

Bank Credit and Agricultural Output in Nigeria

Briggs David Theophilus

Department of Economics, Faculty of Social Sciences,
University of Port Harcourt, Nigeria

Abstract

This study examines bank credit and agricultural output in Nigeria from 1985-2024. The objectives of the study are to; determine the impact of deposit money banks' loans and advances (DMBLA), interest rate (INTR), and government agricultural expenditure (GAX) on agricultural output (AGQ) in Nigeria from 1985–2024. Secondary data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and the Ordinary Least Squares (OLS) multiple regression technique was employed for estimation. The results reveal that, DMBLA exerted indirect and statistically not significant impact on agricultural output, indicating that, bank credit to agriculture has not translated into substantial productivity gains. Similarly, INTR showed a negative but insignificant relationship with AGQ, suggesting that, high lending rates discouraged credit uptake without significantly influencing output. In contrast, GAX had direct and substantial impact on AGQ, highlighting the crucial role of public investment in driving agricultural growth. The model recorded R^2 value of 0.721, suggesting that, about 72% of variations in agricultural output were explained by the independent variables. The study recommends reforms in agricultural credit delivery, interest rate adjustments, targeted government spending, and stronger public–private collaboration to improve credit efficiency and foster sustainable growth in the Nigerian agricultural sector.

Key Words:

Advances, Agricultural output, Bank credit, Expenditure, Interest rate, Loans

1. Introduction

In developed nations, the agricultural sector is central to the output of economy, significantly

contributing to food production, employment, foreign exchange, and living standards. It generates investment capital faster than any other sector, linking various industries through its complex value chain (Emeaghalu, 2018). In Nigeria, two-thirds of the inhabitants resides in rural areas, where agro-activity is the main industry, employing over seventy percent of the workforce and accounting for between thirty to forty percent of the country's GDP (Falaye, 2023).

One key factor influencing agricultural productivity and growth is access to bank credit, which allows farmers to buy inputs such as seeds, machinery, fertilizers, and invest in irrigation systems and modern farming methods (Ikubor et al., 2024). However, the agricultural sector in Nigeria has faced underfunding, with farmers struggling to obtain loans from formal financial institutions (Ikubor et al., 2024). Bank loan and advances is essential instrument for the advancement of any country. This implies that the duration of loan facilities to the real sector determine the extent of growth and advancement of a nation. Banks operationally aimed at advancing credit to the real sector but irrespective of the loan disbursed to the real sector, the returns from these sectors have been discouraging considering the amount of fund channeled and supplied (Sogule & Nkoro, 2016).

According to Orji et al. (2020), over the years, various government in Nigeria have executed numerous supporting policies in order to advance the efficiency of agricultural sector in ensuring availability of credit the rural agriculturalists. Nevertheless, the said policies are yet to attained their purposes of meaningful contribution to the progress of agricultural sector. This is because farmers are expected to use huge collateral before they have access to credit from the financial institution. Notwithstanding the importance of

credit in boosting agricultural productivity, both the gaining and reimbursement of loans remain difficult. Rigid lending conditions, along with socio-economic barriers such as high interest rates, risk of default, age, and geographic location, continue to hinder access to funding (Amina et al. 2025). Furthermore, instability in government agricultural policies—often a result of political shifts has created uncertainty, deterring long-term investment in the sector. Also, inadequate and inconsistent credit supply from financial institutions has further exacerbated the situation (Lawal, 2011).

The broader challenge lies in the inefficiency of Nigeria's financial system in channeling resources to the real sectors of the economy, particularly agriculture and manufacturing. While Nigeria is richly endowed with agricultural potential, deposit money banks prefer to allocate credit to other sectors, leaving farmers to grapple with prohibitively high interest rates (Obilor, 2013).

In response, the government has introduced several financing initiatives, including the Agricultural Credit Guarantee Scheme (ACGS), the Anchor Borrowers' Scheme, FADAMA III, and the Green Alternative. However, the implementation of these programs has often lacked the political will necessary for sustained success, limiting their effectiveness (Amina et al. 2025). Consequently, the country continues to rely heavily on food imports, which worsens poverty and unemployment. Most farmers remain engaged in subsistence farming, producing primarily for household consumption with little surplus for commercial sale.

In lieu of the situation above, this study re-examined the impact of bank credit on agricultural output in Nigeria based on the following objectives to: determine the impact of deposit money bank loans, interest rate dynamics and government agricultural expenditure on agricultural output in Nigeria from 1985 to 2024.

2. Literature Review

2.1 Concept of Bank Credit and Agricultural Output

Amina et al. (2025) define commercial bank as a monetary institution owned by either government or private businessmen for the purpose of profit. In pursuit of profit, the bank

undertakes a number of functions. One of these functions is the acceptance of deposits from the public these deposits are in turn given as credit to trade, industry, and other sectors which lead to more production and employment (Ijere, 2014). It is difficult to separate credit from the banking sector, as the sector serve as a channel of funding from the surplus units of the economy to the deficit units who need resources for the purpose of production (CBN, 2024).

Sogules and Nkoro (2016), averred that, credit from bank is essential tool for the improvement of the nations of the world. This connotes that, the growth and development of an economy is a function of the length and size of loan facilities to the agricultural sector via the formal and informal sources (Obilor, 2013).

Meanwhile, agricultural output is typically measured by the total quantity or value of crops and livestock produced over a specific period, often expressed in terms of yield per hectare or overall production volume. Thus, growth in agriculture is the increase in the output of the agricultural sector over time. It encompasses improvements in crop yields, livestock production, and other agricultural activities. Agriculture advancement is not only critical for ensuring food security but also for promoting economic expansion, particularly in evolving nations where agriculture is the spine of the economy. Thus, technological innovation via adoption of modern farming techniques, machinery, and improved seed varieties enhances productivity and boosts growth (FAO, 2020).

2.2 The Quantity Theory of Credit

This theory was propounded by Werner (1993) in his work 'quantity theory of disaggregated credit and international capital flows'. The central point of the theory is to differentiate the equation of exchange between money used for gross domestic production transactions and money used for non-gross domestic product transaction. Furthermore, he opined that, money should not be looked at in terms of bank deposits and private sector savings. Moreso, bank should not be view as the only financial mediators that loan existing money, rather inventors of new money through the course of lending. Subsequently, the consequence of bank credit depends on its quantity and quality which is defined as

whether it is used for either productive transactions or nonproductive transactions.

2.3. Empirical Literature

Amina et al. (2025) examined commercial bank credit and Nigerian agricultural output between 1981 and 2022. Data was obtained from Central Bank of Nigeria's statistical bulletin (2023), and analyzed using the bound test of cointegration and the Nonlinear Autoregressive Distributed Lag (NARDL) model. The findings from the NARDL models reveal that Commercial Bank Credit to Agriculture (CBCA) significantly enhances agricultural output (AOP), while the Agricultural Credit Guarantee Scheme Fund (ACGSF) has a negative impact. Additionally, interest rates (INT) exhibit an insignificant effect on agricultural productivity.

Ikubor et al., (2024) used regression method to studied the influence of commercial banks' credit to agrarian sector between 1990 and 2022. The findings demonstrated that, a long-term association exists between commercial bank credit and agricultural sector in Nigeria. Likewise, commercial credit to agriculture and agricultural credit guarantee scheme fund were found to have direct influence on the agricultural sector.

Abubakar and Muhammad (2023) used the method of ARDL to determine the effect of agro-financing on cultivation output in Nigeria between 1981 and 2020. The research indicated that funding from commercial banks exerted a valuable and extensive influence on agro-production, whereas real interest rates and price hike demonstrated adverse effects and negligible long-term association with output.

Obi-Nwosu et al. (2022) analyzed how commercial bank credit affects the farming industry's input to Nigeria's GDP from 1986 to 2020, employing the ARDL method. The results indicated that commercial bank loan to agriculture didn't stimulate the sector's contribution to actual GDP.

Miftahu and Bawa (2023) examined the effect of commercial bank credit facilities to agriculture on real output growth in Nigeria using econometrics techniques of ADF unit root test and ARDL model. The finding depicted that, deposit money bank credit to agriculture had direct and significant consequence on output growth in Nigeria.

Onuegbu, Ikeroa and Ogini (2022) used OLS method to study deposit money bank credit and agricultural output in Nigeria. The outcome showed that, both bank credit and government spending on agricultural sector as well as agricultural credit guarantee scheme fund have direct and significant consequence on agricultural output. Nevertheless, interest rate showed indirect and impact on agricultural output.

Ogunleye and Oladapo (2022) explored the function of microfinance in supporting agricultural progress in Nigeria from 2010-2020. The findings showed that, microfinance allowed small scale farmers to have significant access to credit, and this led to increased output and revenue.

Ejemezu and Agu (2021) studied the effects of commercial banks' credit on agro-productivity in Nigeria between 1986 and 2020. Their investigation used data from the CBN statistical bulletin and also the Debt Management Office, applying trend analysis, cointegration using the ARDL bounds test, and ECM regression models. The discoveries exposed a long-term relationship and that bank lending rates and commercial agricultural credit schemes had a substantial direct impact on agricultural GDP. In like manner, Nakazi and Sunday (2020) assessed both short and long-terms effect of banks' credit on the growth of agricultural sector in Uganda between the third quarters of 2008 and fourth quarters of 2018 with the method of ARDL. The findings showed that, credit has long-term direct impact on agricultural output. But the reverse was the case in the short-term.

3. Methodology

This study on the impact of bank credit on agricultural output adopted the ex-post facto research design to investigate the potential causal relationships between variables using time series data between 1985 and 2024. Data were sourced from Central Bank of Nigeria Statistical Bulletin. The study used the Ordinary Least Square (OLS) multiple regression analysis as the technique of analysis because of the causal relationship between the variables in the model.

Model Specifications

The functional model is expressed as follows:

$$AGQ = f(DMBLA, INTR, GAX) \quad (1)$$

The mathematical expression of the model:
 $AGQ = \beta_0 + \beta_1 DMBLA + \beta_2 INTR + \beta_4 GAX$
 (2)

The econometric model specification becomes:

$$AGQ = \beta_0 + \beta_1 DMBLA + \beta_2 INTR + \beta_4 GAX + \mu \quad (3)$$

Where: AGQ = Agricultural Output, DMBLA = Deposit money bank loan to agriculture, INTR = Interest rate, GAX = Government

agricultural expenditure, β_0 = Intercept, $\beta_1 - \beta_3$ = Slope parameters, μ = Random variable

4. Result and Discussions

4.1 Trend Analysis of the Variables

The study presents the trend of the variables used for the analysis based on the data in the appendix

AGQ

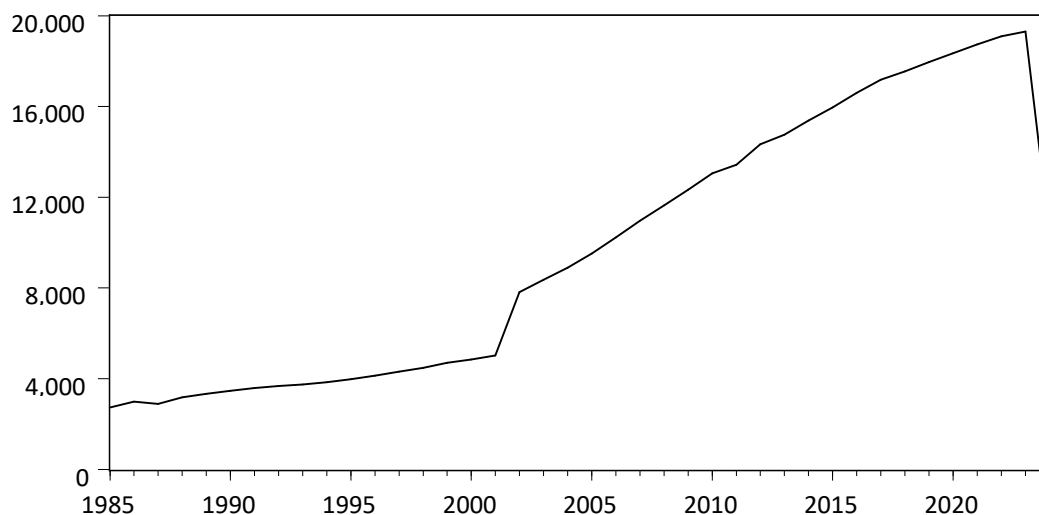


Figure 1: Trend in Agriculture Output (AGQ)

Source: Author’s Computation using E-views 12

AGQ showed a generally consistent upward trend from 1985 (2731.06) through 2023 (19306.49), indicating steady growth over the years. The increase was more gradual in the earlier years (1985–2000), followed by a

sharper rise from 2001 onward, particularly noticeable between 2002 and 2012 where AGQ nearly doubled. However, in 2024, AGQ dropped significantly to 10364.39, representing a sharp decline compared to the consistent long-term growth observed before. This suggests a major shock or disruption in the system during that year

DMBLA

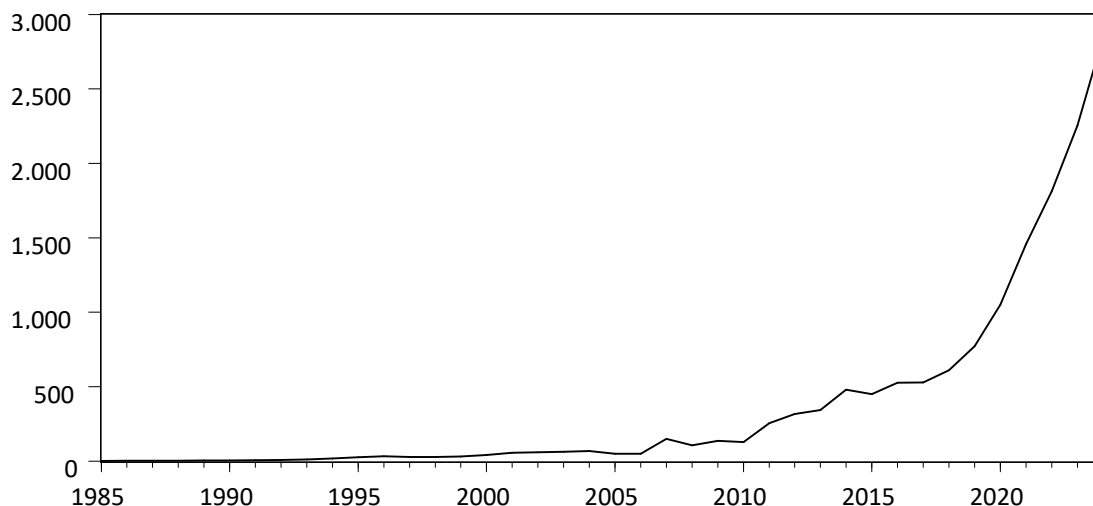
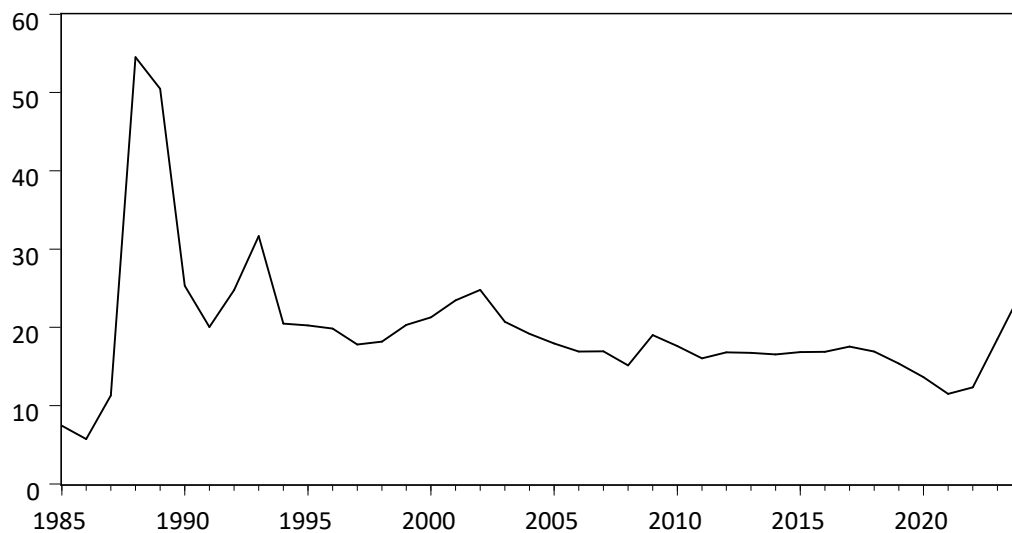


Figure 2: Trend in Deposit Money Banks Loan and Advances (DMBLA)

DMBLA (Deposit Money Banks Loan and Advances) rose steadily over the years, reflecting expansion in banking sector credit. From a modest 1.31 in 1985, it climbed

progressively to 41.03 in 2000. The pace of growth accelerated significantly after the 2000s, reaching 478.91 in 2014, 1049.68 in 2020, and 2255.36 in 2023. By 2024, DMBLA further increased to 2850, highlighting continuous expansion in credit supply.

INTR



3: Trend in Interest Rate (INTR)

Source: Author’s Computation using E-views 12

The interest rate (INTR) fluctuated widely across the period, showing no stable long-term upward or downward movement but instead cyclical behavior. It was relatively low in the mid-1980s (5.72 in 1986) but spiked sharply to

54.51 in 1988 and 50.47 in 1989. Afterward, it moderated, moving between 17 and 25 during the 1990s and early 2000s. From 2007 onward, rates stabilized somewhat between 15 and 18, before trending downward in the late 2010s to 11.48 in 2021. However, there was a reversal in 2023 (18.5) and 2024 (24.7), indicating renewed upward pressure.

GAX

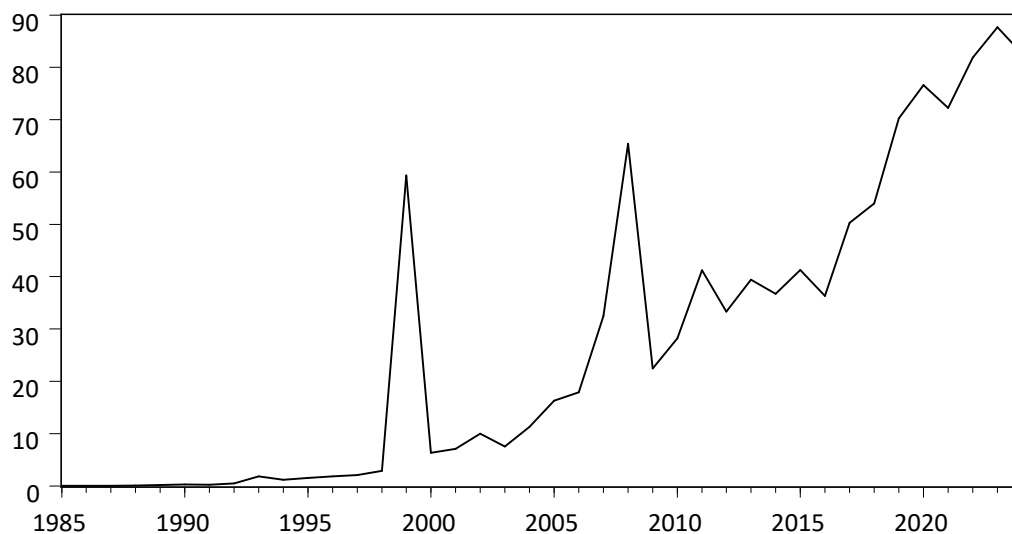


Figure 4: Trend in Government Agricultural Expenditure (GAX)**Source: Author's Computation using E-views 12**

GAX started at very low levels (0.02 in 1985) and remained subdued until the late 1990s. A sharp jump occurred in 1999 (59.32), after which the variable became more dynamic. From the 2000s onward, GAX maintained a

generally upward trend, reaching 32.48 in 2007, 65.40 in 2008, and steadily rising thereafter. In the 2010s, it oscillated between 30 and 70, before peaking at 87.69 in 2023. Although it dipped slightly in 2024 (82.60).

4.2 Descriptive statistics**Table 1: Descriptive statistics**

	AGQ	DMBLA	INTR	GAX
Mean	9666.453	370.2665	19.77675	27.51383
Maximum	19306.49	2850.000	54.51000	87.68955
Minimum	2731.060	1.310000	5.720000	0.020365
Std. Dev.	5837.178	651.8506	8.977182	28.76322
Skewness	0.286571	2.406932	2.372851	0.713707
Kurtosis	1.556607	8.264197	9.896656	2.150007
Jarque-Bera	4.019788	84.80842	116.8093	4.599996
Probability	0.134003	0.000000	0.000000	0.100259
Observations	40	40	40	40

Source: Author's Computation using E-views 12

Table 1 above shows the descriptive statistics on agricultural sector output, deposit money bank loans to agriculture, Government expenditure on agriculture and Interest rate for the period 1985 to 2024. The descriptive statistics output showed that, AGQ averaged 9666.45, DMBLA averaged 370.27, The average interest rate (INTR) was 19.78, GAX averaged 27.51, showing that government activity or expenditure has grown moderately over the study period.

The minimum and maximum range shows variability over time. AGQ rose from a low of 2731.06 (1985) to a high of 19306.49 (2023), reflecting strong economic expansion. DMBLA varied widely, from 1.31 (1985) to 2850.00 (2024), confirming the rapid growth in banking sector credit. INTR fluctuated from a minimum of 5.72 (1986) to a maximum of 54.51 (1988), underlining its volatility. GAX ranged from a very small 0.02 (1985) to 87.69 (2023), showing the scale of increase in government expenditure over time.

Based on the standard deviation which measures how much the values moved away from the mean, AGQ has a standard deviation of 5837.18, showing wide fluctuations in aggregate output across the years. DMBLA's standard deviation of 651.85 is very high

relative to its mean, reflecting sharp jumps in bank lending. INTR has a standard deviation of 8.98, meaning interest rates were volatile but less extreme compared to DMBLA. GAX has a standard deviation of 28.76, showing significant swings in government spending levels.

Based on the Skewness and Kurtosis values, AGQ's skewness (0.29) is close to zero, indicating a fairly symmetric distribution, while its kurtosis (1.56) suggests a flatter-than-normal curve (platykurtic). DMBLA (skewness 2.41, kurtosis 8.26) is highly skewed to the right, meaning most values are small but with a few very large outliers in later years. INTR (skewness 2.37, kurtosis 9.90) is also highly skewed and leptokurtic, reflecting periods of extremely high interest rates. GAX (skewness 0.71, kurtosis 2.15) shows moderate right skewness and near-normal peak, meaning growth in government spending has been uneven but not extreme.

Jarque-Bera Test which checks whether the data follow a normal distribution. For AGQ (JB = 4.02, p = 0.13) and GAX (JB = 4.60, p = 0.10), the p-values are greater than 0.05, so their distributions are not significantly different from normal. However, DMBLA (JB = 84.81, p = 0.000) and INTR (JB = 116.81, p = 0.000) strongly reject normality, confirming

that they are not normally distributed due to extreme values and volatility.

4.3 Model Estimation Result

The multiple linear regression result which shows the relationship between the dependent

variable (Agriculture Output) and the independent variables (Deposit Money Bank, Interest rate and Government Agricultural Expenditure) is presented as follows:

Table 2: Multiple Regression Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6395.536	1574.420	4.062152	0.0003
DMBLA	-1.250432	1.345038	-0.929663	0.3587
INTR	-69.93457	60.98474	-1.146755	0.2590
GAX	185.9788	31.65122	5.875882	0.0000
R-squared	0.721047	Mean depend ent var		9666.453
F-statistic	31.01802	Durbin-Watson stat		1.461970
Prob(F-statistic)	0.000000			

Source: Author's Computation using E-views 12

Based on the result on the table above, the coefficient of Deposit Money Bank Loan to Agriculture has negative sign (-1.250432) and is not statistically significant at the 5% level. This implies that deposit money bank loan to agricultural sector has a negative and insignificant effect on agriculture output in Nigeria during the study period. This finding aligns with the findings of Obilor (2013), who argued that commercial banks often perceive agriculture as a high-risk sector, leading to credit misallocation and ineffective utilization of borrowed funds. Similarly, Nwankwo et al. (2016) observed that despite the growth in bank credit to agriculture, poor loan accessibility and high default rates have limited its productive impact.

The coefficient of the interest rate has negative sign (-69.9) and not statistically significant at the 5% level. This implies that, interest rates exert a negative impact on agriculture output in Nigeria. In concrete terms, a one-unit increase in interest rate reduces agriculture output by about 70 units, holding other factors constant. This finding is consistent with Olayemi and Olayemi (2020), who found that high interest rates discourage farmers from seeking formal credit, thereby constraining investment in modern inputs and mechanization. The insignificant effect may reflect farmers' reliance on informal credit sources, which are often more accessible (Yakubu & Affoi, 2014).

The coefficient of the government agricultural expenditure has positive sign (185.98) and statistically significant at the 5% level. Specifically, a one-unit increase in the government agricultural expenditure leads to about 186percent units increase in agriculture output. This finding supports the position of Lawal (2011), who emphasized that government expenditure on infrastructure, subsidies, and extension services enhances output growth. Likewise, Oluwatayo and Ojo (2018) demonstrated that, targeted public investment in rural infrastructure and farm support programs contributes positively to agricultural productivity in Nigeria.

The coefficient of determination (R^2) value in the regression output is 0.721047, indicating that, about 72% of the variation in agriculture output is explained by the independent variables in the model.

5. Conclusion and Recommendations

This study empirically examined the relationship between bank credit and agricultural output in Nigeria from 1985–2024 and revealed that, bank credit to the agricultural sector exerted a negative but insignificant effect on agriculture output. This suggests that despite increased lending to the sector, challenges such as poor accessibility, stringent collateral requirements, and diversion of funds may have weakened its contribution. The effect of interest rates was also negative and insignificant, suggesting that borrowing costs did not play a strong role in shaping

agricultural output. But government agricultural expenditure was positive and highly significant, indicating that fiscal support plays a crucial role in driving productivity in the sector. Therefore, the results suggest that, while bank credit and interest rate policies have been ineffective in driving agricultural growth, government expenditure has remained the key determinant of agricultural output in Nigeria.

Given the results, the subsequent recommendations were made: Reform agricultural credit delivery: Deposit money banks should adopt more flexible lending frameworks tailored to the peculiarities of agriculture. Also, lower lending rates for agricultural borrowers can incentivize investment in modern farming technologies and mechanization. Furthermore, there should be enhancement of government expenditure, since government spending significantly boosts output. Strengthen monitoring mechanisms: To address the ineffectiveness of bank loans, both government and financial regulators should enhance oversight and guarantee that finances intended for agricultural production are not sidetracked to other non-productive schemes.

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