International Journal of Entrepreneurship, Management and Social Sciences (IJEMSS)
Volume 3, Issue 1; ISSN: 3026-9881
email: ijemss@futminna.edu.ng

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

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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 and 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.
JEL: G21, H54

1.0 Introduction

Agriculture remains a cornerstone of the Nigerian economy, contributing significantly to employment generation, food security, and rural development. According to the Food and Agriculture Organization, the sector employs a large proportion of Nigeria's labor force and plays a vital role in sustaining livelihoods (FAO, 2022). Within the agricultural sector, crop production constitutes the dominant sub-sector, accounting for the largest share of agricultural output. However, despite its importance, crop production in Nigeria has been characterized by low productivity, subsistence farming practices, and limited technological advancement (CBN, 2021). One of the major challenges confronting crop production in Nigeria is inadequate access to finance. Smallholder farmers, who form the backbone of agricultural production, often lack the financial resources required to invest in modern inputs such as improved seeds, fertilizers, mechanization, and irrigation systems (Ojo & Baiyegunhi, 2020). This financial constraint limits their ability to scale production and adopt productivity-enhancing technologies. Furthermore, the high cost of credit, lack of collateral, and underdeveloped rural financial markets further restrict farmers' access to formal financing (Afolabi, 2021).

Agricultural financing plays a critical role in addressing these challenges and improving crop production in Nigeria. It provides farmers with the capital needed to acquire essential inputs, expand farm size, and adopt improved farming practices. Access to credit has been shown to significantly increase farm productivity and output by enabling timely purchase of inputs and reducing dependence on traditional farming methods ((Ogunjobi et al., 2024). In addition, government-led initiatives such as the Agricultural Credit Guarantee Scheme Fund (ACGSF) and the Anchor Borrowers' Programme (ABP) have been designed to enhance farmers' access to finance and boost agricultural production (CBN, 2021). These financing mechanisms help reduce liquidity constraints, improve input utilization, and increase resilience to production risks, thereby contributing to higher crop yields and food security. Despite these interventions, the performance of the crop production sector in Nigeria remains suboptimal. This suggests that the relationship between agricultural financing and crop production is not fully understood or effectively harnessed. Existing empirical studies have examined the impact of agricultural financing on agricultural output and economic growth in Nigeria using various econometric techniques such as Ordinary Least Squares (OLS), Vector Error Correction Model (VECM), and Autoregressive Distributed Lag (ARDL) models (Danladi et al., 2021; Odetola & Etumnu, 2013). While these studies provide useful insights, most of them focus on aggregate agricultural output rather than disaggregated crop production, thereby masking the specific effects of financing on crop yield.

Moreover, previous studies have largely concentrated on the availability of agricultural credit without adequately addressing issues related to accessibility, timeliness, and efficient utilization of funds by farmers (Afolabi, 2021). There is also limited empirical evidence on the comparative effectiveness of different sources of agricultural financing, such as commercial bank loans, government expenditure, and intervention funds, on crop production outcomes. Additionally, many studies rely on outdated data or fail to capture recent policy interventions and structural changes in the agricultural financing landscape in Nigeria.

Given these gaps, this paper examined the impact of agricultural financing on crop production in Nigeria with a more focused and comprehensive approach. Specifically, the paper analyzed crop production as a disaggregated measure of agricultural performance and incorporate multiple indicators of agricultural financing, including agricultural credit guarantee scheme fund, Commercial bank credit to agricultural sector and government expenditure on agriculture. The paper employed updated data and appropriate econometric techniques which captured both short-run and long-run dynamics of the relationship.

This paper contributes to the existing body of knowledge in several important ways. First, it shifts the focus from aggregate agricultural output to crop production, thereby providing more specific insights into the productivity of the most critical sub-sector of agriculture in Nigeria. Second, it expands the scope of agricultural financing by examining multiple financing channels and their relative effectiveness. Third, the paper incorporates recent data and methodological improvements to provide more robust and policy-relevant findings. Finally, it addressed the issue of access and utilization of agricultural finance, thereby bridging the gap between financial provision and actual productivity outcomes. Overall, the findings of this paper are expected to provide valuable policy recommendations for improving agricultural financing mechanisms and enhancing crop production in Nigeria, ultimately contributing to food security and sustainable economic development. The paper structure is divided into six groups which include: section 1 is introduction, section 2 literature review, section 3 methodology, section 4 discussion of results and section 5 conclusion and recommendation.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 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.

2.1.2 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.

2.2 Empirical Review

There are a lot of studies on the impact of agricultural financing on the production in Nigeria, which have been conducted in different ways over-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 were used by Uzomba et al. (2020) to investigate the effect of agricultural financing on agricultural output in Nigeria from 1986 to 2018. Findings indicated government spending and agricultural credit has lead to positive and significant increase on crop, livestock and fishing production output. While FDI inflow did not improve output in the sub-sectors during the study year.

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 percent increases agricultural production by 0.07 percent and 0.04 percent. An extra unit of money supply raises up the output by 2.8 percent whereas the domestic private-sector credit lowers it by 2 percent. 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. Regressionally, 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.

This study was able to address the gaps in the previous studies as Uzomba et al. (2020) in their study revealed that government spending has led to positive and significant increase on crop, livestock and fishing production output but the current study is focused on crop production and its differs from the previous study because the study revealed that government spending or expenditure on agriculture has a positive but insignificant effect on crop production in Nigeria, the previous study used the fully modified ordinary least square (FMOLS) while the current study used ARDL approach to address they gaps and also, the current study is up to date as the previous study was from 1986-2020, the current study is from 1986-2023. Also, Danladi et al. (2021) in their study found government funding insignificant, thus, similar to the current study but differs in the methodology as the current study uses ARDL while the previous study used Granger tests.

Afolabi et al. (2021) in their previous study found commercial bank loans affect food exports in the long-run but in the current study which is focused on crop production in Nigeria the findings showed that bank loan affect production in both short and long run and the current study used the Autoregressive distribution lag (ARDL) to address the gaps while the previous study used the Error correction model (ECM) and Granger causality. Also, Ogbonnaya et al. (2022) revealed that increase ACGSF increase agricultural production. But the current study differs from the previous study because it's revealed that ACGSF is positive but does not impact on crop production in Nigeria within the study period. Furthermore, the current study differs from the previous since its uses ARDL approach to address this gaps while the previous study used the VEC Granger causality test.

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.

2.3 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.

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

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:

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

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.

3.0 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 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:

$$CP=f(ACGSF,CBAS,GEA) \quad \text{----------(3)}$$

$$lnCP=f(lnACGSF,lnCBAS,lnGEA) \quad \text{----------(4)}$$

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=β_0+ β_1 〖lnACGSF〗_t+ β_2 ln〖CBAS〗_t+ β_3 ln〖GEA〗_t+ε_t----------(5)

From equation 5, β_0 is the intercept, β_1-β_3are 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.

In order to examine the impact of Agricultural financing on crop productions in Nigeria, the research employed a comprehensive methodological approach. First, an informative summary of the data was done through descriptive statistics. This was followed by pre-estimation test, specifically, the Augmented Dickey-Fuller (ADF) test was employed to establish the stationarity property of our data. This was done to avoid spurious outcome of the regression results and to uphold the validity and policy relevance of the parameter estimates. The confirmation of a long-run equilibrium relationship in the data set was further established. This was done using the ARDL Bounds test approach, the short run and long-run of the ARDL was estimated in its logged form and Diagnostic Tests were carried out to ensure the regression results are reliable and not misleading e.g CUSUM Test for stability of parameters, CUSUM of Squares, Normality Test was carried out to check if residuals (errors) are normally distributed (e.g., Jarque-Bera test), Serial Correlation Test Checks whether error terms are correlated over time, Ramsey RESET Test ensures the model correctly captures the relationship between financing and crop production and finally, Heteroskedasticity Test checks whether error variance is constant.

4.0 Results and Discussion of Findings

4.1 Presentation 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

Table 1: Descriptive Statistics

	LOG(CP)	LOG(ACGSF)	LOG(CBAS)	LOG(GEA)
Mean	7.879972	13.72311	4.283735	12.73808
Maximum	10.77435	15.91897	7.721064	16.09799

Minimum	3.257034	10.47778	0.604480	4.280440
Std. Dev.	2.227260	1.849608	1.989867	3.419010
Skewness	-0.595059	-0.325234	-0.127076	-1.352224
Kurtosis	2.106871	1.439514	2.069259	4.222338
Jarque-Bera	3.505597	4.525526	1.473880	13.94623
Probability	0.173288	0.104063	0.478576	0.000937

Source: Author's Computation (2025)

The mean value of crop production (CP), Agricultural Credit Guarantee Scheme Fund (ACGSF), Commercial Bank Credit to Agricultural Sector (CBAS), and Government Expenditure on Agriculture (GEA) for the period covered in the study are 7.88, 13.72, 4.28, and 12.74 respectively. The standard deviation for CP, ACGSF, CBAS, and GEA are 2.23, 1.85, 1.99, and 3.42, with government expenditure on agriculture and crop production having higher standard deviations than others, which indicates more instability of government expenditure on agriculture followed by crop production and less instability of ACGSF. CP and GEA are skewed to the left, while ACGSF and CBAS are also negatively skewed, though to a lesser extent. The hypothesis of the Jarque-Bera statistics is rejected for government expenditure on agriculture since the probability of the Jarque-Bera for this variable is significant; however, the Jarque-Bera statistics is not rejected for the other variables. Thus, signifying that crop production, ACGSF, and CBAS are normally and evenly distributed, while government expenditure on agriculture is not normally distributed for the period under review which was logged to ensure that the data attained normality in its residual distribution across the study period. The descriptive analysis was followed by a stationarity test as indicated in Table 3.

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 4.

Table 3

Bound Test result

ADRL Bound Test				
F-statistics	K		Critical Value	
7.654555	3	Significance level	Lower bounds *I*(0)	Upper bounds *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 ARDL bound test is estimated using a selection of maximum lag of 2 and Akaike information criteria in selecting the optimum lag order of (2, 1, 0). The result of the ARDL bounds test is presented in Table 4. 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 5 and 6.

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			

Durbin-Watson stat	2.177648

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 0.53. 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 over fitting.

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 percent increase in the Agricultural Credit Guarantee Scheme Fund is associated with an increase in crop production by approximately 0.045 percent, 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 percent increase in Commercial Bank Credit to the Agricultural Sector is linked to an increase in crop production by about 0.304 percent, 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. On the other hand Durbin-Watson stat of 2.17764 indicated that there is no problem with serial correlation. As such, the conclusions of this study can be trusted for developing policy recommendations.

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 percent increase in commercial bank credit to the agricultural sector is associated with an increase in crop production by approximately 0.80 percent 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 7.

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
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, and correct model specification. Since the p-values (0.3011, 0.9961, 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, and there are no significant specification errors in the model, meaning the functional form of the model is appropriate.

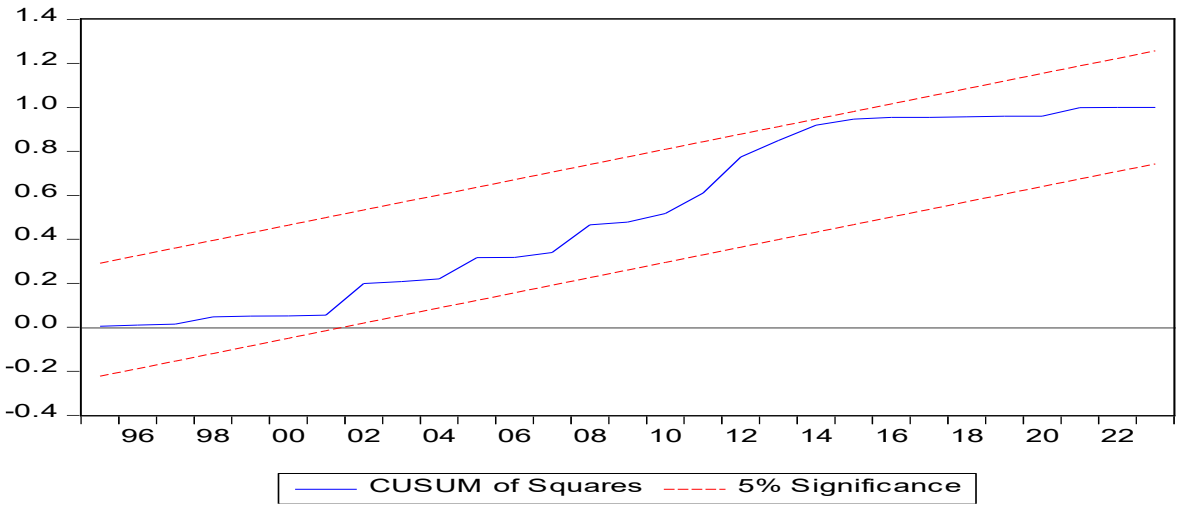

Figure 1: CUSUM of Squares
Source: Author's Computation (2026)

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.

4.2 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), 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, who reported a significant positive impact of government agricultural financing on crop production.

5.0 Conclusion and Recommendations

This paper investigates the impact of agricultural financing on crop production in Nigeria. Employing an Autoregressive Distributed Lag (ARDL) approach, The findings highlight structural constraints, inefficiencies, and delayed fund absorption as factors limiting the short-term effectiveness of agricultural financing. The paper concludes that agricultural financing through the agricultural credit guarantee scheme fund (ACGSF), commercial bank credit to the agricultural sector(CBAS), and government expenditure on agriculture (GEA) positively

influences crop production in Nigeria, only commercial bank credit demonstrates a significant impact.

Therefore, it is recommended that structural adjustments, efficiency and quick disbursement of fund is needed to boost crop production. Also accessible private sector financing is required to drive agricultural sector growth. Data constraints was one of the limitation since aggregate data of crop production was used at national-level, which makes state-level heterogeneity. High producing state may skew results. Also focus on crop production only which ignores, livestock, fishery and forestry where financing impact may differ.

The study suggests that further study should improve on data e.g use panel data to capture state-level data from NBS or CBN by geographic zone, to capture heterogeneity. Finally further study may extend the scope of the study by disaggregating crop e.g maize, rice, cassava separately since financing needs and gestation periods differs.

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