Journal of Agriculture, Food, Environment and Animal Sciences
Tarım, Gıda, Çevre ve Hayvancılık Bilimleri Dergisi
http://www.jafeas.com, ISSN: 2757-5659

J. Agric. Food, Environ. Anim. Sci.
6(2): 368-388, 2025

# Impact of Agricultural Financing on Economic Growth in Nigeria (1981 - 2023)

**Tersoo TAVERSHIMA**

Department of Agricultural Economics, Joseph Sarwuan Tarka University, Makurdi, Benue State, NIGERIA

https://orchid.org/0000-0002-5895-8946

Corresponding author: ttersoo@yahoo.com

**Research Article**

**Article History:**
Received: 13 December 2024
Accepted: 05 August 2025
Published online: 15 December 2025

**Keywords:**
RGDP
Agricultural Finance
Co-Integration
ARDL Model
Bound Test

**ABSTRACT**

The study analyzed the impact of agricultural financing on economic growth in Nigeria, from 1981 to 2023. Real Gross Domestic Product (RGDP), a proxy for Economic Growth was specified as a function of Government Expenditure on Agriculture (GEA), Commercial Bank Credit to Agriculture (CBCA), Agricultural Value Added (AGVA), Crop Value Chain (CRVC), Exchange Rate (EXCHR) and Inflation Rate (INFR). The findings from the Augmented Dickey Fuller (ADF) and Pillips – Perron (PP) unit root tests indicated that the time series data were stationary at I(0) and I(1). The results from the ARDL Bounds test revealed a long - term relationship within the model. The results of the analysis conducted using ARDL model technique revealed that an increase in CBCA had a positive and significant impact on RGDP in both the short and long term. The study concluded that agricultural financing significantly impacts economic growth in Nigeria. This outcome underscores the critical role of commercial bank credit to the agricultural sector in propelling the economy. Based on the study's findings, the following recommendations were made: The Nigerian government should, through the Central Bank review agricultural sector credit policy to promote lending to the sector, while being mindful of interest rates increases as persistent hikes could hinder growth, in the face of structural imbalances. To increase productivity and promote economic growth, the government should ensure that inputs are available and subsidized for farmers and processors. Additionally, the government should tackle structural imbalances and design and implement policy-related issues to avoid economic shocks.

**To Cite :** Tavershima T., 2025. Impact of Agricultural Financing on Economic Growth in Nigeria (1981 - 2023). Agriculture, Food, Environment and Animal Sciences, 6(2): 368-388.

## INTRODUCTION

Economic growth is an essential objective for any government. Throughout history, it has been a focal point for both individuals and their governing bodies. Economists, analysts, and advisors, in their systematic approaches to addressing critical issues in economic management, often face the challenge of selecting or integrating various macroeconomic variables (Uwakaeme, 2015). This is due to the fact that economic growth can accelerate significant social reforms by generating new economic opportunities, innovative ideas, and advanced technologies (Sen, 2021).

The agricultural sector in Nigeria holds a significant potential for the nation's economic development, serving as a key driver for growth through employment, foreign exchange, GDP contribution, poverty alleviation, and food security (National Bureau of Statistics, 2015). To reduce reliance on oil, Nigeria emphasized investments in agriculture, recognizing it as essential for achieving economic diversification (Ewubare and Eyitope, 2015). Adequate financing within this sector is crucial, as it enables farmers to access necessary resources, modern technology, and infrastructure, which in turn enhances productivity. Such financial support is vital for land acquisition, equipment purchases, facility construction, labour hiring, and implementing irrigation systems. Moreover, it fosters the adoption of innovative technologies (Obansa and Maduekwe, 2013), ultimately increasing agricultural output and contributing to overall economic growth.

Agriculture is vital for the livelihoods of the rural poor in developing countries, notably in Nigeria, where over half of the farming population lives in poverty and struggles with limited financial resources (Abu and Okeme, 2019). As food demand is projected to rise by 70 percent by 2050 (World Bank Group, 2018), enhancing agricultural production has become imperative. However, inadequate government funding for agriculture continues to hinder progress, resulting in poor execution of numerous agricultural initiatives aimed at fostering economic development (Abu and Okeme, 2019). Comparatively low financial support for the agriculture sector undermines the effectiveness of institutional reforms and has led to suboptimal outcomes in comparison to better-funded sectors like education and health (Ihugba et al., 2013).

In 1981, the Nigerian government allocated N792.24 million to agriculture, which rose to N1,005.76 million by 1985—a 26.95 percent increase. The expenditure escalated further to N2,016.5 million in 1990, marking a 100.5 percent rise, and reached N6,202.1 million in 1995, reflecting a growth of 207.57 percent. Between 1995 and 2000, spending surged to N12,087.48 million, a 94.89 percent increase. A dramatic spike occurred in 2005, with expenditures soaring to N96,265.0 million, an increase of 696.40 percent. A modest rise of about 10.34 percent occurred in 2010, bringing total expenditures to N106,217.95 million. Since 2011, agricultural spending has continually increased,

reaching N17.618 billion in 2015 and standing at N17.26009 by 2017 (CBN, 2017). However, in 2017, despite expenditures representing 21 percent of the budget, they fell short of the Food and Agricultural Organization's recommended 25 percent for agricultural development (Muhammad et al., 2020). Subsequent years saw expenditures rise to ₦203 billion in 2018 and ₦137.9 billion in 2019. Nonetheless, the sector's contribution to GDP remained stagnant, fluctuating between 20 and 21 percent due to a significant portion of the budget being allocated to recurrent expenditures (Ojekunle, 2020).

Agriculture served as the cornerstone of Nigeria's economy in the 1950s and 1960s but has since been overshadowed by the dominance of petroleum production and export, which now constitutes approximately 90 percent of the nation's gross earnings. A recession in 2016, influenced by falling oil prices, production declines, and militant attacks in the Niger Delta, alongside adverse economic policies such as restrictions on foreign exchange (Njidda, 2020), led to an economic stagnation (Anwana and Affia, 2018). However, by 2017, the economy began to recover as oil prices improved and production stabilized (Njidda, 2020). The inherent volatility of oil prices highlights the urgent need for Nigeria to reduce its reliance on oil and refocus on revitalizing the agricultural sector.

**Statement of the Problem**

Nigeria's agricultural sector is crucial for economic growth, contributing to GDP growth. However, the sector's potential is limited due to limited access to financial services. Farmers, particularly in rural areas, face challenges in obtaining loans from commercial banks due to lack of collateral, perception of agricultural risks, and high credit administration costs. Unofficial lenders often charge high interest rates, limiting their investment capacity. Bureaucratic hold-ups and politicization of loan distribution are common implementation issues. The lengthy gestation period and high interest rates also make borrowing unappealing, making it difficult for the sector to support economic expansion.

Several research works have been undertaken on agricultural financing and economic growth in Nigeria and beyond (Hartarskaet al., 2015; Iheanacho, 2017; Fintan and Lema, 2018; Adesanya and Ajala, 2019; Ademola, 2019; Okunlola et al., 2019; Adeshina et al., 2020; Angaha and Atong, 2020; Afolabi et al., 2021; Kareem et al., 2021; Nwadioha and Igoni, 2021; Mbelu and Ifionu, 2022; Okwuchukwu, 2022; Etsemitan, 2023). None of the earlier studies employed the same set of independent variables, including government spending on agriculture, agricultural credit, agricultural value added, crop value chain, exchange rate, and inflation rate, as utilized in this research. This study expands on prior research that investigates the connection between government agricultural financing and economic growth in Nigeria.

## Objectives of the Study

The broad objective of this study was to explore the effects of government agricultural financing on economic growth within the Nigerian context. Specifically, the objectives were to:

i. examine the impact of government expenditure on the agricultural sector on economic growth in Nigeria.
ii. investigate the impact of commercial banks credit to the agricultural sector on economic growth of Nigeria.

## Concept of Agricultural Financing

Agricultural financing is the continuous investment in the agricultural sector of an economy to foster growth and development (Obansa and Madueke, 2013). It involves researching, scrutinizing, and evaluating the financial aspects of agricultural enterprises, including funds required for production and revenue generated from sales (Adeshina et al., 2020). This can be in the form of agricultural expenditure/budgetary allocation, agricultural credit/subsidy, or self-financing (Gukat and Ogboru, 2017). Government expenditure on agriculture is the portion of a nation's budget designated for the agricultural sector, which is used to foster growth within the agricultural economy. This financial resource is directed towards farmers, allowing them to acquire new equipment, maintain machinery, purchase necessary medications and pesticides, and ensure farm maintenance (Mohammed, 2018). The prompt provision of capital also facilitates the use of enhanced seeds, fertilizers, and modern technologies, boosting agricultural output and growth rate (Adesannya and Ajala, 2019).

## Concept of Economic Growth

Economic growth is the increase in the quantity of goods and services produced per capita over a specific timeframe, typically a fiscal year (Oji-Okoro, 2011). It signifies a rise in the inflation-adjusted market value of goods and services generated by an economy. Measured as the percentage rate of growth in real GDP (Gollin et al., 2002), it is a consistent and positive rise in the total production of goods and services within an economy (Angaha and Atong, 2020). It can be expressed as per capita income, calculated by dividing the total output of goods and services by the population of a country during the same period. Real economic growth is the increase in total production adjusted for inflation, while nominal economic growth measures this increase without any adjustments (Uwakaeme, 2015).

Economic growth can be positive, zero, or negative, depending on the annual average rates of macroeconomic indicators. Positive growth occurs when the average growth rates of macroeconomic indicators exceed the population's growth rates, while zero

growth occurs when the average growth rates align with the population. Negative growth occurs when the population growth rates exceed the indicators. Achieving economic growth requires effective resource use, enhancing production capacity (Todaro and Smith, 2011), and a country's labour force, human capital, capital goods, and technology development.

## Theoretical Framework

### The Keynesian Theory

Keynesian theory holds that in order to achieve economic stability, active fiscal policies such as taxation and public spending are necessary because markets do not always self-correct effectively. Economists like Paul Samuelson who emphasized the theory's importance during economic downturns like the Great Depression and the 2008 financial crisis have given it strong support (Bibow, 2020). Critics such as Milton Friedman and proponents of monetarism however averred that excessive government intervention may lead to inflation and inefficiencies (Ali et al., 2023). Despite these objections, Keynesian economics still has a significant impact on fiscal policy particularly when it comes to addressing unemployment and economic stagnation.

Keynes highlighted the significance of public spending as an external factor that can serve as a tool for policy to encourage economic expansion. Therefore, the theory showed that government spending can have a positive impact on some economic sectors like agriculture. This suggests that increasing public spending especially in strategic areas like agriculture can boost aggregate demand and lead to economic growth particularly in Nigeria where agriculture is vital. As a result, it is anticipated that increased government spending will boost employment profitability and investment due to the multiplier effects on total demand. A rise in output that is dependent on the expenditure multipliers is thus the outcome of increased government spending which raises aggregate demand (Ewubare and Eyitope 2015; Njidda, 2020). It follows that increasing funding for agriculture-related initiatives like infrastructure, research and farmer support could boost agricultural output, create jobs and improve food security, all of which would contribute to the growth of the economy as a whole.

### Endogenous Growth Theory

The Endogenous Growth Theory, developed by Paul Romer and Robert Lucas in the 1980s and early 1990s, suggests that internal factors like knowledge accumulation, human capital, and technological innovation are crucial for sustained economic growth. It suggests that diversifying the economy into non-oil sectors, such as manufacturing, solid mineral, and agricultural, can significantly impact economic growth (Oguwuike, 2018). The theory also suggests that investments in human capital,

innovation, and knowledge-based organizations can lead to steady growth (Roufagalas and Orlov, 2020). Proponents argue that government spending on infrastructure, R & D, and education can support long-term economic growth. However, the theory's assumptions about knowledge and human capital are criticized for being too simplistic and challenging to apply in real-world situations, especially in developing countries (Faggian et al., 2019).

Despite the criticism, the theory still has a significant impact on how invention and economic development policies are formulated. Government investment in infrastructure, education, and agricultural research can lead to long-term productivity growth and economic development in the agricultural sector. Research and development (R&D), extension services, and agricultural innovation are crucial elements that drive endogenous growth in the sector. They advance technology, increase productivity, and improve resource management. R&D projects can produce high-yield crop varieties, disease-resistant livestock breeds, and enhanced production systems. They also focus on sustainable resource management methods like integrated pest management, soil conservation strategies, and water-efficient irrigation setups. Extension services educate farmers about new technologies and best practices, providing them with necessary resources, training, and demonstrations to overcome adoption barriers. In essence, R&D, extension services, and agricultural innovation are interrelated and mutually beneficial components of an endogenous growth framework.

**Empirical Review**

Kareem et al. (2021) investigated the impact of health and agricultural financing on economic growth in Nigeria over the period from 1981 to 2019. Utilizing time series data sourced from the annual statistical bulletin of the Central Bank of Nigeria, the study employed the Error Correction Model (ECM) to assess the data, aiming to ascertain the rate of adjustment from short-run to long-run equilibrium. Additionally, a causality test was conducted to establish the causal relationships among the variables of interest. The findings indicated that government capital expenditure in the agricultural sector had a positive and statistically significant impact on economic growth. Furthermore, the study confirmed the existence of causal relationships among the examined variables.

Fintan and Lema (2018) examined the connection between government spending on agriculture, agricultural bank loans and GDP in Tanzania from 1990 to 2016. Ordinary least squares method was used in the analysis. The empirical results showed a significant relationship between the variables under investigation over the short and long terms. According to the study’s findings, economic growth was greatly impacted by positive shocks to agricultural funding.

Jimmy and Guluwa (2021) investigated the connection between government expenditure in the agricultural sector and economic growth in Nigeria over the period from 1980 to 2019. Time series data on Real Gross Domestic Product, Government Capital Expenditure on Agriculture (GCEXP), and Government Recurrent Expenditure on Agriculture (GREXP) were gathered and analyzed using the Autoregressive Distributed Lag (ARDL) methodology. The results revealed that government spending in agriculture had a positive and significant impact on economic growth in Nigeria. Therefore, the research concluded that a strong relationship exists between agricultural expenditure and real GDP in the nation.

Hartarska et al. (2015) examined the relationship between economic development and agricultural credit in rural areas of the United States. Several panel data sets and fixed effects models were used in the study's analysis. The findings showed a positive relationship between the growth in agricultural GDP per rural resident and agricultural lending.

Adesanya and Ajala (2019) assessed the impact of agricultural credit on the economic growth of Nigeria. Time series data were sourced from the Central Bank of Nigeria's publications, the Statistical Bulletin, the National Bureau of Statistics, and online resources concerning agricultural policy issues in Nigeria. A three-stage least squares analysis was employed as the estimation method to explore the variables involved. The results indicated that agricultural credit served as an effective tool for enhancing agricultural output, stabilizing non-oil exports, and supporting GDP in the Nigerian economy. Nevertheless, a decline in GDP was observed at the conclusion of the study period, suggesting that such policies may weaken over time. The research concluded that agricultural credit, interest rates, and exchange rates play crucial roles in influencing aggregate output in Nigeria.

Adeshina et al. (2020) investigated the impact of agricultural financing on economic performance in Nigeria during the period from 1978 to 2017. It employed secondary data obtained from the Central Bank of Nigeria's statistical bulletin and analyzed this data through the Unit root test, Bound co-integration test, and error correction modeling. The findings indicated that the Agricultural Credit Guarantee Scheme Fund (ACGSF) had a significant positive effect on the growth rate of Nigeria's economy. However, the study concluded that agricultural financing had a limited contribution to Nigeria's economic performance during the examined period, primarily due to insufficient funding.

Angaha and Atong (2020) assessed the relationship between agricultural financing and economic growth in Nigeria through the application of a threshold autoregressive (TAR) model. This model was employed to analyze the sustainability of agricultural finance in Nigeria from 1990 to 2017. The findings indicated that Nigeria had not attained a satisfactory threshold, as evidenced across all GDP regimes. The study

concluded that the state of agricultural financing in Nigeria was insufficient to generate significant advantages for the struggling economy.

In 2019, a study by Awad and Karaki looked at how bank lending affected Palestine's economic expansion. The stationarity of the time series data was evaluated using the Augmented Dickey-Fuller test. Additionally, the direction of causality was determined using the Granger causality test, and the short-term and long-term dynamics among the variables were examined using the Johansen co-integration method, Vector Autoregressive Model and Vector Error Correction Model. While the short-term relationship between the variables was found to be negligible, the results showed a long-term relationship. Furthermore the findings showed a one-way causal link between bank lending and GDP. The limited impact of bank lending on GDP was partly caused by banks' reluctance to lend to the production sector due to the high risks involved. However, the majority of empirical data indicated that bank lending tends to be encouraged by economic growth rather than the other way around.

The literature review indicates that the relationship between agriculture financing and economic growth is inconclusive, and an empirical issue that demands further investigation. Previous studies employed disaggregated variables to study the contribution of agriculture to economic growth. This study differs from the previous studies in that, it employs the agricultural value added and crop value chain as control variables in addition to the agricultural finance indicators and variables to capture the contribution of agricultural financing to economic growth in Nigeria.

## MATERIAL and METHOD

### Sources of Data

Secondary data consisting of annual time series covering the period from 1981 to 2023 were used for the study. Specifically, the data on Government Expenditure on Agriculture, Commercial Credit to Agriculture, Real Gross Domestic Product (a proxy for economic growth), Agricultural Value Added and Exchange Rate were sourced from the publications of Central bank of Nigeria. The data on Crop Value Chain (volume of processed/value – added crop output) were sourced from the US Department of Agriculture. The data on Inflation rate were obtained from World Bank's World Development Indicators.

### Techniques of Data Analysis

The data were analyzed using descriptive statistics, Augmented Dickey Fuller (ADF) and Phillips – Perron tests, and the ARDL model with its associated bounds test.

## Model Specification

### Autoregressive Distributed Lag (ARDL)

To empirically examine the long-term co-integration and dynamic relationships among the variables in question, the ARDL method for cointegration has been developed by Per Pesaran et al. (2001). The ARDL model is applicable regardless of whether the underlying regressors are purely I(0), I(1), or exhibit fractional or mutual cointegration. The approach was employed to analyze the short-run and long-run relationship between agricultural financing and economic growth in Nigeria. It is specified below:

$RGDP_t = f\ (GEA, AC, AGVA, CRVC, EXCHR, INFR)$ (1)

This equation could be written in log form as:

$InRGDP_t = \beta_o + \beta_1 InGEA_{t-1} + \beta_2 InAC_{t-1} + \beta_3 InAGVA_{t-1} + \beta_4 InCRVC_{t-1} + \beta_5 InEXCHR_{t-1} + \beta_6 InINFR_{t-1}$ - (2)

$\Delta InRGDP_t = \beta_o + \beta_1 InRGDP_{t-1} + \beta_2 InGEA_{t-1} + \beta_3 InAC_{t-1} + \beta_4 InAGVA_{t-1} + \beta_5 InCRVC_{t-1}$

$+ \beta_6 InEXCHR_{t-1} + \beta_7 InINFR_{t-1} + \sum_{i=1}^{k} \alpha_1 \Delta InRGDP_{t-1} + \sum_{i=1}^{k} \alpha_2 \Delta InGEA_{t-1} + \sum_{i=1}^{k} \alpha_3 \Delta InAC_{t-1} + \sum_{i=1}^{k} \alpha_4 \Delta InAGVA_{t-1} + \sum_{i=1}^{k} \alpha_5 \Delta InCRVC_{t-1} + \sum_{i=1}^{k} \alpha_6 \Delta InEXCHR_{t-1} + \sum_{i=1}^{k} \alpha_7 \Delta InINFR_{t-1} + \mu_{it} + \alpha_8 ECM_{t-1} + \mu_{it}$ (3)

where:

RGDP =Real Gross Domestic Product

GEA = Government Expenditure on Agriculture (both recurrent and capital)

CBCA = Commercial Bank Credit to the Agricultural Sector

AGVA = Agricultural Value Added

CRVC = Crop Value Chain (Quantity of value – added crop output)

EXCHR = Exchange Rate

INFR = Inflation Rate

$ECM_{t-1}$ term is a lagged value of the residual of model in which the long – term relationship is obtained. ECM (-1) is the speed of adjustment parameter which is expected to be negative.

Generally, the bound cointegration test of the variables in the previous equations would be carried out using ARDL. The null hypothesis is rejected if the F – Statistic is more than the critical value of the upper bound. However, if the lower critical bound value is more than the F - statistic, then the null hypothesis is accepted and establishes the presence of co – integration (long – run relationship) among the variables and vice versa.

## RESULTS and DISCUSSION

### Summary Statistics of the Variables Used

The summary descriptive statistics for the variables in the model are presented in Table 1. All the variables Crop Value Chain (CRVC), Real Gross Domestic Product, a proxy for Economic Growth (RGDP), Agricultural Value Added (AGVA), Government Expenditure on Agriculture (GEA), Commercial Bank Credit to Agriculture (CBCA), Exchange Rate (EXCHR) and Inflation Rate (INFR) have positive means and medians. Generally, the variance of variables as evidenced by the standard deviation is moderate. The higher (lower) the value, the higher (lower) the deviation of the series from its mean. The skewness statistics reveal that INFR is positively skewed towards normality, while CRVC, RGDP, AGVA, GEA, CBCA and EXCHR are negatively skewed. Additionally, the kurtosis, which assesses how peaked the distribution is, reveals that CRVC, RGDP, GEA, AC and EXCHR are platykurtic (negative kurtosis), indicating that the variables are fatter relative to a normal distribution, while AGVA and INFR are leptokurtic (positive kurtosis). The result of the Jarque-Bera probability test of normality shows that unlike the AGVA, the variables CRVC, RGDP, GEA, AC, EXCHR and INFR are not statistically significant at 5% level having probability values greater than 0.05 (5%) which indicate these variables are not statistically different from a normal distribution; they have a normal distribution.

Table 1. Summary of descriptive statistics of the variables used

| | RGDP | GEA | CBCA | AGVA | CRVC | EXCHR | INFR |
|---|---|---|---|---|---|---|---|
| Mean | 10.329 | 1.2321 | 3.7374 | 3.1117 | 8.7924 | 3.7809 | 2.6953 |
| Median | 10.137 | 2.3016 | 3.8998 | 3.1237 | 8.9379 | 4.7753 | 2.5655 |
| Maximum | 11.306 | 5.4294 | 7.0274 | 3.6101 | 9.6625 | 6.7789 | 4.2882 |
| Minimum | 8.2929 | -4.6052 | -0.5276 | 2.5047 | 7.7575 | -0.4511 | 1.6842 |
| Std. Dev. | 0.6915 | 3.0303 | 2.2934 | 0.2025 | 0.6254 | 2.0372 | 0.6632 |
| Skewness | -0.3242 | -0.7153 | -0.2700 | -0.6210 | -0.2441 | -0.7399 | 0.8279 |
| Kurtosis | 2.8074 | 2.1568 | 1.9378 | 4.8550 | 1.7426 | 2.5045 | 3.0009 |
| Jarque-Bera | 0.8196 | 4.9409 | 2.5441 | 8.9284 | 3.2598 | 4.3631 | 4.9120 |
| Prob. | 0.6638 | 0.0846 | 0.2803 | 0.0115 | 0.1960 | 0.1129 | 0.0858 |

Source: Author's computation (2023).

### Graphical Representation of the Variables Used

The dataset under study is shown graphically in Figure 1. The figure specifically shows that there were significant anomalies in the variations of government statistics, both rising and falling. In comparison, the indicators of CRVC CBCA and EXCHR showed consistent upward trends.

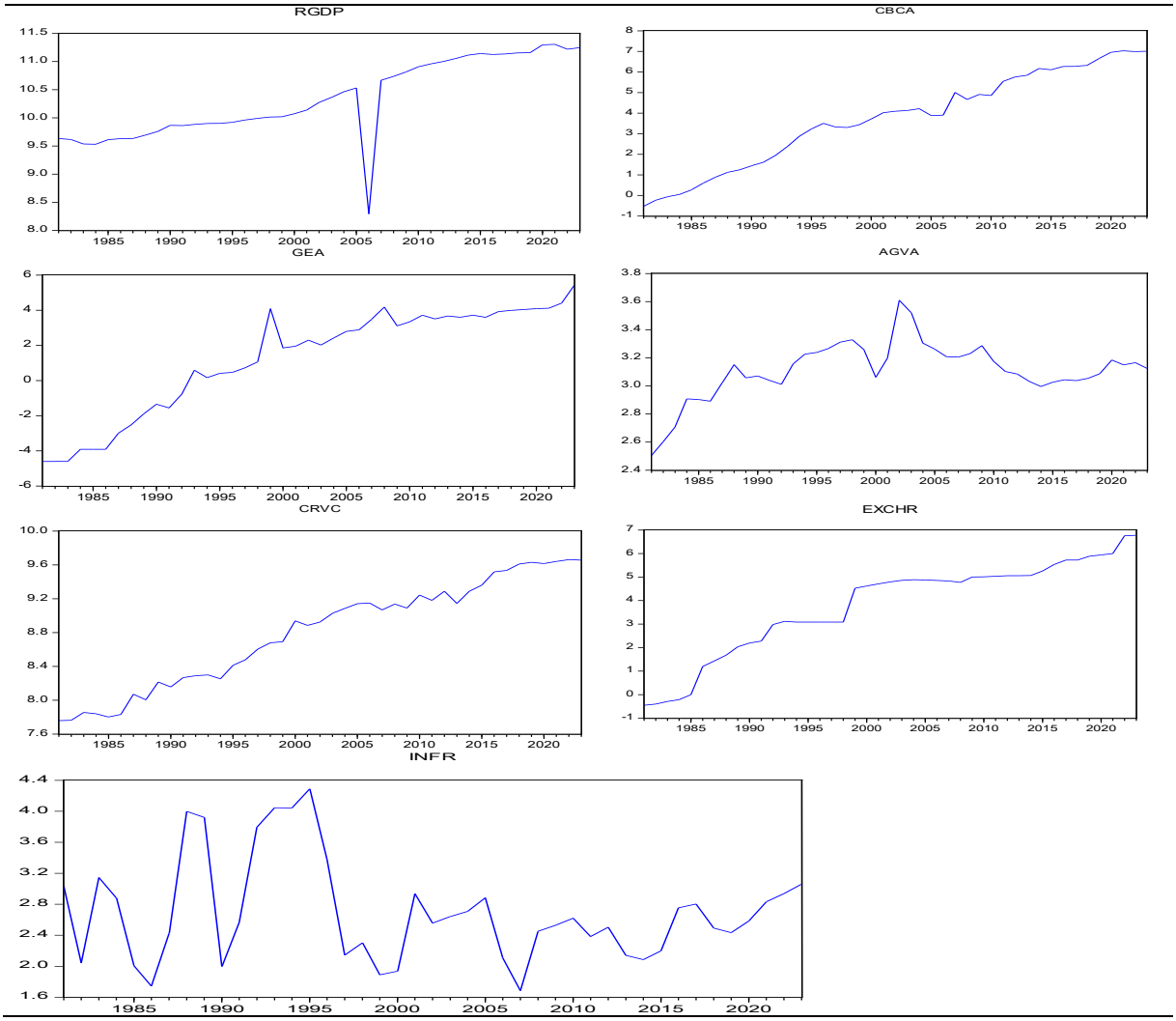


Figure 1. Graphical representation of the variables used

## Multicollinearity Test

The study conducted a multicollinearity analysis to examine the correlations among independent variables in the model. The results in Table 2 showed that the centered Variance Inflation Factor (VIF) values of the independent variables were below 5, indicating no multicollinearity issues. The average centered VIF was 1.1778542, with the highest recorded at 1.34415. This indicates the absence of multicollinearity problems in the model, potentially impacting the precision and reliability of the findings.

Table 2. Variance inflation factor (VIF)

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 0.014347 | 2.639681 | NA |
| GEA | 0.014626 | 1.497752 | 1.344145 |
| AC | 0.099777 | 1.696810 | 1.105527 |
| AGVA | 0.554896 | 1.137154 | 1.114980 |
| CRVC | 0.891847 | 1.569018 | 1.233585 |
| EXCHR | 0.073313 | 1.671307 | 1.271598 |
| INFR | 0.013669 | 1.053022 | 1.053021 |
| Average | | 1.4977542 | 1.1778542 |

Source: Author's Computation (2023)

## Unit Root Test

The result of the unit root test is presented in Table 3. The result of the Augmented Dickey Fuller (ADF) test showed that the variables RGDP and AGVA are stationary at level, I(0), while the variables CRVC, GEA, CBCA, INFR and EXCHR are non-stationary at the level. At first differencing, these variables became integrated of order one, 1(1). Also, The result of the Phillips - Perron (PP) test showed that the variables RGDP, CBCA, AGVA and INFR are stationary at level, I(0), while the variables CRVC, GEA and EXCHR are non-stationary at the level. At first differencing, these variables became integrated of order one, 1(1).

Table 3. Unit root test result

| Variables | ADF Test | | Decision | PP Test | | Decision |
|---|---|---|---|---|---|---|
| | T-stat | P-Value | | T-stat | P-Value | |
| RGDP | -6.0595 (-3.5208] | 0.000 | I(0) | -6.0595 (-3.5208) | 0.000 | I(0) |
| TGEA | -6.4605 (-2.9369) | 0.000 | I(1) | -9.4119 (-2.9350) | 0.000 | I(1) |
| CBCA | -7.1636 (-2.9350) | 0.000 | I(1) | -3.2388 (-2.9332) | 0.025 | I(0) |
| AGVA | -3.2688 (-2.9369) | 0.023 | I(0) | -3.5081 (-2.9332) | 0.013 | I(0) |
| CRVC | -10.3996 (-2.9350) | 0.004 | I(1) | -10.0679(-2.9350) | 0.000 | I(1) |
| EXCHR | -6.2312 (-2.9350) | 0.000 | I(1) | -6.2312 (-2.9350) | 0.000 | I(1) |
| INFR | -7.2460 (-2.9369) | 0.000 | I(1) | -3.4161 (-2.9332) | 0.016 | I(0) |

Critical values at 5% level of significance in parentheses, **Source**: Author's Computation (2023)

## Structural Breakpoint Test

To determine whether structural breaks existed in this analysis, the Bai-Perron test was used. A structural break is a sudden alteration in time series data at a specific point in time. When the time series statistical properties show a discernible shift, it is referred to as the break date, and the Bai-Perron test was used to determine its existence (Table

4). The results showed that a structural break occurred in 2006, driven by external shocks, institutional flaws, and policy changes. These factors included difficulties obtaining official credit, the impact of oil price volatility on government revenue and expenditure priorities, and a shift from direct agricultural interventions to market liberalization and deregulation. The Nigerian government had a significant role in financing agriculture before 2006, but the shift to market-oriented solutions led to decreased direct participation in the supply of subsidized credit and inputs. Deregulating interest rates made borrowing more expensive for farmers and made it difficult for them to obtain loans from commercial banks. The country's economy relies heavily on oil revenue, and changes in oil prices in the mid-2000s affected government spending priorities and revenue.

Table 4. Bai-Perron multiple breakpoint test

| Sequential F-statistic determined breaks: | | | 1 | |
|---|---|---|---|---|
| **Break Test** | **F-statistic** | **Scaled F-statistic** | **Critical Value**** | **Break dates** |
| 0 vs. 1* | 6.312292 | 31.56146 | 18.23 | 2006 |

* Significant at the 0.05 level.** Bai-Perron (Econometric Journal, 2003) critical values.

## Impact of Agricultural Financing on Economic Growth

### Lag length selection criteria

The result of the lag length selection criteria is presented in Table 5. Most of the criteria and specifically, the Akaike criterion (AIC) selected a 2 - period lag for estimation.

Table 5. Lag length selection criteria

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -134.3851 | NA | 1.43e-07 | 6.945617 | 7.279973 | 7.067371 |
| 1 | 71.22349 | 320.9501 | 1.52e-10 | 0.037879 | 3.047078* | 1.133663* |
| 2 | 145.9197 | 87.44921* | 1.30e-10* | -0.483887* | 5.200157 | 1.585928 |

* indicates lag order selected by the criterion

### Co-Integration Relationship Between Agricultural Financing and Economic Growth

The result of the Autoregressive Distributed Lag (ARDL) Bounds Test employed to test for co-integration between agricultural financing and economic growth is presented in Table 6. The null hypothesis was rejected and the existence of a long-run relationship among variables in the model was accepted,because,the computed F - Statistic of 9.210801 was greater than the I(0) and I(1) bound values of 2.45 and 3.61 respectively at 5% level of significance. The ARDL model was therefore estimated.

Table 6. Autoregressive distributed lag bounds test for co-integration nullhypothesis: no long-run relationships exist

| Test Statistic | Value | K |
|---|---|---|
| F-statistic | 9.210801 | 6 |
| Critical Value Bounds | | |
| Significance | I0 Bound | I1 Bound |
| 10% | 2.12 | 3.23 |
| 5% | 2.45 | 3.61 |
| 2.5% | 2.75 | 3.99 |
| 1% | 3.15 | 4.43 |

Source: Author's Computation (2023)

**Short – Run Effect of Agricultural Financing on Economic Growth**

The results of ARDL model estimates of the short – run impact of agricultural financing on economic growth are presented in Table 7. To account for the structural break, a dummy variable was added in the model and analyzed. The dummy variable takes a value of 1 from the break year but a value of 0 otherwise. The coefficient of the error correction term (COINTEQ) is -1.579 with a t – statistic of -8.078, indicating the speed of adjustment towards the long – run equilibrium. The negative coefficient implies that there is a tendency for economic growth (RGDP) to correct any deviations from the long – run equilibrium.

The coefficients of the first and the only lag of economic growth D(RGDP(-1)) is -0.579 with a t statistic of -8.078 and statistically significant at the 1% level. This coefficient represents the short – run effect of the first lag (previous year) of economic growth (RGDP) on current economic growth (RGDP). It indicates that the previous periods' economic growth (RGDP) has a significant impact on the current period's economic growth (RGDP).

The short–run estimates indicate that an increase in Commercial Bank Credit to Agriculture (CBCA) would increase economic growth (RGDP) by 1.081% `in the previous year at the 0.01 level of significance and 0.733% in the previous two years at the 0.05 level of significance. An increase in agricultural financing stimulates economic growth, because intervention funds can be used to support the agricultural sector and restore Nigeria's export leadership in a variety of agricultural products including cotton, cocoa, groundnuts and palm oil. This would help the economy grow by meeting the raw material needs of our manufacturing and/or industrial sectors. These outcomes align with the finding by Afolabi et al. (2021), that deposit money bank credit to the agricultural sector had a strong and direct relationship with short-term economic growth in Nigeria.

At a significance level of 0. 01, the result showed that, in the short-term, an increase in the crop value chain (CRVC) would lead to a 3.388 % decrease in RGDP in the current

year. This situation is possible if the quality of the value added falls short of global market norms. According to recent analyses, Nigeria's agro-processed exports which are essential for the country's foreign exchange earnings and economic growth have decreased as rsult of a reduction in quality and non-compliance with documentation and regulatory requirements for food exports to the UK and the EU mainly as a result of insufficient funding. Furthermore, the country's agricultural exports have seen a drop in revenue as a result of global market price volatility (Osabohien et al., 2018). Trade deficits eventually arise from these agricultural products' decreased competitiveness in relation to manufactured goods imported from developed nations, due to their volatility.

Table 7. Short - run impact of agricultural financing on economic growth

| Variable | Coefficient | Std. Error | t – Statistic | Prob. |
|---|---|---|---|---|
| COINTEQ | 1.579 | 0.196 | 8.078 | 0.000*** |
| D(RGDP(-1)) | -0.579 | 0.196 | -2.962 | 0.009*** |
| D(RGEA) | -0.0384 | 0.105 | -0.367 | 0.718 |
| D(RGEA(-1)) | -0.194 | 0.129 | -1.507 | 0.150 |
| D(RGEA(-2)) | -0.0218 | 0.113 | -0.193 | 0.849 |
| D(CBCA) | 0.029 | 0.339 | 0.086 | 0.932 |
| D(CBCA(-1)) | 1.081 | 0.318 | 3.398 | 0.003*** |
| D(CBCA(-2)) | 0.733 | 0.325 | 2.259 | 0.037** |
| D(AGVA) | -1.516 | 1.024 | -1.481 | 0.157 |
| D(AGVA(-1)) | 0.598 | 0.641 | 0.932 | 0.364 |
| D(AGVA(-2)) | 0.156 | 0.802 | 0.195 | 0.848 |
| D(CRVC1) | -3.388 | 0.995 | -3.406 | 0.003*** |
| D(CRVC1(-1)) | 1.426 | 1.266 | 1.126 | 0.276 |
| D(CRVC1(-2)) | 2.388 | 1.082 | 2.207 | 0.041** |
| D(EXCHR) | 0.0581 | 0.225 | 0.259 | 0.799 |
| D(EXCHR(-1)) | 0.595 | 0.273 | 2.181 | 0.044** |
| D(EXCHR(-2)) | -0.606 | 0.396 | -1.528 | 0.145 |
| D(INFL) | 0.116 | 0.167 | 0.694 | 0.497 |
| D(INFL(-1)) | -0.120 | 0.094 | -1.271 | 0.221 |
| D(INFL(-2)) | 0.002 | 0.147 | 0.015 | 0.988 |
| DUMMY | -1.276 | 0.352 | -3.625 | 0.002*** |
| DUMMY(-1) | 0.834 | 0.374 | .229 | 0.040** |
| DUMMY(-2) | 0.615 | 0.396 | 1.556 | 0.138 |
| C | -0.262 | 0.186 | 1.412 | 0.176 |
| R-squared | 0.848 | | | |
| Adjusted R-squared | 0.651 | | | |
| F-statistic | 4.302 | | | |
| Prob(F-statistic) | 0.002*** | | | |

***, **respectively represent 5% and 1% levels of significance, Source: Author's Computation (2023)

At a significance level of 0. 05, the result also showed that in the short term, an improvement in the crop value chain would result in a 2.388 % increase in economic growth over the previous two years. Through agricultural value chain financing, Nigeria's crop value chain, which encompasses crop production, processing and

marketing/export would be improved, increasing foreign exchange profits and fostering economic expansion. This result is consistent with the study by Nwadioha and Igoni (2021) which showed that food crops and cash crops both had a positive and significant impact on Nigeria's economic growth justifying financial support for their production.

According to the result of exchange rate (EXCHR) at a significance level of 0. 05, an increase in EXCHR would in the short term cause a 0.595% decrease in RGDP from the prior year. This implies that a rise in the exchange rate the year before would encourage economic expansion via exports of agricultural products. This is justified by the idea that agricultural products with added value would fetch higher prices on global markets increasing export earnings. As a result, farmers and processors would have incentives to boost output. This result runs counter to the findings of Ifarajimi and Ola (2017) that the nominal exchange rate had a negative and significant impact on Nigeria's economic growth.

**Long – Run Impact of Agricultural Financing on Economic Growth**

The results of the ARDL model estimates of the long – run impact of agricultural financing on RGDP are presented in Table 8. According to the findings, only one variable is statistically significant over the long term. On the 0.01 level of significance, a 1.168% increase in RGDP is linked to a one unit increase in CBCA. This result is consistent with the study by Mbelu and Ifionu (2022) which showed that agricultural credit had a long-term positive and significant impact on Nigeria's GDP. Financing is essential to the development of Nigeria's agricultural sector, by enabling higher production, value addition and participation in effective value chains, and ultimately contributing to economic growth. Nigeria's GDP growth is directly impacted by increases in agricultural output making the sector a major driver of the country's overall economic growth.

Table 8. Long–run impact of agricultural financing on economic growth

| Variable | Coefficient | Std. Error | t – Statistic | Prob. |
|---|---|---|---|---|
| GEA | -0.161 | 0.164 | -0.985 | 0.338 |
| CBCA | 1.168 | 0.397 | 2.945 | 0.009 |
| AGVA | -0.482 | 0.936 | -0.515 | 0.613 |
| CRVC | 0.270 | 1.321 | 0.204 | 0.841 |
| EXCHR | 0.030 | 0.320 | 0.093 | 0.927 |
| INFR | -0.001 | 0.175 | -0.008 | 0.994 |
| C | 0.110 | 0.392 | 0.279 | 0.784 |

***, ** respectively represents 1% and 5% levels of significance, Source: Author's Computation (2023)

### ARDL Post – Estimation/Diagnostic Tests for Agricultural Financing and Economic Growth (RGDP)

A thorough evaluation was conducted to examine the existence of serial correlation, heteroscedasticity, and normality, thereby affirming the validity, stability, and reliability of the ARDL results. This analysis substantiates that the selected model is appropriate for guiding and implementing policy decisions. The results are presented in Table 9. The diagnostic outcomes reveal that the estimated ARDL model is robust, exhibiting no indications of heteroscedasticity or serial correlation. Furthermore, the model was found to follow a normal distribution.

Table 9. Post-estimation diagnostic tests

| Tests | Test Statistics | Prob. | Remarks |
|---|---|---|---|
| ARDL Serial Correlation Test | 0.314622 (F - Stat) | 0.7348 | Zero Serial Correlation |
| ARDL Serial Correlation Test | 1.610426 (Obs*R-squared) | 0.4470 | Zero Serial Correlation |
| ARDLHeteroskedasticity Test | 0.917994 (F - Stat) | 0.5812 | Homoscedasticity |
| ARDL Heteroskedasticity Test | 21.71840 (Obs*R-squared) | 0.4768 | Homoscedasticity |
| ARDL Ramsey RESET Test | 0.402228 (t - Stat) | 0.6920 | Misspecification – free model |
| ARDL Ramsey RESET Test | 0.161787 (F - Stat) | 0.6920 | Misspecification – free model |
| Normality test | 2.256824 (Jarque-Bera) | 0.323547 | Normally distributed |

Source: Author's Computation (2023)

## CONCLUSION AND RECOMMENDATION

The study looked at how Nigeria's economic growth was impacted by agricultural financing. There was only one break date according to preliminary results from the Bai-Perron test for multiple breaks. The study provides compelling evidence that Nigerias economic growth is significantly impacted by agricultural financing. Specifically, ARDL model results showed that short- and long-term economic growth was positively and significantly impacted by increased commercial credit to the agricultural sector. This result highlights how important commercial bank credit is to the agricultural sector's ability to boost the economy. Therefore, in order to increase agricultural output and economic growth in Nigeria, the study emphasizes the necessity of improving agricultural financing. Based on the study's findings, the following recommendatios were put forth: In order for agricultural investment to thrive and produce economic benefits in Nigeria, the government should review the credit policy for the agricultural sector and encourage lending to it. However, the government should be cautious about rising interest rates because persistent hikes could have a negative impact on the sector and impede growth in the face of structural imbalances. Additionally, in order to boost economic growth and productivity, the Nigerian government must guarantee that farmers and processors have access to and are subsidized for inputs. Lastly, the government should address structural

imbalances, and policy-related issues should be carefully planned and carried out to avoid economic shocks.

**Conflict of Interest**

Authors have declared that there is no conflict of interest.

**Ethics Statement**

No ethical approval is required for this study as it involved the analysis of publicly available historical data.

**REFERENCES**

Abu S, Okeme PU., 2019. Agricultural financing and economic development in Nigeria: An ARDL approach on agricultural credit guarantee scheme fund (ACGSF) roles. Journal of Leadership, Accounting Development and Investigation Research, 3(1): 110-119.

Ademola AE., 2019. Impact of agricultural financing on Nigeria economy. Asian Journal of Agricultural Extension, Economics and Sociology, 31(2): 1-13. Doi: 10.9734/ajaees/2019/v31i230130

Adesanya TA, Ajala OA., 2019. Agricultural credit and economic growth in Nigeria. Humanities, Management, Arts, Education & the Social Sciences Journal, 7(1): 11-20. Doi: 10.22624/AIMS/HUMANITIES/V7N1P2

Adeshina KF, Tomiwa OY, Eniola OM., 2020. agricultural financing and economic performance in Nigeria. Asian Journal of Agricultural Extension, Economics and Sociology, 38(7): 61-74. DOI: 10.9734/ajaees/2020/v38i730376

Afolabi M, Ikpefan OA, Osuma GO, Evbuomwan G., 2021. Impact of agricultural credit on economic growth in Nigeria. Transactions on Business and Economics, 18: 511-523. DOI: 10.37394/23207.2021.18.52.

Ali A, Khokhar B, Sulehri FA., 2023. Financial dimensions of inflationarypressure in developing countries: An in-depth analysis of policymix. Journal of Asian Development Studies, 12(3): 1313-1327. Doi: https://doi.org/10.62345/

Angaha JS, Atong TA., 2020. Agricultural financing and economic growth in Nigeria: A threshold autoregressive (TAR) analyses. Social ScienceJournal, 7: 36-45.

Anwana EO, Affia SE., 2018. Economic growth and development in Nigeria: Which institutions infrastructure matter. Journal of Business and Economic Policy, 5(1): 65-75.

Awad IM, Karaki MSA., 2019. The impact of bank lending on Palestine economic growth: an econometric analysis of time series data. Financial Innovation, 5(14): 1-21. https://doi.org/10.1186/s40854-019-0130-85:14

Ayeomoni O, Aladejana SA,, 2016. Agricultural credit and economic growth nexus. Evidence from Nigeria, International Journal of Academic Research in Accounting, Finance and Management Sciences, 6(2): 146-158. Doi: 10.6007/IJARAFMS/v6-i2/2099

Ayunku PE, Etale M., 2015. Effect of agriculture spending on economic growth in Nigeria: Empirical Evidence. Research Journal of Finance and Accounting, 6(2): 138-143.

Bibow J., 2020. The General theory as 'depression economics'? Financial instability and crises in Keynes's monetary thought. Levy Economics Institute, Working Papers Series, Working Paper, 974. DOI: 10.2139/ssrn.3706312

CBN Statistical Bulletin, 2017. 2017 Statistical bulletin_real sector_final. Retrieved from statistics.cbn.gov.ng/cbn-onlinestats.

Ewubare DB, Eyitope JA., 2015. The Effects of public expenditure on agricultural production output in Nigeria. Journal of Research in Humanities and Social Science, 3(11): 7-23.

Faggian A, Modrego F, McCann P., 2019. Human capital and regional development. Handbook of regional growth and development theories. Edward Elgar Publishing. 22 Pp. https://doi.org/10.4337/9781788970020.00015.

Fintan P, Lema A., 2018. The dynamic synergies between agricultural financing and economic growth of Tanzania. African Journal of Economic Review, 4(2): 46-60. D**oi**: https://doi.org/10.61538/ajer.v6i2.395

Gollin D, Parente S, Rogerson R., 2002. The role of agriculture in development. The American Economic Review, 92(2): 160-164. Doi: http://dx.doi.org/10.1257/000282802320189177

Gukat BT, Ogboru I., 2017. An empirical analysis of government expenditure and economic growth in Nigeria. Journal of Economics and Development Studies, 5(4): 122-134. Doi: 10.15640/jeds.v5n2a11

Hartarska V, Nadolnyak D, Shen X., 2015. Agricultural credit and economic growth in rural areas. Agricultural Finance Review, 75(3): 302-312. Doi: 10.1108/AFR-04-2015-0018.

Ifarajimi GD, Ola KO., 2017. Government expenditure and economic growth in Nigeria: An analysis with dynamic ordinary least squares. International Journal of Academic Research in Business and Social Sciences, 7(5): 8–26. Doi: 10.6007/IJARBSS/v7-i5/2869

Ihugba OA, Chinedu N, Njoku AC., 2013. An assessment of Nigeria expenditure on the agricultural sector: Its relationship with agricultural output (1980 - 2011). Journal of Economics and International Finance, 5(5): 177-186. Doi: 10.5897/JEIF2012.0471

Jimmy VG, Guluwa, SE., 2021. Government expenditure on the agricultural sector and economic growth in Nigeria. International Journal of Management Studies, Business & Entrepreneurship Research, 6(2): 47- 73.

Kareem RO, Lateef O, Isiaka MA, Raheem K, Avovome HY., 2021. Impact of health and agriculture financing on economic growth in Nigeria. Nile Journal of Business and Economics, 18: 37-58. Doi: 10.20321/nilejbe.v7i18.04

Mbelu ON, Ifionu EP., 2022. Agricultural financing and economic growth in Nigeria. African Journal of Accounting and Financial Research 5(3): 30-48. Doi: 10.52589/AJAFR-VV0CKXM8.

Muhammad AA, Egwaikhide CI, Alexander AA., 2020. Analysis of the impact of government agricultural expenditure on agricultural production output in Nigeria: Evidence from Ardl Model 1981 – 2018. InternationalJournal of All Research Writings, 3(5): 74-83.

National Bureau of Statistics, Nigeria (NBS), 2015. Overview of Agricultural Sector. Quarterly economic berif report. Available at https://www.nigerianstat.gov.ng/

Njidda AM., 2020. The impact of government agricultural expenditure on economic growth in Nigeria. A Published Project Submitted to the Department of Economics, Baze University, Abuja, Nigeria in Partial Fulfillment of the Requirements for the Award of Bachelor of Science Degree (B.Sc.) in Economics.

Nwadioha, N.A., Igoni, S. (2021). Impact of agricultural credits on the Nigerian economic growth. Journal of Research in Business and Management, 9(7): 31-39.

Obansa SAJ, Maduekwe IM., 2013. Agriculture financing and economic growth in Nigeria. European Scientific Journal, 9(1): 168-204.

Oguwuike WT., 2018. Effect of agricultural output on economic growth in Nigeria (1981- 2016). International Journal of Advanced Studies in Ecology, Development and Sustainability, 5(1): 39-53.

Ojekunle A., 2020. Despite ₦592.9 Billion Budget on Agriculture in the last Five Years – There's less to Show for it. Dataphyte. At https://www.dataphyte.com/latest-reports/agriculture/despite-₦592-9-billion-budget-on-agriculture-in-the-last-five-years-theres-less-to-show-for-it/

Oji-Okoro I., 2011. Analysis of the contribution of agricultural sector on the Nigerian Economic Development. World Review of Business Research, 1(1): 191 – 200.

Okunlola FA, Osuma GO, Omankhanlen EA., 2019. Agricultural finance and economic growth: Evidence from Nigeria. Verslas: Teorija Ir Praktika / Business: Theoryand Practice, 20: 467–475. Doi: https://doi.org/10.3846/btp.2019.43

Olawumi OR, Adesanmi OO., 2018. Public expenditure on agriculture and output growth in Nigeria. International Journal of Arts and Commerce, 7(4): 60-78.

Osabuohien E, Obiekwe E, Urhie, E, Osabohien, R., 2018. The inflation rate, exchange rate volatility and exchange rate pass-through nexus: The Nigerian Experience. Journal of Applied Economic Sciences, 2(56): 574-585.

Pesaran MH, Shin Y, Smith RJ., 2001. Bound testing approaches to the analysis of level relationship. Journal of Applied Econometrics, 16: 289-326. Doi: http://dx.doi.org/10.1002/jae.616

Roufagalas J, Orlov AG., 2020. Endogenous growth, human capital and the dynamic costs of recessions. Journal of Economic Studies, 47(2): 264-285.DOI: 10.1108/JES-05-2018-0176.

Sen K., 2015. Why should I care about economic growth? United Nations University World Institute for Development Economics Research (UNU-WIDER) Available at https://www.wider.unu.edu/publication/why-should-i-care-about-economic-growth

Todaro MP, Smith SC., 2011. Economic development. 11th Edition. New York: Pearson Publishers.

Uwakaeme OS., 2015. Economic growth in Nigeria: An empirical investigation of determinants and causal relationship (1980–2012), American Journal of Economics, 5(1): 9-20. Doi: 10.5923/j.economics.20150501.02

World Bank Group, 2018. Agriculture Finance and Agriculture Insurance. www.worldbank.org