*. (2020), Danladi *et al.* (2021), and Afolabi *et al*. (2021), who identified significant relationships between government spending and crop production.

Commercial bank credit shows a positive and statistically significant effect on crop production. Increased access to bank credit enables farmers to invest in better seeds, fertilizers, and modern equipment, which helps them adopt technologies that enhance productivity. Additionally, credit often comes with extra benefits like extension services, storage facilities, and market information, which can further boost yields. The significance of commercial credit may also indicate better monitoring and greater institutional capacity, ensuring resources are used effectively. These findings support the idea that formal financial intermediation alleviates capital constraints, allows for scaling up operations, and promotes innovative practices, aligning with the work of Osabohien *et al.* (2020), Afolabi *et al.* (2021), Anthony and Tijjani (2022), and Okunlola and Ayetigbo (2024), who found a significant effect of credit to the agricultural sector on agricultural production.

The research shows that government spending on agriculture in Nigeria has a positive but insignificant effect on crop production. This implies that increased financial support has not resulted in significant growth in agricultural output, primarily due to structural and institutional issues. Problems such as chronic underfunding, ineffective budget execution, misallocation of funds, and delays in approvals and disbursements hinder the effectiveness of public spending. Furthermore, a focus on recurrent expenditures rather than capital investments diminishes the potential benefits of government funding on productivity. Although theoretical models suggest that higher government spending should promote agricultural development, these practical challenges hinder meaningful results. These findings are consistent with Okunlola and Ayetigbo (2024), who also found that government expenditure has an insignificant effect on agricultural output, but they contrast with the findings of Abdulrafiu and Christopher (2022) and Anthony and Tijjani (2022), who reported a significant positive impact of government agricultural financing on crop production.

Conclusion and Recommendations

Based on the findings of this paper, it is concluded that while agricultural financing—through the agricultural credit guarantee scheme fund, commercial bank credit to the agricultural sector, and government expenditure on agriculture—positively influences crop production in

Nigeria, only commercial bank credit demonstrates a significant impact, highlighting the crucial role of sustained, accessible private sector financing in driving agricultural growth. The short-run effects of agricultural credit guarantee scheme fund and government expenditure on agriculture financing variables are positive but not significant, indicating that immediate increases in funding do not automatically translate into higher crop output due to structural bottlenecks, inefficiencies, and delayed absorption of funds. Therefore, it is recommended that:

i. The Central Bank of Nigeria should reform and strengthen the administration of the agricultural credit guarantee scheme fund by simplifying access requirements, expanding the proportion of commercial bank credit that is guaranteed, and enhancing monitoring mechanisms to ensure greater inclusiveness and impact, especially for smallholder farmers.
ii. The central bank should incentivize commercial banks to further expand credit to the agricultural sector through interest rate regulation, risk-sharing frameworks, and targeted policy support, as evidence shows that such credit significantly boosts crop output.
iii. The federal ministry of agriculture and food security should prioritize increased and more effective budgetary allocations to agriculture, with a focus on capital rather than recurrent expenditures, and ensure timely disbursement and transparent implementation to maximize the productivity impact of public investments.

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