



Research Article

Agribusiness Finance and Agricultural Productive Growth in Nigeria

SukaLenu Charles Adamgbo* 

Department of Finance, Faculty of Administration and Management, Rivers State University, Port Harcourt, Nigeria

Abstract

This study examines Agric-business finance and agricultural productivity in Nigeria. The period of this study spanned between 1990 to 2023. Utilizing the time series data obtained from the CBN statistical bulletin, Agric-business finance was measured by loans to the agriculture sector, loans for cash crop production, food production and loan for fishery as independent variables while agriculture contribution to GDP as explained variable. The data set obtained was estimated within the regression framework using the Autoregression Distributive Lag (ARDL). Findings revealed that both short and long run relationship exist between the regressant; agricultural productivity and the regressors (agricultural credits or loans). The study confirmed cyclical adjustment or delayed effect on agriculture productivity resulting from the gestation in agric investments. The lagged structure reveals that agric-credit impacts are not immediate but over lap in multiple years. Among all, cash crop production was found to exert much positive impact on agricultural productivity in current periods and beyond due to its potential export value. This revelation reinforces the view that credit targeted agriculture especially for food production contributes more. The study recommends among others; consistent and well-monitored credit disbursement strategies, sustained policy especially in food production and fishery to stimulate short term output and long-term sector development, long term capital with grace periods to account for the gestation period associated with agricultural investments. The need for policy maker to synchronize the planting and harvesting cycles in their credit formulation as this will help cushion the cyclical adjustment or delay effect in agricultural production etc.

Keywords

Agricbusiness Finance, Agricproductivity, Agriccredits, Agricgdp, Targeted Credit, Agric Investments

1. Introduction

Agriculture is tied to other sector and it is capable to generate broad base-growth necessary for development [1]. The outcry and yearning for economic diversification for a resilience and sustainable economy is no longer news to reduce the vulnerability to oil price fluctuations [2]. Before oil exploration in Nigeria agriculture was the main source of foreign earnings and contribute significantly to the economic growth and development. No doubt, the volatile nature of oil price has

grievous consequences in the Nigeria's economy. Away from the dwelling revenue, foreign exchange earnings and the overall economic stability, over reliance on oil have cause more harm than good since the shift from agriculture in the early 60s. Before the advent of oil in the early 1960, agriculture contributed up to 95% of food consumption in the country, 57% to GDP and 64% exports [3]. Still within the period, in job creation, agriculture accounted for 50% - 90% employment

*Correspondence: SukaLenu Charles Adamgbo (adamgbo.suka@ust.edu.ng)

Received: 4 April 2026; Accepted: 20 April 2026; Published: 27 July 2026



Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

(CBN 2024) today the case is different.

Be it as it may, Agriculture consistently contributes significant and substantial portion averaging 24% to the country's GDP and is still accommodating over 30% workforce providing source of livelihoods to greater segment of the population especially in the rural areas. These to a greater extent highlights the sector's importance in reducing poverty, provision of employment opportunities and the vital role that shapes the overall economic progress of the country [4]. Based on abundant land and water resources endowment in Nigeria, the agricultural sector has high potential for growth and increase productivity for the sustenance of economic growth and food security. It is also correct to say that most of the resources endowed with in the country are still untapped suggesting that a deliberate action programs can still reposition our economy through credits channeled to productive agriculture. The present of low farming system resulting to low productivity can be address. It is disheartened to note that basic agricultural products for example; garri, rice, onions, tomatoes, yam, to mention but a few produced locally is now expensive like imported goods that is characterized with exchanges.

It is very true that this high cost is as a result of non-availability or shortage in supply relative to the current population growth. Before now it was cheap, available and affordable even when the demand for foreign commodities was higher. Today locally produced food stuff especially the staple foods are literally expensive than the foreign items. It is on record that the government in order to address the issues of food security, sustainable economy growth, economic diversification among others policy actions and programs have been cultivated to stimulate agricultural sector productivity in the country. [19]

1.1. Background to the Study

Contrary to government objectives available statistic on sectoral contribution to the GDP indicates that agricultural contribution to the nation's GDP had continue to show declining / downward trend in recent past [5]. It is worthy of note that in the 60s agriculture contributed up to 58% or more to the Nigeria's GDP. Today the reverse is the case, before 1990 it was 32.3%, thereafter it has fluctuated around 26%. Most recently between 2019 to 2021 26.09%, 2022 23.69%, 2023 22.92%, 2024 24.64% and ins the 1st quarter of 2025 22.72% (World Bank). On the other side of the coin, government budgetary allocation to the agricultural sector rose between 2023 to 2025 indicating 228.4 billion, 362.94 billion, and 826.5 billion respectively. In the same direction credit to agriculture, small enterprises percentage of domestic credit to the private sector increased from 3.26% to 3.36% (Nigeria Bureau of Statistics). From the world bank view point, the financial system in most developing countries are ill prepared to finance the shift to sustainable agriculture and agri-food industries adding that financial institutions (FIs) and institutional investors have traditionally been providing very limited resources

to the agricultural sector, evidence in the disproportionate agricultural share of GDP [6].

In Africa in which Nigeria stand tall, Agriculture does not benefit from substantial financial support. The share of public spending devoted to the sector in majority of countries is still low, far from the Maputo Commitments setting the share at 10% of total public spending [7]. Despite its assets and potential in terms of arable land, rainfall and a hydrographic network favourable for agricultural production, Nigeria is still facing agriculture production issue, hence the need to access the extend of the influence of agribusiness support. Capital productivity measures the ratio between output and the quantity of capital used to produced = (productivity = output/quantity + capital). Capital productivity is a partial measure of productivity reflecting the joint influence of a wide variety of elements [8].

This study analyses agriculture credits and its impact on productivity. Findings of this study will enable us appraise credit policy actions and programs aim at increasing financing of the agricultural sector in Nigeria and its resultant impact on the sector productivity. Our research outcomes will enable us ascertain improved financing measures to the sector-giving the present credit windows or programs. In less than a decade, staple foods prices has tripled, poverty level heightened, food insecurity, hunger and starvation is the order of the day, population keep growing geometrically without a correspondence increase in food production. The question now is will increase credit to the agricultural sector guaranteed food security?

Are the present credit programs adequate? or Sustainable to boost agriculture productivity? Does the sector desire more attention in terms of financing support? These are some petinent questions that findings of this study want to address.

However, analysis of the impact of agricultural credit on productivity revealed that on the average, the effect of agricultural credit on productivity is 92% [9]. On the other hand studies have shown that the impact of agricultural credit on productivity varies or changes along the development path [10]. In Nigeria the research of [21] holds that there exists a significant and positive link between agricultural credits and productivity. Generally, colossal of literatures have concluded that access to credit significantly boosts agricultural productivity in many respect ranging from investing in technology, increase productivity, purchase of farming inputs leading to increased production among other things. [18]

Historically, from the credit market theory of financial intermediation and others, borrowing and lending have been considered essential for economic activity that will spark growth and development of which agricultural activity is key. The World Bank (2008) have asserted that agricultural GDP is around four (4) times more effective in reducing poverty than increase from other sectors.

In the realization of the importance of agricultural activity to growth, the need to sustain its contribution to the Nation's performance and above all, the need to diversification towards sustainable development. There exist a number of agricultural

financing programs to boost agriculture production or productivity in Nigeria. In 1978 the Agricultural credit guarantee scheme fund (ACGSF) was created with the Central Bank of Nigeria (CBN) being the managing agent. This package guarantees up to 75% of agricultural credit with a 40% rebate. The commercial agriculture credit scheme (CACS) with a single digit interest rate was introduced in February 18th, 2009 to promote commercial agricultural enterprises as a subcomponent of the Federal Government, commercial agriculture development programme (ADP) aimed at fast-tracking developing of the agricultural sector by providing credit facilities. The fund for Agricultural Finance in Nigeria (FAFIN), the National Agricultural Development Fund (NADF) these funds offers various financing options to support agricultural value chain through deposit taking institutions, the Nigerian Agricultural credit and Rural Development Bank (NACRDB) is a specialized bank focused on providing credit and financial assistance to the agricultural sector. The Bank of Agriculture (BOA), the Youth Agricultural revolution in Nigeria that offers a maximum of ₦1million from the National Agricultural Development Fund (NADF), the Agricultural credit support scheme (ACSS) and Action Borrowing Programme (ABP) launched by the Central Bank of Nigeria (CBN) in 2015 aimed at linking small holder farmers with large agricultural processors to boost agricultural production and reduced reliance on imports. These programs provide farmers loans in both kind and cash. The CBN do this through the Micro Small and Medium Enterprises Development Fund (MSMEDF). The Nigeria Incentive based Risk-sharing System for Agriculture Lending (NIRSAL) a nonbank financial institution created by the Central Bank of Nigeria to de-risk and catalyse lending to the Nigerian agriculture value chain just to mention but a few. In view of the above therefore, this study task is to analyse the extent to which these credits or financing programs have impacted agricultural productivity in Nigeria in line with National Policies of attaining self-sufficiency in basic food commodities and increasing agriculture productivity, promoting agricultural exports modernization of agricultural product and processing, creating rural employment opportunities as well protecting and improving agricultural land and resources.

1.2. Objective of the Study

This study seeks to explore the effect of the various agriculture financing programs on the agricultural productivity in Nigeria. Has existing action programs and policies aimed at boosting agricultural production yield desired result? Is there any relationship between agricultural financing programs and productivity in Nigeria?

Hypothesis: There is no significant impact of existing agricultural credits programs and agricultural productivity in Nigeria.

2. Literature Review

According to investopia, agricultural credit refers to one of

several credit vehicles used to financing agricultural transactions such as loan; note, bill of exchange or a banker's acceptance. Financing is specially adapted to specific financial needs of farmers. Agricultural credit is commonly referred to as agricultural finance and is an important component of funding that sparks growth especially in countries with arable land because agricultural products can be exported (Federal Farm Credit system USA). The Wikipedia sees agricultural finances as a branch of finance which comprises financial services for agricultural production, processing and marketing leasing (both land and equipment) and crop and livestock insurance.

In the work of [6] confirmed a significant positive link between domestic agricultural capital and agricultural production in Zimbabwe. Agricultural financing and productivity are intrinsically linked. This view suggests that adequate financing is crucial for farmers to invest inputs, technology which should ultimately lead to increased agricultural output and economic growth.

According to the World Bank (www.worldbank.org, 2022) Agriculture finance empowers poor farmers to increase their wealth and facilitates the development of food value chains for feeding a billion people by 2050. Holding that agriculture finance helps clients (farmers) provide market based financial services, and fund long-term and green investments to support sustainable agriculture and agric-food value chains acknowledging that the demand for food will increase by 70% by 2050; at least \$80billion annual investments will be needed to meet this demand (World Bank 2022). According to world bank survey, this expected growth in food demand is orchestrated by climate change, population growth, changes in dietary preference, global pandemic among others which has exacerbated threat to food security and development of the agric-food sector.

Agriculture financing in Nigeria is both private and public sector mix designed to provide credit and support to farmers and agribusinesses through key programmes. The agristudoc.com defines agriculture finance as specialized financial services and products tailored to meet the diverse needs of the agricultural sector which includes providing capital for agriculture production, managing risks associated with farming activities, and supporting rural development, that agric business finance encompasses range of financial instruments designed to address the unique challenges faced by farmers and other stakeholders in the agriculture value chain (agristudoc.com, 2024). The Investopedia, sees agric finance as studying, examining, and analyzing the financial aspects pertaining to farm business, which is the core sector of the country-adding that "credit is not income but it leads to income". LinkedIn maintained and opined that sufficient and timely credit to the farmers is vital and indispensable for the rehabilitation and progress of agriculture productivity. According to [20] farm credit or agriculture credit is the amount of loans or credits obtained from any source for the promotion and development of agriculture.

2.1. Theories

The capital theory in the context of agric finance holds that capital provides a framework for industry and how financial resources are acquired, allocated and managed in the agricultural sector, with the goal of maximizing productivity, profitability and long-term sustainability.

Keynesian Approach or view of Accessible Credit

John Maynard Keynes in his seminar work, 'the General Theory of Employment, Interest and Money, in 1936 laid foundation for Keynesian economics theory. The theory which emerged in response to the inadequacies of classical economists during the great depression concluded and emphasized that aggregate demand is the primary driver of economic activity and employment levels (Keynes, 1936). Applying Keynesian theories and empirical revelations of researchers such as that of [1, 13] who found a significant link between bank lending and agricultural productivity in Nigeria, Keynesian view that increased investment, facilitated by accessible credit can enhance aggregate demand, and consequently, production levels is relevant to this study. In Keynes economic framework, accessible credit plays a crucial role in stimulating economic activity particularly during recession. Keynes believes that fluctuations in aggregate demand, including spending on goods and services, are primary driver of economic output and employment. Adding that when demand is insufficient, as in a recession, Keynes advocates for policies that increase aggregate demand, such as lowering interest rates to encourage borrowing and spending on investment and consumption. Subsequently, Keynesian economics was used to refer to the concept that optional economic performance could be achieved and economic slumps could be prevented or averted by influencing aggregate demand through economic intervention by the government. Again, noting that majority agriculture credit programs or agribusiness finance in Nigeria is more of public sector oriented, the view of Keynesian economics is very relevant in this study.

Neoclassical Approach within the context of agricultural finance is grounded in the foundational economic principles articulated by Alfred Marshall in 1890. In neoclassical economics, agricultural credit is viewed as a tool for enhancing productivity and efficiency in farming, promoting economic growth and supporting the efficient allocation of resources. Neoclassical theory emphasizes the role of the free market and minimal government intervention, suggesting that credit should be provided through market-based mechanisms, like financial institutions, rather than through subsidies or direct government lending programs. According to the neoclassical economics, efficient resources including credit is achieved through competitive markets, implying that credit be provided by financial institutions based on market-determined interest rates and risks assessment. Despite criticism of the neoclassical view on the ground of minimal government intervention, among other neoclassical theory still advocates for the need for some level of government support to ensure equity and

sustainability in agricultural credit markets [9]. The neoclassical economic theory is based on private financing (private sector), the theory argued that private sector financing of the economy are evidence in the activities of three groups of actors in the logic of financing agricultural production including banks, nonbanking institutions, NGOs and association.

The Neoclassical theorists advocated liberalization of the financial system through the construction of a rural financial market that provides sustainable access to financial services by linking agents with financial resources with those in need of them, this view point favours financial deepening or deepening the financial system which is based on lifting the constraints on the system and the disengagement of the state [13, 17] As viewed by the neoclassical economics, disengagement of the state and economic liberalization has prompted development of micro finances via granting of agricultural credits which induced improved agricultural production as well added value chain for [9]. The neoclassical approach is supported by a number of theories including theory of change, risk, Becker's theory, theory of human capital etc. To this extend, neoclassical economics theory is relevant to this investigation within the Nigerian context.

The liberalization approach in agriculture involves reducing government control and intervention in agricultural markets to promote free trade and competition, involving lowering tariffs, removing import quotas, and reducing subsidies to farmers. Proponents of this view argued that liberalization can lead to increase efficiency, lower food prices, and greater access to market for farmers, while critics express concerns about potential negative impacts on domestic producers and food security, the approach is very relevant to this study considering the present hike in food prices. The liberalization approach is part of a broader strategy to diversify the Nigerian economy away from its reliance on crude oil exports, with agriculture seen as "key sector for growth [15]. In essence, the Nigeria liberalization approach to agriculture aim to leverage global trade to stimulate growth, diversification and improved efficiency within the sector, while also acknowledging the need for supportive policies to mitigating potentials risks and challenges among other things.

Boserup's Theory

Easter Boserup a 20th century Danish economist in 1965 in her seminar work titled "The Conditions of Agricultural Growth" holding that an Agrarian economy changes under population pressure contrary to the Malthusian Perspective, which postulates that agricultural capacity limits population growth, according to Boserup, population growth drives agricultural development. She contended that rising population density creates pressure on land resources, which in turn compels society to innovate and intensifies agricultural practices in order to sustain food production. In short, Boserup's theory highlights how population pressure drives agricultural innovation, creating demand and opportunities for agriculture finance including access to credit, investment in technology, infrastructure and the employment of risk management tools.

She added that increased demand for inputs which she referred to as intensification, more inputs such as fertilizer, improved seeds, irrigation systems, investment may raise the need for farmers access to credit to meet up purchase of these inputs, leading to increased demand for agricultural loans, credits and other financial products to combat increased demand. She argued that as farmers becomes more intensive, there's a greater need for investments in technology, infrastructure and better storage and processing facilities. These investments in her ideology can be better financed or funded through various means of government subsidies, private investment, and even international development loans. Boserup concluded that such intensification will automatically lead to shift in labor dynamics creating opportunities for financial institutions to provide loans for labour-related expenses for farmers to invest in labour saving technologies including market development for value chains leading to increased agriculture production, may require a robust market infrastructure and value chains. This she opined could attract investment in marketing, processing, and distribution, as well will further widened or shaping the landscape for agriculture financing as financial institutions may need to support the development of these value chains through loans for storage facilities, transportation, or processing equipment. That as intensification for greater productivity increases, agricultural practices may also be more prone to increase vulnerability of farmers to certain risks creating demand for risk management tools and thus the need for financial institutions to develop and offer products to support farmers adapt to changing conditions contended.

2.2 Empirical

Studies in this subject area have reported divergence views, while some research presented a positive link, others argued contrary, however this investigation draw strength in the recent work of [1, 17], who examined the impact of agricultural credit on productivity. Analyzing the impact of credit, the study which was domesticated in the Democratic Republic of Congo revealed a 92% effect of agric credit in its productivity in the sampled country. This showed that agricultural finance available to farmers improved productivity. This study agrees with the view that access to agricultural credit increases productivity. In their revised work and entitled "Agricultural Credits and Agricultural Productivity: Cross-country Evidence [20], came up with the conclusion that the cross-country evidence holds that agricultural credits have a positive impact on agricultural productivity, arguing that doubling agricultural credit generates around 4-5 percent in agricultural productivity, using two different agricultural production measures of agricultural GDP component and agricultural labour productivity arguing that the nature of the relationship existing between agricultural finance and productivity changes along the development path suggesting that agricultural labour production should be kept down in developing countries, while opting for advanced formal agricultural credit channel that drives

development should replace informal credit channels. The work of [11] holds that external finance improves agriculture productivity. The study suggests that external finance and productivity follow an inverted U-shaped curve, with positive impact on less capitalized farmers with lower debt-to-equity ratios. Their revelations agree with the general assumption that agricultural growth has positive and linear effect with access to credit lead to different strategies in the use of external finance. [22]. The effect of commercial bank's credit on Agricultural Productivity in Nigeria revealed a significant and positive link between Agricultural Credit Guarantee Scheme Fund (ACGSF) and commercial bank credit in Nigeria [22]. This again contended that increased agricultural credits led to increased productivity. The study of [16] outlined the impact of Agricultural credit on production in Ghana. The work revealed that of 33.3% of cocoa farmers who accessed credit, there is still confirmation of significant positive impacts of agricultural credit on yield, gross income, net income while yield gap decreases significantly by 12.2 – 16.7% with access to credit. This therefore suggests that increase credit to the sector will enhance productivity and profitability of cocoa production in the studied country. The investigation of [16] showed that commercial bank credit impact positively and significantly on agriculture output. While [7, 9, 17] identified commercial bank loan as one of the factors influencing agriculture production positively and significantly. In a similar view, [14] research revealed credit share of the private sector and lending rate hold a considerable negative impact on agricultural productivity in both short and long term.

The investigation of [12] between bank credit and agricultural sector performance indicated a positive link alongside the works of [13] and [5] as well as the study of [2] on budgetary allocation on agricultural sector performance who also came up with a positive and significant link. In [17], it was confirmed that agricultural credit contributes to raising the level of agricultural productivity with positive link, [2, 3, 13] who showed two impacts of agricultural credit on productivity as direct and indirect effects, [3] conducted a research on effects of bank financing and public financing on agriculture supply in Nigeria also revealed that credits have a positive effect than public fund whose effect is also positive but insignificant.

Lessons from Literature

Our reviews judging from the concept, Theoretical, and Empirical showed mixed results and thus remain topical and unresolved in the body of literature. This works will add to existing studies regarding the influence of external credit on agricultural productivity in Nigeria drawing references from gross-country studies. As far as food insecurity, poverty, employment among others remain a major issue despite the rich endowed agrarian opportunities yet to be tap in Nigeria, this study contributes to existing literature as a country-specific study. This study highlights the impact of agribusiness finance on specific Sub-Sector of the agricultural sector, loan for crop production, loan for food production and fishery. This will

help us contribute to the hypothesis, agricultural credits and its impact on productivity.

3. Methodology

3.1. Research Design

This study adopts the expo-factor research design within the correlational regression analysis to explore the impact of agribusiness financing and productivity in Nigeria between 1990 to 2023. The work investigation relied on annual time series data obtained from Central Bank of Nigeria (CBN) official gazette, statistical bulletin. The linear regression model is used to examine the association between the dependent and independent variables suitable and allow for predictions and analysis of how changes in the independent variables affect the endogenous variable. This procedure enables us to predict, analyse and identify the most influencing independent variable.

3.2. Specification of the Model

The modeling of this study is built on the Neo-Classical Theory of Investment in agricultural, agricfinance impact on agricultural productivity.

$$\text{RACGDP} = F(\text{LAS}, \text{LCCP}, \text{LFP}, \text{LF}) \quad (1)$$

$$\text{RACGDP} = \beta_0 + \beta_2 \text{CAS}_{it} + \beta_2 \text{LCCP}_{it} + \beta_3 \text{LFP}_{it} + \beta_4 \text{LFI}_{it} + \mu \quad (2)$$

RACGDP = Agricultural GDP

LAS = Total Loans to Agricultural sector

LCCP = Loans granted for cash crop production

LFP = Loans granted for food production

LF = Loans granted for fish production

in view of economic theory β_2 to β_4 coefficients of independent variables are expected to be positive.

Apriori Expectation, + Agribusiness financing

Presentation of results and discussion.

4. Results and Discussion

Below are results output of our analysis presented in tables, followed with explanation or interpretations accordingly descriptive statistics, correlation matrix, unit roots, bond cointegration, ARDL, ARDL (ECR), Post-estimations.

Table 1. Descriptive Analysis.

	RACGDP	LFP	LF	LCCP	LAS
Mean	8.492591	13.95695	10.76845	10.93729	4.674266
Median	8.989174	14.65466	12.14912	11.31261	4.441206
Maximum	10.88319	15.89989	13.73174	13.62940	7.721065
Minimum	4.669365	11.08129	6.059123	7.579117	1.439835
Std. Dev.	1.798354	1.695831	2.534327	1.965410	1.714492
Skewness	-0.637523	-0.542908	-0.413917	-0.114035	-0.021437
Kurtosis	2.324432	1.686837	1.536500	1.441455	2.106240
Jarque-Bera	2.949694	4.113141	4.005116	3.514861	1.134248
Probability	0.228814	0.127892	0.134990	0.172487	0.567154
Sum	288.7481	474.5364	366.1273	371.8677	158.9251
Sum Sq. Dev.	106.7246	94.90276	211.9529	127.4736	97.00289

Author's Computation: Extract from EViews

Table 2. Correlation Matrix.

	RACGDP	LFP	LF	LCCP	LAS
RACGDP	1.000000				

	RACGDP	LFP	LF	LCCP	LAS

LFP	0.907055	1.000000			
	0.0000	-----			
LF	0.914895	0.946153	1.000000		
	0.0000	0.0000	-----		
LCCP	0.922036	0.873315	0.947290	1.000000	
	0.0000	0.0000	0.0000	-----	
LAS	0.962402	0.800453	0.859555	0.917466	1.000000
	0.0000	0.0000	0.0000	0.0000	-----

Author's Computation: Extract from EViews

Table 3. Unit Root Test using Augmented Dickey-Fuller.

Variables	Level	1st Difference	Critical value at 5 %	Conclusion
RACGDP	3.606426**		2.960411	I(0)
LAS	0.698713	6.499393***	2.960411	I(1)
LCCP	0.515052	7.063618***	2.960411	I(1)
LFP	0.793213	8.513427***	2.960411	I(1)
LF	1.437984	5.012673***	2.960411	I(1)

Note that ***, **, * indicates significance at 1%, 5% and 10% respectively

Author's Computation: Extract from EViews

Table 4. Bounds Cointegration Test Results.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.659457	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Author's Computation: Extract from EViews

Table 5. ARDL Model Estimation Results.

Variable	Coefficient	Std. Error	t-statistic	Prob.
RACGDP(-1)	1.068340	0.141818	7.533198	0.0000
RACGDP(-2)	-0.295454	0.204819	-1.442511	0.1673
RACGDP(-3)	-0.436364	0.224123	-1.946983	0.0683
RACGDP(-4)	0.525069	0.142519	3.684194	0.0018
LFP	0.175435	0.077233	2.271515	0.0364
LFP(-1)	-0.297218	0.087033	-3.415022	0.0033
LFP(-2)	0.128222	0.065647	1.953199	0.0675
LF	0.050567	0.035093	1.440939	0.1678
LF(-1)	0.045444	0.032663	1.391294	0.1821
LF(-2)	-0.142882	0.031725	-4.503812	0.0003
LCCP	0.049354	0.031733	1.555284	0.1383
LCCP(-1)	0.073186	0.042947	1.704100	0.1066
C	0.471133	0.451380	1.043762	0.3112
R-squared	0.997809	Mean dependent var		8.945365
Adjusted R-squared	0.996262	S.D. dependent var		1.362328
S.E. of regression	0.083286	Akaike info criterion		-1.834380
Sum squared resid	0.117923	Schwarz criterion		-1.227194
Log likelihood	40.51570	Hannan-Quinn criter.		-1.640136
F-statistic	645.1776	Durbin-Watson stat		1.958516
Prob(F-statistic)	0.000000			

Author's Computation: Extract from EViews

Table 6. ARDL Error Correction Regression.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RACGDP(-1))	0.206749	0.108100	1.912561	0.0728
D(RACGDP(-2))	-0.088705	0.106152	-0.835637	0.4150
D(RACGDP(-3))	-0.525069	0.124258	-4.225623	0.0006
D(LFP)	0.175435	0.055668	3.151423	0.0058
D(LFP(-1))	-0.128222	0.049576	-2.586378	0.0192
D(LF)	0.050567	0.025870	1.954659	0.0673
D(LF(-1))	0.142882	0.024206	5.902799	0.0000
D(LCCP)	0.049354	0.025780	1.914388	0.0726
CointEq(-1)*	-0.138409	0.021581	-6.413419	0.0000
R-squared	0.832985	Mean dependent var		0.173171
Adjusted R-squared	0.769360	S.D. dependent var		0.156035
S.E. of regression	0.074936	Akaike info criterion		-2.101047

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Sum squared resid	0.117923	Schwarz criterion		-1.680687
Log likelihood	40.51570	Hannan-Quinn criter.		-1.966570
Durbin-Watson stat	1.958516			

Author's Computation: Extract from EViews

Table 7. Post Estimation Test Results.

Test Type	Test Stat.	Prob
Normality Test	Jarque-Bera Stat. (0.760777)	0.683596
Breusch-Godfrey Serial Correlation LM Test:	Prob. Chi-Square Stat (0.0740)	0.2393
Heteroskedasticity Test: Breusch-Pagan-Godfrey	Prob. Chi-Square(0.8455)	0.9204
Ramsey RESET Test	F-Stat (0.022325)	0.8831
Heteroskedasticity Test: ARCH	Prob. Chi-Square(0.8937)	0.8983

Author's Computation: Extract from EViews

From the descriptive statistics estimation, the results revealed distinct patterns in the variables behavior; with Agricultural Sector Contribution to GDP (RAGDP) and Loan for Fish Production (LFP) showing relative stability as loan for Fish Production exhibiting higher volatility. The left skewed distributions suggest that negative deviations are more common, which may have implications for risk assessment and policy formulation. Agribusiness finance is prone to financial risk of cash-flow disruptions because the sector is highly capital-intensive and is subject to unpredictable environmental factors such as production uncertainty like drought, flood, pest, and disease which is capable to cripple production causing financial loss etc. or external market uncertainties posing potential threats to long-term stability and solvency. These revelations set the stage for further econometric modelling.

The systematic correlation analysis conducted to examine the strength and direction of association among the studied variables, using the Pearson's correlation coefficient (r) considered appropriate for measuring the degree of association as shown in the correlation matrix. The correlation coefficient of 0.962 between agriculture GDP and total Loans to the Agricultural Sector (LAS) has the strongest matrix. This suggests that increase lending to the sector is closely associated with higher agricultural output and its contribution to GDP. This finding supports the hypothesis that access to agrifinance significantly boosts sector performance. The correlation between Loans for Cash Crop Production (LCCP) is 0.922 also presents strong positive and statistically significant link. This suggests that financing for cash crop (cocoa, cotton) has robust association with agriculture GDP, possibly due to their export potential and high value. Loans for Fishery (LF) and

Food Production (FP) also correlates strongly with RAGDP at 0.907 respectively, reinforcing the importance of the agricultural subsector-specific lending in stimulating agricultural growth. Amongst the agricbusiness finance or credit variables, there exist a very strong correlations; LF, and LCCP (0.947) and LFP and LF (0.946) indicating that these loans may have been disbursed simultaneously or perhaps influenced by similar policy or funding mechanism. The unit root test indicates that only RAGDP was stationary at level at 5% level of significance while the credit variables were found stationary at first difference at one percent level. This finding therefore necessitates the use of an ARDL framework to model potential cointegration relationships.

From the bonds cointegration estimation, we confirmed a long-run cointegration relationships among the regressants (RAGDP) and the regressors; (LFP, LF, LCCP, LAS). This finding again paved the way for the estimation of a long-run ARDL model and the corresponding error correction model (ECM) to explore the short-run dynamics as well speed of adjustment. The result showed or confirmed that the variables move together overtime and that agricbusiness finance or credit indicators have a stable long-term influence on agriculture GDP.

Results of the ARDL model for both long and short run relationship demonstrates a very strong explanatory power of 0.9978 and an adjusted R-squared of 0.9963, indicating that over 99% of the variation in RAGDP is explained by the model. The F-statistic (645.18) confirmed the model robustness, the low standard error of regression (0.083) and DW value of (1.9585) suggests a minimal autocorrelation. The

results as indicated by the coefficients of the lagged dependent variable (RAGDP (1-) to RAGDPC (-4) reflects complex short-term dynamics in AGDP. Notably RAGDP (-1) is positive and significant (1.068) implying strong persistence in agriculture output. The negative signs in RAGDP (-2) and RAGDP (-3), followed by a positive RAGDP (+4), indicates possibly cyclical adjustments or delayed effects. The LFP having a positive and statistical coefficient (0.175, $P=0.036$), showed that an increase in food production positively affects AGDP. The negativity of LFP (-1), (-0.297, $P=0.003$) suggests delayed adjustment or overextension effect from previous years loans. LFP (-2) showing a strong negative and significant effect (-0.143) $P=0.0003$, possibly indicates misallocation, underperformance, or inefficiency in fishery loan utilization. LCCP and LCC P(-1) both shows positive coefficients (0.049 and 0.073) respectively, reinforcing the view that credit targeted at cash crop production contributes positively to RAGDP in both the current and subsequent periods. These findings underscored the importance of targeted agricultural credit, especially for food production, in driving short-term agricultural GDP growth. The lag structure further reveals that credit impacts are not immediate and may evolve over multiple years, thus highlighting the need for consistent and well-monitored credit disbursement strategies.

The ARDL error correction regression in the table above reinforces evidence of a long-run cointegration relationship between agric GDP and credit to agriculture, with meaningful short-run effects from sectoral loans. These findings underscored the importance of targeted, well-timed, and sustained policies especially in food production and fishery to stimulate both short-term output and long-term sector development. The results from the post-estimation diagnostic tests validates the adequacy of the Auto Regressive Distributive Lag (ARDL) model.

5. Conclusion

Findings in this work are mix, they are consistent with, and in some cases contrast with, previous empirical studies on agricultural finance, productivity, and macroeconomic influences in Nigeria and beyond. It is confirmed that credit for food production (LFP) significantly and positively influence agricultural output. The outcomes on fishery loans were mixed, while some were consistent, strong and positive effects, the current period LF and its second Lag were less consistent, reflecting delay attributable to the gestation nature of agricultural investments.

On the Cash Crop Production (LCCP) though the coefficients were positive but non-significant implying weaker or delay impacts, The significant lagged values for LFP and LF in the model underline the importance of considering time lagged effects of credit output spending and finance policies yielding delay but effective results in agric productivity and growth.

This study maintained that agric business finance significantly influence agriculture productivity particularly in food and fishery production. However, it varies with time lags. The study stressed the need for targeted, well-timed, and sector specific credit policies aim at improving agricultural output and sustenance of economic growth and development in the Nigerian agricultural sector.

6. Recommendations

- 1) Government should strengthen targeted financing for food production, commercial and development banks as well as specialized institutions should prioritize credit extension to food production subsector while at the same time interest rates and repayment terms be flexible and affordable to encourage small farmers.
- 2) long time capital or credit with grace periods should be provided for crop production as to support and cushion the effect long gestation periods among others.
- 3) Policy makers should incorporate synchronization of loan calendars with planting and harvesting cycles in their credit policy framework.
- 4) The need for policy makers and credit providers should implore data analytics and sectoral credit scoring to determine credit worthiness to optimize credit allocation.
- 5) Urgent call on the policy maker to be committed to long-term implementation of agricultural finance strategies and avoid frequent policy reversals or summersault of food security programs of government at all level is to be achieved.

Conflicts of Interest

The author declare no conflict of interest.

References

- [1] Abu, N. I. (2024). The effects of commercial Banks Lending on Agricultural Productivity in Nigeria, *African Banking and Finance Review Journal*, 8(8), ABFRJ, 47-56.
- [2] Adofu, I., (2012). The effect of government budgetary allocation to agricultural output in Nigeria. <https://www.skyjournals.org>
- [3] Ajayo, I. E.. (2025d). Impact of commercial credit on Agriculture growth in Nigeria, *EKSU Journal of Management Research, (EJMR)* 4(1), www.researchgate.net
- [4] Alston, J. M, &Pardey, P. G. (2014). Agricultural research knowledge and policy international *Journal of Agricultural sustainability*, 2(1), 12-23.
- [5] Ammani, A., (2012). An investigation in to the relationship between agricultural production and formal credit supply in Nigeria. <https://doi.org/10.5923/j.ijaf.20120201.08>

- [6] Boansi, D, Gyasi, M., Nuamah, S., Kwame, E., Ankkuyi, F., Frimpong, R., Gbafah, A., &Gyan C (2024). Impact of agriculture credit on productivity, cost and returns from cocoa production in Ghana, *Cogent Economics & Finance*, 12(1) www.tandfonline.com
- [7] Igwe-Ekwunife, Ebube, A., Jane, O (2022). Impact of government expenditure on agricultural output in Nigeria. <https://doi.org/10.47772/ijriss.2022.61337>
- [8] Kamenya, M. A, Hendriks, S. L, Ganidzanwa, C, Ulimwengu, J, &Odjo, S (2022). Public agriculture investment and food security in ECOWAS. <https://doi.org/10.1016/j.foodpol.2022.102349>
- [9] Kareem, R., Bakare, H., Raheem, K., Ologunla, B., Alawode, O., Ademoyewa, G, &Bakare, H, R. (2013). Analysis of factors influencing agricultural output in Nigeria: Macro-Economics perspectives <https://web.archive.org>
- [10] Kennedy, N. I, Simeon, U. N, Ifeoma, M, &Ukwueze, E (2023). The macroeconomic effect of access to credit and population growth on the Nigerian agricultural productivity: An empirical study of 2000 to 2021, *African Journal of Economics and Sustainable Development* (AJESD), 6(3).
- [11] Khafagy, A., &Vigani, M (2020). External Finance and Agricultural productivity growth - agribusiness, 39(2), 448-472.
- [12] Nwokoro, A. N., (2017). An analysis of banks' credit and agricultural output in Nigeria" 1980 – 2014, <https://seahipaj.org/journals-ci/mar-2017/UIFERHULL/IJIFER-m-5-2017.pdf>
- [13] Obilor, S. I. (2013). The impact of commercial bank credits to agriculture on agricultural development in Nigeria; An econometric analysis, [https://ww.ijbhtnet.co/journals.3\(1\)](https://ww.ijbhtnet.co/journals.3(1))
- [14] Ogbeide, E &Aliu, T (2022). Empirical Investigation on domestic credit to private sector and rural development in Nigeria. <https://doi.org/10.47672/jide.1150>
- [15] Ojo, A., Mustapha, R., &Ismalia, A., (2022). Impact of financial sector development on agricultural productivity in Nigeria, *Lapai Journal of Economics*, 6(1), 12-23.
- [16] Oko, O. P. (2024). The impact of commercial bank credits on agricultural sector in Nigeria (1999-2022). *African Banking and Finance Review Journal*, 13(3), 98-110.
- [17] Ologbenla, P (2023). Public Expenditure and Performance of the Agriculture sector of the Nigerian economy, international of multi-disciplinary research and analysis, 6(10), <https://ijimra.inv611029.php>
- [18] Omodero, C, &Ogbonnaya, A. (2018). Role of agriculture in reducing consumption expenditure in Nigeria. <https://doi.org/10.5539/jms.v8np130>
- [19] Osinubi, T &Apanisile, O. T (2021). Effect of agricultural investment on food security in Sub Saharan African what role does institution play? *International Journal of food and Agricultural Economics* 9(2). 125-141.
- [20] Seven, U, and Tumen, S., (2025). Agricultural credits and Agricultural productivity. Cross-country evidence, IZA Disasson paper No. 12420, papers.ssrn.com/so
- [21] Thirtle, C, Lin Lin, Piesse, J. (2003). The impact of Research-led Agricultural Productivity Growth on Poverty Reduction in Africa, *Asia and Latin America, World Development* 31(12), <https://doi.org/10.1016/j.world.dev.2003.07.001>
- [22] Udoka, C., Mobit, D & Stephen, B., (2016). The effect of commercial Banks' Credit on Agricultural production in Nigeria, *Journal of Finance and Accounting*, 4(1) 1-10.