Lapai Journal of Economics; Volume 7, No.2; 2023
Print ISSN: 2659-028X
Online ISSN: 2659-0271
DOI: https://dx.doi.org/10.4314/lje.v7i2.10
Published by Department of Economics, IBB University Lapai, Niger State, Nigeria

The Role of Bank of Agriculture in Fostering Agricultural Development in Nigeria

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Abstract

This research work examines the role Bank of Agriculture Limited plays in fostering agricultural development in Nigeria. Primary data was obtained by distributing 120 questionnaires to farmers who benefitted from the Bank's credit facility, linear regression analysis was employed and the result reveals that credit advance contributes 24.13% in increasing farmers' output which translates to agricultural development. It was therefore recommended that the government should firstly invest in the agricultural sector by making provisional allocations in the annual budget for the Bank; secondly, the Bank should streamline the loan application, processing and approval procedure to ease access to credit; thirdly, enact policy that will mandate civil servants to have personal account with the Bank to help raise the liquidity position of the Bank; and lastly, direct the Central Bank to issue all financial transaction licenses to the Bank including such that would enable the Bank deal in foreign exchange transactions.

Keywords: Bank of Agriculture, Access to Credit, Famers, Output,

JEL Classification: O13

1. Introduction

In Nigeria, agriculture holds a crucial position in the economy, playing a significant role in economic development by employing a substantial portion of the labor force and contributing 40 to 60 percent of the nation's total income (Aigbokhan, 2001). The sector fulfills four pivotal roles in shaping the country's economic development, encompassing the supply of food for domestic consumption and industrial inputs, facilitating industrial labor engagement, boosting the supply of domestic savings, and earning foreign exchange (Central Bank of Nigeria, 2010).. Despite its pivotal roles, the agricultural sector faces various challenges, including inadequate funding, insufficient supply and

utilization of modern farm implements, unfavorable macroeconomic policies, land acquisition constraints, poor post-harvest storage, disease and pest infestation, and low income earnings (Anyanwu et al., 2017).

In the economic history of Nigeria, the agricultural revolution has been recognized as a fundamental prerequisite for achieving economic growth, especially in developing nations (Eicher and Witt, 1964). Lawal (1997) highlighted that agriculture contributed up to over 60% of the total GDP in the 1960s, produced 70% of Nigeria's export and 95% of its food needs but gradually declined in the 1970s. This decline persisted in 1980's which was largely attributed to the oil boom experienced in the 1980s and neglect of the sector by the Federal Government thereby shifting its attention and reliance to the development of the oil sector (Ogen, 2007). Nigeria possesses vast fertile farmland and abundant natural resources, yet the country experiences a shortage of food supply due to the waning attention given to the agricultural sector, particularly in terms of funding for farmers. Before the discovery of crude oil, agriculture was the lead foreign exchange earner and the primary source of employment. Although Afolabi, et al (2022) states that in recent times, governments have heightened efforts to transform agriculture from a subsistence level to a market-oriented production system by introducing initiatives, such as the ban on the importation of agricultural products, provide grants and technology support, loans with low interest rates to farmers, as well as funding from foreign agencies, like World Bank to encourage the production and consumption of locally produced goods.

The establishment of the Bank of Agriculture Limited (BOA), formerly known as the Nigerian Agricultural and Co-operatives Bank, with a mandate to meet the credit needs of farmers and enhance agricultural production, is a step toward resolving challenges faced by farmers, particularly in accessing credit. Providing credit to the agricultural sector is considered a strategy for reduce poverty, increase productivity, generate revenue, create employment opportunities and contribute to the overall economic growth and development (Orji, 2017). Mahmud (2010) submitted that access to financial services which includes credit is crucial for improving productivity in the agricultural sector. Farmers benefit from financial services by investing in land improvement and adopting new agricultural technologies, ultimately increasing their efficiency and income. While microcredit stands to benefit individuals that lack collateral, steady employment, or a verifiable credit history, it addresses the need of low-income families that have limited access to formal financial services.

The primary aim of this study is to investigate the role of the Bank of Agriculture in fostering agricultural development in Nigeria. The study aims to assess the extent to which the Bank of Agriculture has improved the livelihoods of farmers and uncover the

challenges faced by financial institutions in delivering their services. Additional specific objectives include: to determine the impact of BOA's credit advance to farmer's productivity, and to also identify other determinants that influence farmers productivity.

2. Literature Review

Theoretically, this study adopts the financial intermediation theory, attributed to Goldsmith (1969), McKinnon (1973), and Shaw (1973). These scholars postulate that financial markets play a pivotal role in economic development, with variations in the quantity and quality of financial services provided by institutions impacting economic growth across countries. This perspective contrasts with Robinson (1952), who contends that economic growth passively responds to other factors, while domestic industrialization growth drives financial markets growth. Goldsmith (1969) argues for a positive correlation between financial development and real per capita Gross National Product (GNP), fostering efficient capital stock utilization. Shaw (1973) proposes the debt intermediation hypothesis, suggesting that financial intermediation occurs between savings and investment due to financial liberalization, motivating people to save and invest, and consequently enhancing credit supply and investment efficiency. Schumpeter (1949) highlights the role of financial institutions as intermediaries between innovators and capital owners, providing loans to implement new ideas and drive economic growth.

Empirically, financial institutions play a crucial role in agricultural growth, as evident in studies such as Rabbany et al. (2022), which analyzes the effects of credit constraints on Boro rice growers in Bangladesh. Results show that credit-constrained rice growers are less technically efficient than non-constrained counterparts, emphasizing the positive impact of credit size on efficiency. Similarly, Hon and Ninh (2020) examine credit rationing's impact on capital allocation to inputs used by rice farmers in Vietnam, revealing that decreased credit rationing increases capital allocated to inputs like fertilizer and hired labor. Rahman (2020) explores the influence of agricultural credit on rice production in Bangladesh, demonstrating a direct relationship between credit and rice output, recommending collaborative efforts to extend agricultural credits. Rizwan et al. (2019) assess the effects of agricultural credit on rice output in Pakistan, indicating a considerable proportion of farmers acquiring credit from informal sources. The study emphasizes the importance of addressing socio-economic and environmental factors in promoting sustainable development within the agricultural sector. Ruwaichi and Werema (2018) analyze financial institutions' policies in agricultural financing in Tanzania, asserting their positive contribution to agricultural sector growth. In Bangladesh, Sandip, Kumar and Malika (2015) explore the role of banking sector in inclusive growth through inclusive finance in Bangladesh and discovered a strong

correlation existed between funding agricultural output and financial institutions, suggesting simplified credit procedures for increased financial inclusion. Madafu (2015) explores smallholder farmers' exposure to bank credit in Tanzania and found that the value of the assets invested in farming and education were the important factors that influence smallholder farmers' accessibility to bank loans. He emphasized the need for new banking products that will cater for the needs of smallholder farmers. Chowdhury *et al*. (2013) examined the efficiency of rice farms during Boro period in Bangladesh. They discovered that inadequate extension services, insufficient credit facilities, and land degradation impacted negatively on rice production. Nyikal (2000) studies credit extended to smallholder farmers in Kenya, revealing poor repayment rates due to fund diversion for other purposes.

In the African context, Ouattara et al. (2020) observe low fertilizer utilization in Cote d'Ivoire, attributing it to credit shortages faced by rice farmers. Also using 2SLS, Alfa and Alfa (2020) found fertilizer to be negative relate to farmers employment status. Dossou et al. (2020) in Benin identify gaps between rice farmers' credit expectations and perceptions on agricultural credit scheme, recommending the use of inventory credit systems and financial education for smallholders. Isanga (2018) investigates smallholder farmers' access to bank credit in Tanzania, emphasizing factors like asset value, educational level and age as the factors that influence credit accessibility. Studies in Nigeria, like Yuni et al. (2022) examine the impact of access to bank and non-bank credit on rice productivity and output. It was discovered in the pre-matching result that non-bank credit and access to total credit significantly influence labour productivity and output, while access to bank credit only influence output. The post-matching result reveals that all the three categories of credit do not significantly influence output or capital, labour and total factor productivity. But Alfa (2020) used Anchor Borrowers Financial Scheme on Rice Farmers Productivity and found the scheme to influence rice farmers' productivity. Kolawole and Amurtiya (2021) studied the economic analysis of rice production by small-holder women farmers and it was found that the technical inefficiency of the farmers was influenced by farming experience, education and access to credit, while the allocative inefficiency was influenced by educational level, household size and access to credit. Thus, access to credit is the common factor that affects the technical and allocative inefficiencies of the farmers. Oladokun (2019) conducted an investigation on the relationships between credit access and utilization and rice productivity. The study concludes that access to credit significantly increases output and suggests that credit accessibility to farmers should be enhanced to sustain the increased productivity experienced in the sector.

Omosebi and Aladejana (2016) established correlations between farm credit and economic development in Nigeria, emphasizing the need for enhanced productivity

through appropriate credit schemes. Adolphus and Peterside (2014) explore banks' roles in financing agriculture and it reveals that it contributes substantially to GDP although with limited credit allocation, urging fair monetary policies and increased funds for agricultural development. Overall, these studies collectively underscore the critical role of financial institutions and credit access in promoting agricultural growth and economic development.

Overview of Bank of Agriculture Limited

Bank of Agriculture Limited operates as a Development Financial Institution owned by the Federal Government of Nigeria, with the Federal Ministry of Finance Incorporated (MOFI) and the Central Bank of Nigeria (CBN) as its major shareholders, holding a 60%:40% ratio respectively. Established in 1972 as the Nigerian Agricultural Bank (NAB), the institution commenced operations in 1973. In 1977, the Federal Government injected additional capital into the bank to support cooperative societies, prompting a transformation of its name to the Nigerian Agricultural and Cooperative Bank (NACB). The bank underwent further changes, merging with the Peoples Bank and Family Economic Advancement Programme in 2000, resulting in the formation of the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB) (Mahmud, 2010). To align with contemporary national needs, the bank underwent rebranding in 2010 and was renamed Bank of Agriculture Limited. It operates with a mandate to provide credit support for agricultural and non-agricultural value chain activities, facilitate capacity development through cooperative societies, offer agricultural information, technical and extension services, create opportunities for self-employment in rural areas, reduce rural-urban migration, and promote financial inclusion services (Orji, 2017). Positioned as Nigeria's largest Development Finance Institution (DFI) in Agricultural Financing, the bank boasts approximately of 110 branches nationwide, distributed across each senatorial district, along with six zonal offices in each geo-political zone and a corporate headquarters in Kaduna. The bank holds a prominent role as a financial institution deeply connected with smallholder farmers, leveraging its institutional knowledge of rural and agricultural financing through strategic partnerships with stakeholders in the national and international agribusiness industry (Bank of Agriculture, 2023). The bank engages in savings and credit activities, particularly in rural areas, contributing to financial inclusion. Its savings portfolio includes products such as individual savings accounts, corporate savings accounts, Liberty savings accounts (LISA), Micro-Enterprise savings accounts (MESA), and BOA Rural Business Initiative savings accounts (BOARBI). On the credit finance aspect, the bank offers products like Microcredit, Commercial Agricultural Credit, Women and Youth Credit Schemes, payday loans, Nano loans, on-lending credit, collaborations, among others (BOA, 2023).

3. Methodology

This study utilizes firsthand information obtained from chosen farmers who received credit or loans from Bank of Agriculture Limited in Niger South Senatorial District of Niger State. Given that the agricultural sector encompasses diverse subsectors such as crop production, animal production, fishery, forestry, and more, this study specifically focuses on the crop production sector. This sector involves individuals engaged in cultivating crops like rice, beans, maize, millet, groundnuts, and sugarcane, among others. A multi-stage sampling technique to select 120 farmers from the total population of farmers in Niger South Senatorial District of Niger State. The sampling process involved a convenient selection of farmers from different communities recognized for their agricultural production who have accessed credit facilitiy in BOA. The credit advance is specifically used because it's the major role played by BOA. The model specification of this study deals with the role of Bank of Agriculture in fostering agricultural development. Thus, in response to the objectives of the study, this model was generated;

$Y = f(x)$ …… 1

Where Y is Dependent variable and x is Independent Variable

$Q = f(AC, LB, FE, LS, EL, EC, ST, FA)$ ……2

The OLS estimation is;

$Q = \alpha + \beta_1 AC + \beta_2 LB + \beta_3 FE + \beta_4 LS + \beta_5 EL + \beta_6 EC + \beta_7 ST + \beta_8 FA + \mu$……...3

Where: Q = Output, AC = Access to Credit, LB = Labour used, FE = Farming Experience, LS = Land size, EL = Educational Qualification, EC = Access to Extension service, ST = Seedling Type, and FA = Fertilizer Application.

4. Results

Table 1: Descriptive Statistics on farmer's educational qualification

Qualification	Frequency	Percent
None	12	10
Primary Cert	27	22.50
Secondary Cert	43	35.83
Tertiary Cert	38	31.67
Total	120	100.00

Source: 2023 Fieldwork

The descriptive findings regarding farmers' educational qualifications, as illustrated in Table 1, indicate that 12 respondents (10%) have no formal education, 27 respondents (22.5%) possess only a primary school certificate, while 43 (35.83%) and 38 (31.67%) hold secondary and tertiary certificates, respectively. This suggests that, on average, a majority of the respondents have at least a primary school qualification, indicating a generally educated community.

Table 2: Rwespondents amount of Credit Advance received by farmers from BOA

Access to Credit (Amount in ₦)	Frequency	Percent
1 - 100,000	54	45
100,001 – 250,000	29	24.16
250,001 – 500,000	35	29.17
500,001 and above	2	1.67
Total	120	100.00

Source: 2023 Fieldwork

Table 2 above illustrates the outcomes of the credit amounts that farmers obtained from the Bank of Agriculture. A total of 54 respondents (45%) accessed credit ranging from ₦1 to ₦100,000, while 29 respondents (24.16%) and 35 respondents (29.17%) accessed amounts falling within the ₦100,001 to ₦250,000 and ₦250,001 to ₦500,000 brackets, respectively. Additionally, 2 respondents (1.67%) accessed credit amounts of ₦500,001 and above. The micro-credit facility provided by the Bank covers amounts from ₦1 to ₦500,000, while the macro loan facility encompasses amounts exceeding ₦500,000. Consequently, majority of the beneficiaries were limited to accessing credit below ₦500,000. Beneficiaries attributed this limitation to factors such as non-compliance with macro-credit requirements, including collateral in the form of property, particularly those with a certificate of occupancy, as well as the Bank's financial liquidity position, as evidenced by challenges in credit provision experienced by the Bank in recent years.

Analyzing normality is crucial to validate the specifications in both theoretical and empirical research (Tabri, 2014). In statistical research, it is essential for datasets to exhibit normal or near-normal distributions for their acceptability. This study utilized the combined assessment of Skewness and Kurtosis for normality testing to ensure unbiased results from the obtained dataset. Skewness gauges the asymmetry of a variable's probability distribution concerning its mean, while Kurtosis measures the peakedness of a variable in terms of its probability distribution (Rindskopf & Shiyko, 2010).

Table 3: Normality Test

Variable	Min	Max	Skewness	Kurtosis
Educational Qualification	0	3	0.22	1.81
Years of experience	1	3	-0.60	2.28
Land size (Hectare)	1	17	3.25	18.22
Labour use	0	3	-0.05	1.87
Output	0	380	3.77	25.45
Fertilizer Application	0	40	2.73	15.02
Credit Advance	0	1	-0.60	1.36
Seedling Type	0	1	-0.95	1.89
Access to Extension	0	1	-0.96	1.92

Source: 2023 Fieldwork

While studies by West, Finch, and Curran (1995) and Curran, West, and Finch (1996) suggest that skewness values should be less than 2 and kurtosis values should be less than 7, Kline (2016) proposes that values greater than 3 for skewness and greater than 10 for kurtosis may indicate a problem. Therefore, based on the above discussion, Table 3 reveals that the dataset for certain variables such as age, household size, educational qualification, years of farming experience, labor use, credit advance, and access to extension services in this study demonstrates normality, as the values fall within the range of -1 to 1 for skewness and from 1 to 3 for kurtosis, which is below the given threshold. However, other variables such as output and fertilizer application do not meet this threshold.

Table 4: Correlation matrix with other variables

	A	B	C	D	E	F	G
A	1.00						
B	-0.07	1.00					
C	0.09*	0.02	1.00				
D	-0.02	0.15*	0.27*	1.00			
E	-0.22*	0.04	-0.14*	-0.42*	1.00		
F	-0.15*	-0.02	0.13*	-0.12*	0.21*	1.00	
G	-0.19*	-0.03	0.15*	-0.15*	0.28*	0.48*	1.00

*Note: *, **, and ***, indicates significant at 10%, 5%, and 1% respectively. Also, A =Educational Qualification; B = Output; C = Labour use; D = Land size; E = Credit Advance; F = Access to Extension; G = Access to Input. Source: Authors Computation*

The purpose of the correlation analysis in this study is to assess the relationships between variables within the dataset and determine the extent of their variation. In correlation, the r value is bound by $-1 \leq r \geq 1$, where a value of 0 indicates no correlation. The closer the r value is to -1 or 1, the stronger the correlation (Bensman, 2004; Egghe & Leydesdorff, 2009). Table 4 presents the correlation results between variables, indicating that the variables are not correlated. This suggests that all the variables can be included in the same model.

Table 5: Regression result for role of Bank of Agriculture in agricultural development

Dependent Variable: Output	OLS
Independent Variables	
Labour	-0.55**
	(0.235)
Farming experience	0.07
	(0.243)
Land size	0.67
	(0.718)
Credit Advance	24.13***
	(4.361)
Access to Extension	- 4.24
	(4.010)
Educational level	-3.63*
	(1.865)
Seedling type	0.66***
	(0.114)
Fertilizer Application	0.16***
	(0.056)
F-stat	12.06***
R-Squared	0.4981
N	120

*Notes: Standard errors are in parentheses, P values: significance *10%; **5%; ***1%.*
Source: Authors Computation

Table 5 presents the Ordinary Least Squares (OLS) regression outcomes concerning the role of financial institutions in agricultural development. Credit advance serves as a proxy for the involvement of financial institutions, while farmers' output stands as a proxy for the development achieved in the agricultural sector. The results indicate a significant F-Statistic (12.06%), signifying that the independent variables collectively

contribute significantly to explaining the dependent variable across all levels. The R-squared, disclosing the proportion of the dependent variable's total variation explained by the independent variables, reveals that 49.81% of the independent variables elucidate the dependent variable. Notably, just as discovered by Rahman (2020), Oladokun (2019) and Adolphus & Peterside (2014), credit advance, seedling type, and fertilizer application exhibit significance and positive associations with output since agriculture predominantly the occupation in the study area. Consequently, a unit increase in credit advance, seedling type, and fertilizer application corresponds to output increases of 24.13%, 0.66%, and 0.16%, respectively. Although, this findings contradict with the study of Outtara et al (2020) in which shortage of credit advance result in low inputs application and consequently low output. it is therefore notes that Bank of Agriculture's credit advance significantly determines farmer's output.

Conversely, labour utilization yields a negative and statistically significant outcome. This implies that much of the labor employed is sourced from households and involves the use of farm machinery like tractors and tillers, thereby substituting hired labor. Similarly, educational qualification displays a negative but statistically significant relationship with output. This could be attributed to qualifications acquired that may not align with the requisite skills for farming, resulting in a reduction in output by 0.55% and 3.63%, respectively.

Although years of farming experience and the size of the land used for farming in the study area exhibit positive relationships with rice output, these relationships are statistically insignificant. This lack of significance may stem from the repetitive use of the same farming procedures and continuous cultivation of the same land size, contributing to marginal increases in rice output by 0.07% and 0.67%, respectively. Furthermore, access to extension services demonstrates an insignificant negative association with output, indicating a reduction in output by 4.24%. This discovery is in line with the findings of Chowdhury et al (2013) were extension services extended for agricultural production does not commensurate with the needs of the farmers. This could be likened to the infrequent training of agricultural extension workers and farmers, as regular knowledge transfer from extension agents to farmers plays a pivotal role in enhancing agricultural output.

5. Conclusion and Recommendations

In conclusion, the study’s findings indicate a significant contribution of Bank of Agriculture Limited through its credit advance to agricultural development, leading to an increase in farmers' output. As recommendations, it is proposed, firstly, that the government allocates substantial investments to the agricultural sector, treating farming as a business and ensuring adequate budgetary allocations to the Bank. Secondly, the

Bank is advised to streamline its loan approval procedures to minimize delays in credit processing. Thirdly, the government should implement policies encouraging or mandating civil servants to maintain personal savings accounts with Bank of Agriculture Limited, thereby enhancing the Bank's liquidity and its capacity to extend credit to farmers. Lastly, it is suggested that the government directs the Central Bank of Nigeria to grant the Bank all necessary financial transaction licenses, allowing it to engage in foreign exchange transactions and manage all agriculture-related transactions, both domestic and international.

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