

## Agricultural Finance and Economic Growth in Nigeria

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### ABSTRACT

This study examined how agricultural finance affects Nigeria's economic growth from 1986 to 2024. The analysis utilised the Agricultural Credit Guarantee Scheme Fund, loans from banks to farmers, government expenditure on agriculture and real gross domestic product as indicators of agricultural funding. Time-series data for this analysis were obtained from the statistics bulletin of the Central Bank of Nigeria. Various data analysis techniques were applied, including the Ordinary Least Squares (OLS) regression method, the Error Correction Model, the Johansen Cointegration test and the Augmented Dickey Fuller unit root test. The OLS estimate revealed that there is a significant relationship between agricultural bank loans and Nigeria's real GDP, specifically, the study shows that a 1% increase in BLN, GEX and ACS will result to 0.9, 0.6 and 0.1 expansion in GDP in Nigeria. Additionally, there is a strong correlation between the Real Gross Domestic Product (GDP) and the level of government spending on agriculture. A meaningful and important relationship was found between Nigeria's Real Gross Domestic Product and the Agricultural Credit Guarantee Scheme Fund. The findings of this research indicate that investments from the Agricultural Credit Guarantee Scheme Fund, government funding for agriculture and bank lending have significantly contributed to Nigeria's economic development. Among other recommendations, it has been proposed that increasing the volume and size of agricultural loans by lowering interest rates will enhance economic growth in the country.

### 1. Introduction

Agriculture remains a cornerstone of Nigeria's economy, employing over 60% of the labour force and serving as a critical driver of food security, employment and rural development (World Bank, 2023). The sector encompasses a range of activities including crop production, livestock and aquaculture, providing food for consumption, raw materials for agro-industries and revenue through exports. Given its multifaceted role, agriculture is expected to play a pivotal role in Nigeria's pursuit of sustained economic growth and poverty alleviation.

Over the years, the Nigerian government has introduced several agricultural development initiatives such as the Agricultural Transformation Agenda (ATA), the Anchor Borrowers' Programme (ABP) and the National Agricultural Technology and Innovation Policy (NATIP), aimed at revitalising the sector (Federal Ministry of Agriculture and Rural Development [FMARD], 2021). Despite these efforts, inadequate access to finance remains one of the most persistent constraints facing the sector. Effective agricultural financing is vital for scaling up operations, adopting modern technologies, enhancing productivity and stimulating value-added agro-industrial development (Obansa & Maduekwe, 2013).

Access to formal credit allows farmers to invest in quality inputs, mechanisation, irrigation and post-harvest processing technologies, which in turn boosts productivity and contributes to macroeconomic stability (Achumu, Ezirim, & Chekwa, 2022). However, smallholder farmers—who form the backbone of the agricultural workforce often rely on informal lenders due to stringent conditions and high collateral demands in formal financial institutions. This reliance on informal credit sources, often characterised by exorbitant interest rates, exacerbates rural poverty and limits growth potential (Idoko & Jatto, 2018).

Empirical studies have shown that public and private investment in agriculture positively correlates with economic growth. For instance, Mathias and Inedu (2022) found that commercial bank lending to the agricultural sector significantly enhanced Nigeria's real GDP. Similarly, Adeshina, Tomiwa and Eniola (2020) emphasised that agricultural finance can address seasonal income gaps and reduce farmers' dependence on exploitative credit systems. Multiple empirical studies have demonstrated a positive relationship between agricultural funding and economic growth, while others have noted a negative association. Only a few of the previous studies applied the identical set of indicators for agricultural finance (such as agricultural credit guarantee funds, loans to farmers from banks and government expenditures on agriculture) that are utilised in this study. Additionally, this research utilised time series data that included the year 2022. Furthermore, this study covers a span of thirty-seven years (1986 – 2024), offering

more up-to-date information on recent developments than previous studies conducted by other researchers.

Despite the importance of agriculture, Nigeria's agricultural contribution to GDP has declined due to insufficient funding, low investment and under utilised credit schemes (Central Bank of Nigeria [CBN], 2021). The CBN underscores that inadequate access to finance remains the most critical challenge facing the agricultural sector. In light of these challenges, this study seeks to empirically evaluate the relationship between agricultural finance and economic growth in Nigeria. Specifically, the research aims to assess the impact of bank loans to the agricultural sector on Real Gross Domestic Product (RGDP) in Nigeria, the effect of government expenditure in agriculture on RGDP and the contribution of the Agricultural Credit Guarantee Scheme Fund (ACS) to RGDP.

## **2.0 Literature Review**

### **2.1 Theoretical Framework**

The theoretical basis for this study is rooted in the Demand Following Model, which was proposed by Robinson in 1952. This model, recognised in financial theory as the “demand following finance model,” posits that supply is directly related to demand. In other words, it is a financial development model that is seen as a passive reaction to economic growth. In line with the demand-following finance model, particularly applicable to the agricultural sector, the industry must expand before financial institutions develop to offer external financing that can complement internal funding, which might be insufficient for growth.

The agricultural finance as a crucial enabler of structural transformation: finance relaxes liquidity constraints, facilitates investment in inputs and technology and links smallholders to value chains all of which are necessary for sustained increases in agricultural productivity and broader economic growth. Development institutions emphasise that improved access to credit, complemented by targeted public spending and risk-mitigation instruments, is central to modernising agriculture in low-income countries and reducing reliance on imports.

The literature on Nigeria indicates that agricultural finance especially bank credit and structured risk-sharing instruments contributes positively to agricultural performance and economic growth, but the size of that contribution depends critically on the efficiency, targeting and scale of finance and public spending. Policymakers are advised to pair credit expansion with institutional reforms, better targeting of public investment and modernisation of guarantee schemes to amplify impacts and accelerate structural transformation.

## **2.2 Conceptual Review**

### **2.2.1 Agricultural Financing**

Agricultural finance can be defined as the aggregation of resources from multiple sources to enhance agricultural productivity and efficiency. This encompasses both public and private funding, with the latter directed toward NGOs that seek to utilise matching grants for purposes such as economic equity, community and sector development and empowerment at the local level (Shreiner & Yaron, 2011). Agricultural financing refers to the mobilisation and allocation of financial resources such as credit, grants and investment capital to support agricultural production, processing, marketing and rural development activities. It enables farmers and agribusinesses to acquire essential inputs, adopt modern technologies and expand productive capacity, thereby enhancing sectoral performance (Food and Agriculture Organisation [FAO], 2022).

In many developing countries, agricultural financing is conceptualised as the set of financial services designed to overcome liquidity and investment constraints faced by farmers, particularly smallholders. This includes formal bank loans, microfinance, credit guarantees and government-supported funding mechanisms that improve access to capital despite high sectoral risks (World Bank, 2021). Agricultural financing also encompasses policies and institutional arrangements that channel financial resources toward value-chain development, agro-processing, rural infrastructure and innovation systems. Such financing is considered crucial for stimulating productivity growth, improving food security and promoting rural livelihoods (African Development Bank [AfDB], 2023).

A fundamental objective of farm finance is to encourage economic growth and development through long-term investments in agricultural production and related activities. Various forms of domestic capital, such as public and private savings, profits from international trade, loans and advances from national banks, public and private debt and share capital, are considered long-term sources. In line with Amechi (2014), funding for agriculture is provided by agricultural banks, deposit money banks, self-financing and government sources.

### **2.2.2 Economic Growth**

Economic development is vital as it leads to an improved standard of living and job creation, making it a critical macroeconomic objective (UDoffia & Godson, 2016). As a nation's productive capacity increases, it results in economic growth. This signifies a rise in the output of goods and services produced in a country over a specified time frame. Economic growth refers to the sustained rise in a country's production of goods and services over time, typically measured by increases in real gross domestic product (GDP). It reflects an expansion in the economy's capacity to produce and deliver value to its population (World Bank, 2022).

Beyond increases in output, economic growth also involves improvements in productivity, technological progress and structural transformation across sectors such as agriculture, industry and services. This broader perspective emphasises efficiency gains and shifts toward higher-value activities (International Monetary Fund [IMF], 2023). Economic growth can also be viewed as the long-term expansion of an economy's productive potential, driven by capital accumulation, human capital development, innovation and institutional quality. This view highlights the underlying factors that enable economies to grow sustainably (Organisation for Economic Co-operation and Development [OECD], 2022).

### **2.2.3 Empirical Literature**

Tunji (2025) assessed the financing challenges faced by agricultural small and medium enterprises (SMEs) in Nigeria. He relied on national statistics and development finance reports. As of September 2024, only 3.92% of total bank credit went to agriculture, even though the sector contributed about 28.7% to Nigeria's GDP. Furthermore, only around 7% of farming communities could access formal loans. This significant credit gap highlights major issues in

financial inclusion and agricultural banking systems. Tunji concluded that under-financing agriculture is a major obstacle to sustainable rural development. He suggested reforms such as credit risk-sharing mechanisms, digital loan application systems and decentralised credit facilities to improve access for rural farmers.

Mathias and Inedu (2025) utilised Error Correction Modeling (ECM) to study the effect of commercial bank credit to agriculture on Nigeria's GDP. Their findings revealed a strong positive relationship, demonstrating that a 1% increase in agricultural credit from commercial banks results in a 23.37% increase in real GDP. Despite this notable economic benefit, agriculture received only 3.92% of total commercial bank credit. The study concluded that the lack of investment in agriculture by commercial banks limits the sector's growth potential. The authors recommended policy incentives like lower interest rates for agricultural loans, credit guarantees and regulations requiring banks to set aside a minimum portion of their portfolio for agriculture.

Bonny and Ayunku (2024) examined the economic factors affecting agricultural performance in Nigeria from 1990 to 2021. They used the Autoregressive Distributed Lag (ARDL) model and unit root tests for their analysis. Their findings indicated that bank lending rates had a positive and significant effect on agricultural output. However, credit to the private sector, while also positive, was statistically insignificant. Additionally, money supply and inflation had a negative effect on agricultural output. The authors concluded that Nigeria's financial sector has not effectively directed resources to support agricultural growth. They suggested that targeted financial policies, subsidized lending and a focus on macroeconomic stability are needed to encourage credit access and reduce inflation that harms agricultural investments.

Ezu (2023) used Ordinary Least Squares (OLS) regression and Granger causality tests to study the relationship between agricultural financing and Nigeria's Gross Domestic Product (GDP). The research focused on three types of financing: loans from the Bank of Agriculture, commercial bank credit and the Agricultural Credit Guarantee Scheme Fund (ACS). The results showed that each of these variables positively impacted GDP growth in significant ways. Ezu

concluded that improving access to credit through institutional frameworks directly supports economic growth. He recommended that policymakers should strengthen the operational capacity of agricultural financing institutions. This could include increasing the budget for agricultural banks and enhancing the outreach and efficiency of the ACS.

Achumu et al. (2022) utilised the Bayesian VAR methodology with annual data spanning from 1981 to 2019 to analyse the influence of agricultural financing from both government and private banks on Nigeria's GDP. The results indicated that funding for the farm credit guarantee plan significantly and positively impacted Nigeria's overall national output. Furthermore, direct loans from banks to the agricultural sector, backed by non-government guarantees, also positively and significantly affected Nigeria's total production.

In their study, Orji et al. (2021) examined how the growth of agricultural production and its financing contributed to job creation in Nigeria using data from 1981 to 2017. The analysis employed the ARDL Model, revealing that agricultural financing results in job creation in both the short and long run. However, the lag in agricultural output growth predominantly results in job creation primarily in the short term. Additionally, while agricultural output and prices significantly influence job creation, factors such as the labour force population, wages and total expenditures did not.

Ivongbe et al. (2021) investigated the impact of agricultural financing on Nigeria's economic development, employing the Vector Correction Model (ECM), Unit Root Test and Autoregressive Distributed Lag Model for the analysis of various established literatures and data collection. By gathering time series data from several government agencies and organisations, the study found that agricultural loans (AL), real gross domestic product (RGDP) and interest rates (INTR) did not have statistically significant effects on the economic process, while agricultural output (AO) showed a positive and significant effect on RGDP.

Adeshina et al. (2020) analysed the effect of agricultural financing on economic performance in Nigeria, focusing on a sample period from 1978 to 2017. To empirically assess parameter coefficient estimations, the study employed Error Correction Modelling, Bound Cointegration

Test and Unit Root Test for data analysis. The findings highlighted that the ACS was the most significant agricultural financing variable influencing economic performance in the long run, leading to a notable increase in Nigeria's economic growth rate.

Onoh (2020) explored the relationship between agricultural financing and economic growth in Nigeria, using data from 1981 to 2016. The study indicated both long- and short-term relationships among the independent variables (including agricultural production, agricultural credit guarantee scheme fund, interest rate and loans from commercial banks to agriculture) and the dependent variable (GDP growth rate). The coefficient of determination suggested that the independent variables had limited capacity to explain the dependent variable. With a probability (F-statistic) of 0.036239, it was determined that the variables were jointly significant, establishing a unidirectional causal relationship between Nigeria's GDP growth rate and the agricultural loan guarantee fund.

Angaha and Atong (2020) assessed the relationship between Nigerian agricultural financing and economic growth by employing a threshold autoregressive (TAR) model. Their study covered the period from 1990 to 2017, evaluating the sustainability of agricultural loans in Nigeria. The findings indicated that the agricultural financing within the country lacks sufficient robustness to yield additional advantages for the struggling economy, as the data suggests that Nigeria has not achieved a healthy threshold in any of the GDP regimes.

Ademola (2019) carried out an empirical assessment to evaluate how agricultural financing influenced Nigeria's economic growth. This study employed the econometric methods of Ordinary Least Squares (OLS) in multiple regression analyses along with secondary data. The results of the model suggest that funding sources provided by commercial and specialized financial institutions are more effective in enhancing investment productivity. Furthermore, to promote productivity growth within the agricultural sector, it is crucial and urgent to increase the amount of credit available to it.

Idoko and Jatta (2018) examined the effects of government funding on agriculture concerning Nigeria's economic development over the period from 1985 to 2015. Their findings revealed a

strong and significant relationship between government spending on agriculture and economic growth in Nigeria. Moreover, a continuous connection between the variables was established.

Egwu (2016) investigated the impact of agricultural finance on Nigeria's agricultural productivity, economic growth and poverty reduction efforts. The data analysis incorporated several methods, such as unit root tests, co-integration assessments and the OLS regression technique, to achieve the desired results. The study's outcomes indicated that the Agricultural Credit Guarantee Scheme Fund Loan benefitted Nigeria's agricultural sector by lowering the poverty rate and enhancing economic growth, with commercial bank loans to the sector significantly influencing its output as a percentage of GDP.

Olawuni (2014) conducted research from 1985 to 2012 to explore the effects of agricultural funding on economic development in Nigeria. The ARDL model was the econometric method applied for estimation in this study. The findings revealed that investments in agriculture in Nigeria had a significant and negative effect on agricultural production. Additionally, agricultural land, equipment and raw materials directly influenced agricultural production in Nigeria, consistent with these results. At a significance level of 5%, agricultural equipment and land were found to be significantly different.

### **3.0 Methodology**

This study adopts an ex-post facto research design, which investigates the effect of an independent variables on a dependent variable through quasi-experimental methods. The research utilised annual time data spanning thirty-nine years (1986-2024), primarily sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin.

#### **3.1 Model Specification**

The model utilised in this research was constructed based on the framework developed by Egwu (2016), with minor adjustments of the explanatory variable such as Bank loan to the agricultural sector and government expenditure on the agricultural sector to make the study more robust in analysing the effect of agricultural finance and economic growth in Nigeria and including every research variable in the model.

The study employs four key variables, each defined and measured to ensure consistency and econometric reliability. Real Gross Domestic Product (RGDP) captures Nigeria's inflation-adjusted output in constant prices and is expressed in billions of Naira, then log-transformed for stability. Bank Loans to the Agricultural Sector (BLN) represent total credit extended by deposit money banks for agricultural activities, measured in billions of Naira and converted to LOG(BLN) to interpret effects in percentage terms. Government Expenditure on the Agricultural Sector (GEX) reflects federal budgetary allocations and actual spending on agricultural development also in billions of Naira and transformed to LOG(GEX). Lastly, the Agricultural Credit Guarantee Scheme Fund (ACS) denotes the annual value of credit guaranteed to farmers under the Scheme, measured in billions of Naira and expressed as LOG(ACS) to enhance linearity and reduce heteroscedasticity in the model. Expressing the modified model in its functional form, we have:

$$RGDP = f(BLN, GEX, ACS) \quad (3.1)$$

Expressing the model in its mathematical form, we have:

$$RGDP = \beta_0 + \beta_1 BLN + \beta_2 GEX + \beta_3 ACS \quad (3.2)$$

Expressing the model in its econometric form, we have:

$$RGDP = \beta_0 + \beta_1 BLN + \beta_2 GEX + \beta_3 ACS + et \quad (3.3)$$

Expressing the model in its log form, we have:

$$LOG(RGDP) = \beta_0 + \beta_1 LOG(BLN) + \beta_2 LOG(GEX) + \beta_3 LOG(ACS) + et \quad (3.4)$$

**3.1.2A Priori Expectation:** We expect  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  to be positive and statistically significant, meaning  $\beta_1 > 0$ ,  $\beta_2 > 0$ ,  $\beta_3 > 0$ .

Where: RGDP = Real Gross Domestic Product, BLN = Bank loan to the agricultural sector, GEX = Government expenditure on the agricultural sector, ACS = Agricultural Credit Guarantee Scheme Fund, 0 indicates the constant variable, = represents the coefficients of the independent variables and *et* signifies the error term.

### 3.2 Data Analysis Methods

The analysis of the research data commenced with descriptive statistics and trend analysis for all variables under study. This was followed by preliminary tests to ensure that the estimated

model is valid. Given that the initial difference is consistent across all variables, the Error Correction Model (ECM) approach was employed to explore the short-term dynamics. The ECM model is formulated as:

#### 4.0 Results And Discussion Of Findings

Table 1: Descriptive Analysis

|           | (Log(RGDP)) | (Log(BLN)) | (Log(GEX)) | (Log(ACS)) |
|-----------|-------------|------------|------------|------------|
| Mean      | 41262.32    | 328.6143   | 22.33943   | 3.325235   |
| Median    | 33121.45    | 64.83010   | 16.40010   | 3.010011   |
| Maximum   | 76735.27    | 1676.400   | 81.67010   | 13.00000   |
| Minimum   | 15017.66    | 1.830000   | 0.020000   | 0.070000   |
| Std. Dev. | 23223.10    | 404.7214   | 25.64285   | 3.872865   |
| Skewness  | 0.315323    | 3.227421   | 0.612816   | 0.642965   |
| Kurtosis  | 1.430208    | 6.032244   | 2.132212   | 2.220037   |

Source: Author's Computation (2025), E-views 12.0

The descriptive statistics provide an overview of the distribution, variability and behavior of the study variables over the sample period. The mean values show that Real GDP (Log(RGDP)) is substantially higher than the other variables, reflecting the scale of Nigeria's economic output relative to agricultural financing indicators. Bank loans to agriculture (Log(BLN)) exhibit the widest dispersion, as indicated by the very high standard deviation (404.72) and extreme maximum value, suggesting large fluctuations in credit allocation over time. Government expenditure on agriculture (Log(GEX)) and the Agricultural Credit Guarantee Scheme (Log(ACS)) also show considerable variability, though on a much smaller scale. The differences between mean and median values across variables indicate mild to moderate skewness. Log(BLN) is highly positively skewed (skewness = 3.23), implying that a few very large loan values dominate the distribution, while the other variables show moderate right-tail skewness. Kurtosis values, Log(BLN) has a kurtosis of 6.03, indicating a leptokurtic distribution characterised by heavy tails and outliers consistent with periods of unusually high agricultural lending. In contrast, Log(RGDP), Log(GEX) and Log(ACS) display platykurtic tendencies (kurtosis < 3), suggesting flatter distributions with less extreme variations. Overall, the

descriptive results reveal that while Nigeria’s economic output demonstrates relatively stable long-term movements, agricultural financing components especially bank lending have experienced significant fluctuations, reflecting policy shifts, credit reforms and macroeconomic cycles within the agricultural sector.

#### 4.1 Unit Root Tests

**Table 2: Results from Augmented Dickey-Fuller Test**

| Variables | ADF Levels | MacKinnon @ Critical Value 5% | ADF @ Differences | MacKinnon 1st Critical Value 5% | Order of Integration |
|-----------|------------|-------------------------------|-------------------|---------------------------------|----------------------|
| LOG(RGDP) | -1.122344  | -2.648402                     | -4.526780         | -2.628402                       | I(1)                 |
| LOG(BLN)  | -0.964120  | -2.645842                     | -5.891237         | -2.628402                       | I(1)                 |
| LOG(GEX)  | -2.101478  | -2.648422                     | -6.113452         | -2.628402                       | I(1)                 |
| LOG(ACS)  | -1.210950  | -2.648422                     | -4.382671         | -2.628402                       | I(1)                 |

**Source:** Author’s Computation (2025), E-views 12.0

The evaluation presented in Table 2 shows that each of the variables (RGDP, GEX, BLN and ACS) displayed stationarity following a single differencing, thereby classifying them as integrated of order one, referred to as I(1) series. The study investigated the unit root characteristics of these variables prior to assessing whether there existed a long-term cointegrating relationship among the variables within the equation, employing Johansen’s cointegration test for this purpose.

#### 4.2 Cointegration Test Result

**Table 3: Johansen Cointegration Test Results**

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.  |
|---------------------------|------------|-----------------|---------------------|--------|
| None                      | 0.598210   | 66.98342        | 47.85613            | 0.0009 |
| At most 1                 | 0.432175   | 34.89213        | 29.79707            | 0.0178 |
| At most 2                 | 0.201112   | 14.71105        | 15.49471            | 0.0647 |
| At most 3                 | 0.155987   | 5.894319        | 3.841465            | 0.0151 |

  

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.  |
|---------------------------|------------|---------------------|---------------------|--------|
| None                      | 0.598210   | 32.09129            | 27.58434            | 0.0184 |
| At most 1                 | 0.432175   | 19.91408            | 21.13162            | 0.0782 |
| At most 2                 | 0.201112   | 8.816732            | 14.26460            | 0.3284 |

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.  |
|---------------------------|------------|---------------------|---------------------|--------|
| At most 3                 | 0.155987   | 5.894319            | 3.841465            | 0.0151 |

Source: Author’s Computation (2025), E-views 12.0

Note: Trace test specifies 2 cointegrating equations at the 0.05 level Max-eigen test specifies 2 cointegrating equations at the 0.05 level. signifies rejection of the null hypothesis at the 0.05 level. Mackinnon-Haug-Michelis (1999) P-values

The results from the Johansen cointegration test presented in Table 3 indicate that both the trace statistic and the Max-Eigen statistic reveal the existence of two cointegrating equations. Consequently, this indicates that there is a long-term (equilibrium) relationship among RGDP, BLN, GEX and the ACS. Therefore, we moved forward to compute the Error Correction Model (ECM) to align the short-term dynamics with the long-term discrepancies of these variables.

### 4.3 Lag Selection Criteria

Table 4: Lag Selection Criteria

| Lag | LogL      | LR       | FPE      | AIC       | SC        | HQ        |
|-----|-----------|----------|----------|-----------|-----------|-----------|
| 0   | -115.4821 | NA       | 0.015820 | 7.104312  | 7.281290  | 7.167042  |
| 1   | 61.93275  | 312.7438 | 1.10e-06 | -2.367112 | -1.469253 | -2.059217 |
| 2   | 75.02893  | 22.68133 | 1.29e-06 | -2.310954 | -0.695834 | -1.751032 |
| 3   | 88.11207  | 15.89075 | 1.61e-06 | -2.108732 | 0.224843  | -1.308994 |

Source: Author’s Computation (2023), E-views 12.0

Table 4 displays the results of the lag selection criteria, which indicate that all of the criteria have chosen lag duration of one as the ideal choice. Therefore, all future analysis will be conducted with the most effective lag duration of one.

### 4.4 Ordinary Least Square (OLS) Regression Analysis

The research utilised the Ordinary Least Square (OLS) regression technique to ascertain the enduring link between agricultural financing and economic growth in Nigeria. The obtained results are presented as follows:

Table 5: Ordinary Least Square Regression Results

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| C        | 0.154382    | 0.118705   | 1.300707    | 0.2031 |
| LOG(BLN) | 0.087591    | 0.027102   | 3.232189    | 0.0031 |

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| LOG(GEX) | 0.000692    | 0.000231   | 2.994372    | 0.0071 |
| LOG(ACS) | 0.010317    | 0.002823   | 3.655288    | 0.0015 |

**R-squared** = 0.812480; **Adjusted R-squared** = 0.706011; **F-statistic (Prob.)** = 0.000045;  
**Durbin-Watson stat** = 1.487920

**Source:** *Author's Computation (2025), E-views 12.0*

Table 5 presents the long-term estimates from the OLS model. The OLS regression results indicate that agricultural financing variables, bank loans (BLN), government expenditure on agriculture (GEX) and the Agricultural Credit Guarantee Scheme Fund (ACS) collectively exert a strong and statistically significant influence on Nigeria's economic growth. With an R-squared of 0.812 and an adjusted R-squared of 0.706, the model explains a substantial portion of the variation in real GDP. All three variables exhibit positive and significant coefficients, indicating that increased credit access and public-sector support contributes meaningfully to economic expansion. Specifically, bank loans and guaranteed credit under the ACS show strong effects, highlighting the importance of financial-sector participation in enhancing agricultural productivity, while government expenditure. Despite its small coefficient still plays a statistically significant role in supporting sectoral performance.

These findings emphasise that agricultural finance remains a crucial engine of growth in Nigeria, where credit constraints, infrastructural deficits and institutional weaknesses have historically hindered agricultural development. The positive effects of BLN and ACS suggest that improving access to credit can stimulate farm investment, raise productivity and support diversification away from the oil-driven economy. Meanwhile, the significance of GEX indicates that government involvement remains vital, though the modest magnitude of its coefficient points to the need for more efficient and transparent allocation of agricultural funds. The findings are in line with the work of Orji et al. (2021); Ivongbe et al. (2021) and Bonny and Ayunku (2024) findings which underscore the importance of sustained, well-coordinated financial interventions in driving agricultural-led economic transformation and strengthening national food security.

#### 4.5 Error Correction Model (ECM) Analysis

There is evidence suggesting a short-term economic relationship between the variables, as shown by their cointegration in Table 6. This indicates that the ECM is the most appropriate option for further examination and the subsequent findings will be presented. A portion of 28% may be ascribed to additional variables or factors not included in the model. The RGDP of Nigeria was influenced in a statistically significant manner by the combination of BLN, GEX and the ACS, consistent with the Prob. (F-statistic) of 0.000032, which is below the 0.05 threshold.

Analysis of the Error Correction Model (ECM) suggests that there is a short-term economic relationship among the variables due to their cointegration, as illustrated in Table 6. This indicates that the ECM is the preferred option for further examination and the subsequent section presents its results. These findings also align with the research findings of Mathias and Inedu (2025) and Tunji (2025).

**Table 6: Error Correction Model (ECM) Results**

| Variable       | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------------|-------------|------------|-------------|--------|
| C              | 0.021376    | 0.011200   | 1.908571    | 0.0673 |
| DLOG(RGDP(-1)) | 0.298511    | 0.139845   | 2.134762    | 0.0436 |
| DLOG(BLN)      | 0.132900    | 0.034671   | 3.833912    | 0.0011 |
| DLOG(BLN(-1))  | -0.014318   | 0.018792   | -0.761873   | 0.4562 |
| DLOG(GEX)      | 0.036141    | 0.006223   | 5.807300    | 0.0000 |
| DLOG(GEX(-1))  | 0.003021    | 0.006718   | 0.449553    | 0.6629 |
| DLOG(ACS)      | 0.137455    | 0.010765   | 12.77256    | 0.0000 |
| DLOG(ACS(-1))  | 0.052882    | 0.031423   | 1.682983    | 0.1059 |
| ECM(-1)        | -0.247189   | 0.045276   | -5.460118   | 0.0000 |

**R-squared = 0.627105; Adjusted R-squared = 0.482776; F-statistic (Prob.) = 0.005211; Durbin-Watson stat = 2.139812**

**Source:** Author's Computation (2025), E-views 12.0

Table 6 shows the Error Correction Model (ECM) estimates of the short-run dynamics and the speed of adjustment of the variables (BLN, GEX, ACS) on Nigeria's real GDP (RGDP). The short-run coefficients show that changes in bank loans (DLOG(BLN)), government expenditure on agriculture (DLOG(GEX)) and the Agricultural Credit Guarantee Scheme Fund

(DLOG(ACS)) exert significant and positive effects on RGDP growth. Specifically, short-run increases in bank loans and ACS stimulate economic activity, reflecting the immediate impact of improved liquidity and credit accessibility in the agricultural sector. Government expenditure also shows a strong short-run effect, indicating that public agricultural spending generates rapid economic responses through channels such as extension services, subsidies and infrastructural investment. Lagged short-run effects for  $BLN(-1)$ ,  $GEX(-1)$  and  $ACS(-1)$  are statistically insignificant, suggesting that their influences on output are contemporaneous rather than persistent in the short period.

The long-run adjustment is captured by the error-correction term ( $ECM(-1)$ ), which is negative and highly significant ( $-0.24$ ;  $p=0.0000$ ), confirming the existence of a stable long-run equilibrium relationship among the variables. The coefficient indicates that approximately 24.7% of deviations from long-run equilibrium are corrected each year, implying a moderate speed of adjustment of RGDP toward its long-run path following short-run shocks. This suggests that while credit and expenditure produce immediate effects, the Nigerian economy gradually aligns back to its long-run equilibrium driven by structural relationships among RGDP, agricultural credit and public investment. The model's overall significance (F-statistic  $p=0.005$ ) affirms that the short-run and long-run components jointly explain RGDP dynamics, while the Durbin-Watson statistic (2.14) indicates the absence of problematic autocorrelation. The ECM results highlight the dual structure of agricultural financing effects: strong short-run impacts that stimulate immediate growth and a stable long-run relationship consistent with an economy where agricultural finance remains a foundational driver of sustained economic performance.

## **5.0 CONCLUSION AND RECOMMENDATIONS**

The study concludes that agricultural financing through bank loans, government expenditure and the Agricultural Credit Guarantee Scheme Fund plays a significant role in driving Nigeria's economic growth. Evidence from both the OLS and ECM results shows that these financing channels exert strong long-run effects on real GDP, with bank loans and ACS demonstrating particularly robust elasticities. Short-run dynamics further reveal that immediate increases in these financing variables stimulate economic activity, while the significant error-correction term

confirms a stable long-run equilibrium relationship. However, the low elasticities for GEX and ACS highlight inefficiencies in public spending and the limited scale of credit guarantee initiatives, indicating that current agricultural financing mechanisms, although impactful, are not yet optimised to meet sectoral needs.

To strengthen the growth-enhancing effects of agricultural finance, the study recommends expanding bank credit to agriculture, improving the efficiency and targeting of government expenditure and scaling up and modernising the ACS to reach more farmers and reduce lending risks. Additional policy measures include promoting financial inclusion through alternative collateral systems and digital credit platforms, implementing institutional reforms to enhance coordination and accountability in agricultural programmes and adopting data-driven monitoring systems to improve transparency and ensure that financing interventions achieve their intended outcomes. These strategies are essential for deepening the effectiveness of agricultural financing and supporting Nigeria's broader goals of economic diversification and sustainable agricultural transformation.



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