

Asian Development Policy Review

ISSN(e): 2313-8343

ISSN(p): 2518-2544

DOI: 10.18488/journal.107.2019.71.31.42

Vol. 7, No. 1, 31-42


© 2019 AESS Publications. All Rights Reserved.

URL: www.aessweb.com



CHALLENGES AND PROSPECTS OF COMMERCIAL BANK LOAN EXTENDED TO FARMERS IN LAGELU LOCAL GOVERNMENT OF OYO STATE, NIGERIA



 **Aduralere Opeyemi, OYELADE¹⁺ Benjamin Oluwafemi, AYENI² Michael O., OGUNDIPE³ Temitope Q., SALISU⁴ Olamide David, TIJANI⁵ Imoh Edet, UMAH⁶**

^{1,2,3,4,5,6} University of Ibadan, Nigeria

¹Email: adontopdominating@gmail.com Tel: 08057661634

²Email: iambenzee@gmail.com Tel: 08132379472

³Email: ogundipemichael@gmail.com Tel: 08168812785

⁴Email: salisutemitope@yahoo.com Tel: 08137036070

⁵Email: olamidedav5@gmail.com Tel: 08169253261

⁶Email: richncute3@gmail.com Tel: 08031303963



(+ Corresponding author)

ABSTRACT

Article History

Received: 18 October 2018

Revised: 20 November 2018

Accepted: 24 December 2018

Published: 23 January 2019

Keywords

Commercial bank loan

Farmers

Binomial logistic regression

Analysis and multinomial logit

Regression

JEL Classification:

Q00, Q12, Q14.

The study investigated the challenges and prospects of commercial bank loan extended to farmers in Lagelu Local Government of Oyo state, Nigeria. The methods used include descriptive statistics, binomial logistic regression analysis with multinomial logit regression. The result of the binomial logistic regression revealed that the variables that determine farm output are age, household size, hired labour, marital status, number of loan applications, amount of loan collected, off-farm income and interest rate on loan. Also, the multinomial logit regression analysis revealed that the variables that determine cassava crop production are hired labour, number of loan application and amount of loan collected, amount of loan collect and off-farm income determine rice production in the study area, interest rate on loan was the only variable that determine potatoes production, household size, and farming experience are the only variables that determine the production of maize in the study area, while farm size determine the output of groundnut production in the study area. The study recommended that since loan is one of the avenues that farmers can increase their farming output which will product the growth of gross domestic product, government agency should instruct commercial banks to direct more loans to agricultural activities. Farmers should not give up in applying for loan because at the end of the day, they will be surely granted and interest rate on loans given to farmers by commercial banks should be lower in other to encourage them to borrow more.

Contribution/ Originality: This study contributes in the existing literature by investigating the challenges and prospects of commercial bank loan extended to farmers in Nigeria. The study make used of two methodologies which are binomial logistic and multinomial logistic regression. The past study only look at how banks loan affect farm output but this was also done in this research but the study go further by looking at how banks loan affect cassava crop production, rice production, potatoes production, maize production and groundnut production which has not been done before in the study area.

1. INTRODUCTION

The role of agriculture in transforming both the social and economic framework of an economy cannot be over emphasized. Kuye (2015) who asserts that agricultural development can promote the economic development by increasing the supply of food available for domestic consumption and releasing the labour needed for industrial employment. Agricultural finance is dedicated to financing agricultural related activities such as; input supply, production, processing and distribution (Ayegba and Ikani, 2013). Commercial banks have traditionally played an important role in financing agriculture. Their commitment to agriculture, however, fluctuates. The fluctuation in the market share is a combination of the adjustment in the volume of funds lent by banks to the agriculture sector and the adjustment in the number of banks' lending to the agriculture sector. Many factors have led to these fluctuations in agricultural lending. This situation is made more difficult by small-scale farmers who depend on informal financial systems which are poorly developed and the high transaction costs (Maikasuwa *et al.*, 2012). Tasié *et al.* (2013) posits that "agriculture has been the main sources of gainful employment from which Nigeria nation can feed its feeding population, providing the nations industries with local raw materials and as a reliable source of government revenue".

Credit constraint has plagued poor farmers and rural dwellers for many years and was thought to be a critical part of a package of inputs needed to boost agricultural production. Majority of farmers lack access to formal credit and this has continued to be a constraint limiting farmers' ability to adopt agricultural technologies and increase productivity. In spite of the importance of credit in agricultural production, its acquisition and repayment are fraught with a number of problems. Institutional problems such as the lending conditions which limit access of investors to credit facilities have not been adequately addressed. A large number of socioeconomic factors all play a role influencing farmers' ability to secure optimum credit. Such factors include risk of loan default, age of the farmers, location, and high interest rate charged by financial providers' (Ololade and Olagunju, 2013). Therefore, the study is set to investigate challenges and prospects of commercial bank loan extended to farmers in Lagelu Local Government of Oyo state, Nigeria.

The rest of the work is divided into four section. Section two presents the review of literature while theoretical framework and methodology are contained in section three. Empirical analysis is made in section four and conclusions are in section five.

2. LITERATURE REVIEW

This aspect deals with the literature review that is associated with commercial bank loan to agricultural sector in both developed and developing countries of the World. Ayegba and Ikani (2013) appraised the impact assessment of agricultural credit on rural farmers in Nigeria. The result of the study revealed that major limitations or challenges in accessing agricultural credit as found in the report include; high interest rates, bureaucratic bottlenecks, late approval of loans, unnecessary request for guarantors and collateral. Also, Afful *et al.* (2015) examined the impact of financial institutions, especially rural banks on rural farmers. The result showed that farmers in the area enjoy the services of the bank and the bank itself has made significant impact on their lives not just only through the disbursement of credit or as something to fall back on when their income source is low but that it has had a high effect on output, income, savings and labour force.

In the same vein, Kuye (2015) investigated the constraints to agricultural loan acquisition and utilization among cassava farmer loan beneficiaries in Cross River, Akwa Ibom and River States in the South – South Nigeria. The results revealed that constraints like social constraint, production/technical constraint, environmental and institutional constraint as major bottleneck limiting agricultural loan acquisition and administration in the study area. Recommendations such as timely disbursement of loan by banks, less burdensome administrative procedures in loan acquisition as well as development and implementation of cassava friendly loan packages were made among others. Also, Essien *et al.* (2016) examined the determinants of informal credit delinquencies among food crop

farmers in rural Niger Delta of Nigeria using Akwa Ibom State as a case study. Empirical result from the probit and logit models were similar and showed that borrower's non-farm income, credit amount received, household size, net farm profit and farm size are determinants of credit delinquencies among food crop farmers in Akwa Ibom state. The study also discovered that the probability of food crop farmers being credit delinquent is about 0.427 *ceteris paribus*.

Furthermore, [Kuye \(2015\)](#) examined the determinants of loan default and repayment rates by cassava farmer loan beneficiaries (CFLB) in Bank of Agriculture (BOA) and First Bank of Nigeria (FBN) was conducted between 2012 and 2014 in the South-south Nigeria. The results of data analysed showed that BOA granted the highest loan of ₦1,671,497,140.00 compared to FBN which granted only ₦891,500,000.00 to the cassava farmers during the period (2009-2013). The lending criteria adopted by the two banks were similar except the difference in their interest rates- (BOA charged 12%, FBN charged 21%). Further analysis showed that BOA had a better repayment rate than FBN. Major constraints to loan administration in the study area were non-repayment of loan by beneficiaries, delay in repayment of loans and diversion of agricultural loans to nonagricultural sector among others. [Maikasuwa et al. \(2012\)](#) ascertained whether credit obtained for cattle fattening has had any meaningful contribution to the resources used by the beneficiary farmers in Kollo LGA of Tillabery Region Niger Republic. The chi-square value (5.192) showed no significant difference in preferences of the economic activities between the two sets of farmers. Credit delivered to the beneficiaries enabled them use higher quantities of feed ($P < 0.01$) and labour resources ($P < 0.1$) than their non-beneficiary counterparts. Similarly, credit delivered has brought about significant increase ($P < 0.01$) in revenue accrued to the fattening business of the beneficiary farmers.

In the same manner, [Tasie et al. \(2013\)](#) evaluated the attitude of livestock farmers' in Imo State towards agricultural credit. The study revealed that livestock farmers' in the study area have a good attitude towards agricultural credit. The livestock farmers' agreed that agricultural credit will help them in increasing their farm output and income and help in the adoption of agricultural innovation and transforming the livestock business. Also, majority of the livestock farmers' (44.4%) are involved in poultry enterprise. This is closely followed by goat enterprise (42.2%). The study also revealed that few livestock farmers' (4.4% and 9.0%) are involved in piggery and sheep enterprises respectively. In further study by [Tasie et al. \(2016\)](#) on poultry farmers' perception on farm credit in Obio/Akpor Local Government Area of Rivers state, Nigeria. The study revealed that poultry farmers' in the study area have a positive attitude towards agricultural credit. The poultry farmers' agreed that agricultural credit will help them in increasing their farm output and income and help in the adoption of agricultural innovation and transformation of the poultry business.

Beside, [Ololade and Olagunju \(2013\)](#) examined the determinants of credit access by rural farmers in Oyo state Nigeria. The binomial logit model revealed that significant relationships existed between sex (-2.0187), marital status (-1.9786), lack of guarantor (2.1517), high interest rate (6.8263) and access to credit. The variables were significant at 10%. It is concluded that there is need for financial institutions to help look into the conditions for obtaining credit by farmers, so that the less privilege among them will be able to benefit from credit disbursement especially in the aspect of high interest rate, guarantor and collateral security. [Udoka et al. \(2016\)](#) examined the effect of commercial banks' credit on agricultural output in Nigeria. The estimated results showed that there was a positive and significant relationship between agricultural credit guarantee scheme fund and agricultural production in Nigeria. This result signified that an increase in commercial banks credit to agricultural sector led to an increase in agricultural production in Nigeria.

[Agunuwa et al. \(2015\)](#) examined the impact of commercial banks' credits on agricultural productivity in Nigeria. The t-calculated of commercial banks credit has a value of 6.28 which is greater than the t-critical of 1.96. This is an indication of positive relationship between commercial banks' credit and agricultural productivity. The t-calculated of interest rate on commercial banks credit has a value of -9.38 as against 1.96 t-critical. This is an indication of a negative relationship between interest rate and agricultural productivity. Also, [Obilor \(2013\)](#)

examined the impact of agricultural credit guarantee scheme fund, agricultural product prices, government fund allocation and commercial banks' credit to agricultural sector on agricultural productivity. The result revealed that ACGS fund and Government fund allocation to agriculture produced a significant positive effect on agricultural productivity, while the other variables produced a significant negative effect.

Toby and Peterside (2014) analyzed the role of banks in financing the agriculture and manufacturing sectors in Nigeria from 1981 – 2010. The inferential results show a significantly weak correlation between commercial bank lending and the contribution of agriculture to GDP. However, there is a significantly positive correlation between merchant bank lending and agricultural contribution to GDP. The results, however, indicate that the role of banks in facilitating the contribution of the agriculture and manufacturing sectors to economic growth is still significantly limited.

3. THEORETICAL FRAMEWORK AND METHODOLOGY

3.1. Theoretical Framework

The theoretical framework adopted in this study is based on Schumpeter theory propounded by Shumpeter (1934) which stressed the role of banking sector as a financier of productive investments like agricultural sector and in that way as an accelerator of economic growth. Modern growth theory however identifies two specific channels through which the financial sector might affect long-run growth; through its impact on capital accumulation (including human as well as physical capital) and through its effect on the rate of technological progress (Gregorio, 1996). These effects arose from the intermediation role provided by financial institutions which enable the financial sector to mobilise savings for investment; facilitate and encourage inflows of foreign capital (including FDI, portfolio investment and bonds, and remittances); and optimise the allocation of capital between competing uses, ensuring that capital goes to its most productive use. Banking sector as a financier of productive investments accept deposit from customers and channels the amount mobilized to borrowers in the form of loans and advances. Bank credits represent the amount of loan and advances to individuals and organizations from banking system. Production sector as used is a universal name for organizations in agriculture, manufacturing, mining and quarrying, and real estate and construction.

3.2. Model, Estimation Techniques and Data

The model specification for this study is based on theoretical framework above and also the past work done in this area. This model comprises the binomial logistic model and multinomial logistic regression model to determine the effect of commercial bank loan to agricultural sector. In logit econometric models, the probability of a farmers having access to commercial bank is a function of a set of independent variables and logistic model is estimated by the method of the consistency of asymptotic normal distribution characteristics of large samples.

$$\Pr(Y = 1/X_n) = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11} \& X_{12}) \dots\dots\dots (3.1)$$

Where:

- Y₁ - Farm output (1 if farm output increases over time, 0 if otherwise)
- X₁ - Age (Year)
- X₂ - Level of Education (Years)
- X₃ - Household Size (Number)
- X₄ - Farm Size (Hectare)
- X₅ - Farming Experience (Years)
- X₆ - Hired Labour (Man Day)
- X₇ - Marital Status (0 for single, 1 for married, 2 for divorced and 3 for widowed)
- X₈ - Number of loan applications (Number)
- X₉ - Amount of Loan Collected (₦)

- X₁₀ - Farm Income (₦)
- X₁₁ - Off-farm income (₦)
- X₁₂ - Interest Rate on Loan (%)

The logit regression model of the above relationship is given below:

$$\Pr(Y_1 = 1/X_n) = \frac{1}{1 + e^{-(\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12})}} \quad (3.2)$$

β_0 = intercept,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}$ = slope coefficient,

Also, multinomial logistic regression will used to know the types of farm product that commercial banks loan really help since the study make used of six farming product which are cassava, yam, rice, potatoes, maize and groundnut and this will enable the study to give a better policy on the best farm output that commercial bank need to direct their loan into. This model will be given below in equation (3.3).

$$\Pr(Y_2/X_n) = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11} \& X_{12}) \dots\dots\dots (3.3)$$

Where:

- Y₂ - Types of Farm output (0 if cassava, 1 if yam, 2 if rice, 3 if potatoes, 4 if maize and 5 if groundnut)
- X₁ - Age (Year)
- X₂ - Level of Education (Years)
- X₃ - Household Size (Number)
- X₄ - Farm Size (Hectare)
- X₅ - Farming Experience (Years)
- X₆ - Hired Labour (Man Day)
- X₇ - Marital Status (0 for single, 1 for married, 2 for divorced and 3 for widowed)
- X₈ - Number of loan applications (Number)
- X₉ - Amount of Loan Collected (₦)
- X₁₀ - Farm Income (₦)
- X₁₁ - Off-farm income (₦)
- X₁₂ - Interest Rate on Loan (%)

$$\Pr(Y/X_n) = \frac{1}{1 + e^{-(\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12})}} \dots (3.4)$$

The data used in the study were obtained from a field survey, which was carried out in some Lagelu Local Government of Oyo state. The survey instrument was structured questionnaire by distributing two hundred (200) to farmers in order to gather some necessary and relevant information. The Lagelu Local Government with areas of 416 square kilometers was created in 1976, with headquarters at Iyana Offa. It was part of the Ibadan East District council created in 1961. The Local Government consists of over 1076 towns and villages including the principal towns of lalupon, Lagun, Monatan, Ofa, Ejioku, Oyedeji, Kelebe, Sagbe, Elegbaada, Olowode, Wofun, Ogburo, Kutayi, Apatere, Olorunda, Ogunjawa, Ile-Igbon, Iyana Church, Odo Oba, Sukuru and Akinsawe. In January 2017 two (2) Local Council Development Area were carved out of Lagelu Local Government namely: Lagelu West LCDA with her headquarters at Olorunda Abaa and Lagelu North LCDA at Oyedeji. On the account of extensive fertile soil, which is suitable for agriculture, the basic occupation of the people is farming. There are large hectares of grassland which are suitable for animal rearing, vast forest reserves and rivers. People in the area grow varieties of cash crops such as cocoa, kola nut, palm oil, timber and food crops such as maize and rice.

4. EMPIRICAL ANALYSIS

Table-4.1. Socio-Economic Characteristics of Respondents

Questions	Category	Frequency	Percent
Gender	Male	98	51.0
	Female	94	49.0
	Total	192	100.0
Age	22 years	1	.5
	23 years	1	.5
	24 years	1	.5
	25 years	7	3.6
	26 years	7	3.6
	27 years	11	5.7
	28 years	15	7.8
	29 years	12	6.3
	30 years	35	18.2
	31 years	11	5.7
	32 years	11	5.7
	33 years	14	7.3
	34 years	15	7.8
	35 years	19	9.9
	36 years	6	3.1
	37 years	7	3.6
	38 years	6	3.1
	39 years	5	2.6
	40 years	5	2.6
	41 years	1	.5
45 years	2	1.0	
	Total	192	100.0
Marital Status	Single	80	41.7
	Married	90	46.9
	Widowed	22	11.5
	Total	192	100.0
Level of Education	No Formal Education	50	26.0
	Primary Education	40	20.8
	Secondary Education	90	46.9
	OND/HND	12	6.3
	Total	192	100.0
Family Distribution	Monogamy	168	87.5
	Polygamous	24	12.5
	Total	192	100.0
Household Size	3	80	41.7
	4	90	46.9
	5	22	11.5
	Total	192	100.0
Tribe	Yoruba	160	83.3
	Hausa	20	10.4
	Igbo	9	4.7
	Others	3	1.6
	Total	192	100.0

Source: Authors Computation from Field Survey 2018

The gender distribution of respondents revealed that about 51% of the respondents are male and 49% of the respondents are female. The above results reveal that there more participation of male than female in the research. Also, the respondents' age varies from 22 years of age to 45 years. It was observe that the height age of the participant is 30 years with about 18.2% of the respondents fall under this category while 22 years, 23, years, 24 years and 41 years have the least percentage of about 0.5% respectively. This means that about 30 years of age participate more in the research and the mean years of all the respondents is 32 years. Furthermore, about 41.7% of

the respondents are single and about 46.9% of the respondents are married while 11.5% of the respondents are widowed. From the above result, this mean that majority of the respondents are married. Also, the results reveal that about 26% of the respondents have no formal education, about 20.8% of the respondents have primary level of education and about 46.9% of the respondents have secondary level of education while about 6.3% of the respondents have OND/HND. It can be concluded from the above result in table 5.4 that majority of the respondents have secondary education. In the same vein, about 87.5% of the respondents' family is monogamy while about 12.5% of the respondents' family is polygamous. The result reveals that majority of the respondents' family is monogamy and about 41.7% of the respondents' household size is 3 and 46.9% of the respondents household size is 4 while 11.5% of the respondents' household size is 5. The above result reveals that majority of the respondents household size is 4. Lastly, about 83.3% of the respondents' tribe is Yoruba, about 10.4% of the respondents' tribe is Hausa and about 4.7% of the respondents' tribe is Igbo while about 1.6% of the respondents have other tribe. It was found that majority of the respondents tribe is Yoruba.

Table-4.2. Challenges Face by Farmers in Obtaining Loans from Banks

Category	Frequency	Percent	Cumulative Percent
Lack of access to formal loan	5	2.6	2.6
Lack of collateral security	17	8.9	11.5
Risk of loan default	26	13.5	25.0
High interest rate charged by banks	42	21.9	46.9
Illiteracy of farmers	17	8.9	55.7
Inadequate fund for loan disbursement	18	9.4	65.1
Lack of guarantors to stand on behalf of farmers	18	9.4	74.5
Fears of diversion of the loans to non-agricultural projects	15	7.8	82.3
Lack of information	20	10.4	92.7
Mode of repayment	14	7.3	100.0
Total	192	100.0	

Source: Authors Computation from Field Survey 2018

It was reveals that about 2.6% of the respondents said that lack of access to formal loan is the challenges they face in obtaining loans from banks, 8.9% said that it is lack of collateral security that is the only challenges they face in obtaining loan, 13.% said that it is risk of loan default that hinder they from getting loans from banks, 21.9% of the respondents said that it is high interest rate charge by banks that discourage them from obtaining loans from bank, 8.9% said that it their own illiteracy that prevent they from getting loans from banks, 9.4% said that it is inadequate fund for loan disbursement prevent them from obtaining loans from banks and their lack of guarantors to stand on their behalf is the major obstacle. Furthermore, 7.8% of the respondents said that fears of diversion of the loans to non-agricultural project hinder their ability to get loans from banks because banks are been careful to just give their loans to people that will not use it for the purpose that they gave the loans for. Also, some farmers like 10.4% of the respondents said that it is their lack of information on how to get loans from banks was the only obstacle they face from obtaining loans from farmers while the remaining 7.3% said that the mode of repayment which is add preventing they from obtaining loans from banks. Therefore, high interest rate is the major obstacle that farmers considered before obtaining loans from banks.

Also about 25% of the respondents replied there is a prospect from commercial bank loan to farming activities and 37% of the respondents replied there is no prospect from commercial bank loan to farming activities while 38% of the respondents were uncertain. It was found that majority of the respondents were uncertain if there is any prospect from commercial bank loan to farming activities.

Table-4.3. Prospect of Commercial Bank Loan to Farming Activities

Questions	Category	Frequency	Percent
Is there any prospects from commercial bank loan to farming activities?	Yes	48	25.0
	No	71	37.0
	Uncertain	73	38.0
	Total	192	100.0
Can you say that your farming business perform well when there is access to loan?	Yes	101	52.6
	No	52	27.1
	Uncertain	39	20.3
	Total	192	100.0
Commercial bank loan to farming activities would cover the majority of the poor farmers in the future	Yes	107	55.7
	No	46	24.0
	Uncertain	39	20.3
	Total	192	100.0
Commercial bank loan to farming activities would be the major source finance in the future	Yes	67	34.9
	No	69	35.9
	Uncertain	56	29.2
	Total	192	100.0
Commercial bank loans to farming activities would be the major way of eradicating poverty among poor farmers	Yes	92	47.9
	No	44	22.9
	Uncertain	56	29.2
	Total	192	100.0

Source: Authors Computation from Field Survey 2018

It was observed that 52.6% of the respondents replied that farming business perform well when there is access to loan and 27.1% of the respondents replied that farming business does not perform well when there is access to loan while 20.3% of the respondents were uncertain. From the above analysis, it was found that majority of the respondents believed that farming business can perform well when there is access to loan. Further, 55.7% of the respondents replied that commercial bank loan to farming activities would cover the majority of the poor farmers in the future and 24% of the respondents replied that commercial bank loan to farming activities would not cover the majority of the poor farmers in the future while 20.3% of the respondents were uncertain. It was found that majority of the respondents agreed that commercial bank to farming activities would cover the majority of the poor farmers in the future. Also, 34.9% of the respondents replied that commercial bank loan to farming activities would be a major source of finance in the future and 35.9% of the respondents replied that commercial bank loan to farming activities would be the major source of finance in the future while 29.2% of the respondents were uncertain. It was found that majority of the respondents against that commercial bank activities would be the major source of finance in the future. It reveals that about 47.9% of the respondents replied that commercial bank loans to farming activities would be the major ways of eradicating poverty among poor farmers and 22.9% of the respondents were uncertain. It was found that about 47.9% of the respondents agreed that commercial bank loans to farming activities would be the major way of eradicating poverty among poor farmers.

The binomial logistic regression on the effect of commercial bank loan on farm output is depicted below in Table 4.4 above and the results shows that the overall model is statistically significant at 1% level of significance as indicated by the likelihood ratio value (LR Chi² (6) = 35.04; $p < 0.000$). Also, the Pseudo R² implies that all the explanatory variables can only explanatory 54.86% of variation in farm output in the study area. Therefore, the variables that determine farm output in the study area are age, household size, hired labour, marital status, number of loan applications, amount of loan collected, off-farm income and interest rate on loan but age, hired labour, number of loan applications and amount of loan collected exert a positive significant impact on farm output in the study area while household size, marital status, off-farm income and interest rate on loan exert a negative significant impact on farm output in the study area.

Table-4.4. Binomial Logistic Regression for Commercial Bank Loan on Farm Output

Regressor	Dependent variable is Farm output
	Coefficient with P > /Z/
Age (X ₁)	.1634158 [0.081]***
Level of Education (X ₂)	.0750716 [0.416]
Household Size (X ₃)	-.22118 [0.050]***
Farm Size (X ₄)	.0101158 [0.913]
Farming Experience (X ₅)	.2233853 [0.314]
Hired Labour (X ₆)	.6315025 [0.008]*
Marital Status (X ₇)	-.5173208 [0.035]**
Number of loan applications (X ₈)	.3156376 [0.022]**
Amount of Loan Collected (X ₉)	.235471 [0.039]**
Farm Income (X ₁₀)	.0933721 [0.197]
Off-farm income (X ₁₁)	-.7152882 [0.004]*
Interest Rate on Loan (X ₁₂)	-.4237044 [0.046]**
_CONS	.1762633 [0.620]
Log-likelihood	-100.41052
LR chi2(6)	35.04 [0.0001]*
Pseudo R-squared	.5486
Iteration 0: log likelihood = -117.92974	
Iteration 1: log likelihood = -101.0775	
Iteration 2: log likelihood = -100.42723	
Iteration 3: log likelihood = -100.41052	
Iteration 4: log likelihood = -100.41052	

Source: Authors Computation from Field Survey 2018

Note: *, ** and *** denote 1%, 5% and 10% level of significance respectively

Furthermore, as the age of the farmers increases this will increase the farmers output and also, the more the hired labour, the more will be the output of the farmers. In the same vein, the number of loan application which lead to higher amount of loan collected increases the farmers output in the study area but household size, marital status, off-farm income as well as interest rate on loan deter the growth of agricultural output in the study area. Therefore, higher interest rate will discourage farmers from obtaining loan from banks which will reduce agricultural output in the study area.

Since the previous analysis was on commercial bank loan on farm output, this section seek to know the factors that determine the types of farm output that the farmers will plant in the study area and it is depicted below in Table 4.5 and Yam was used as the base category for the six regressions. Out of the twelve variables that are used as the explanatory variables, only three variables are statistically significant in determine cassava crop production in the study area which are hired labour, number of loan application and amount of loan collected and they all has a positive significant impact on cassava crop production in the study area. In the same manner, only amount of loan collect and off-farm income determine rice production in the study area and both also has positive significant effect on rice production while only interest rate on loan is the only variable that determine potatoes production and it has a negative significant effect on potatoes production. Also, household size and farming experience are the only variables that determine the production of maize in the study area while farm size determine the output of groundnut production in the study area. Also, the overall model is statistically significant at 1% level of significance as indicated by the likelihood ratio value (LR Chi2 (66) = 325.46; $p < 0.000$). Also, the Pseudo R² implies that all the explanatory variables can only explanatory 93.8% of variation in types of farm output in the study area.

Table-4.5. Multinomial Logit Regression Analysis for Commercial Bank Loan on Types of Farm Output

Base category: Yam	Cassava	Rice	Potatoes	Maize	Groundnut	Others
Regressor	Coefficient with P > /Z/	Coefficient with P > /Z/	Coefficient with P > /Z/	Coefficient with P > /Z/	Coefficient with P > /Z/	Coefficient with P > /Z/
Age (X ₁)	-22.21 [-0.457]	7.94 [-0.699]	9.67 [-0.639]	12.25 [-0.553]	-1.74 [-0.936]	-4.0 [-0.985]
Level of Education (X ₂)	-328.89 [-0.705]	23.23 [-0.919]	62.17 [-0.764]	25.66 [-0.840]	-111.44 [-0.657]	-131.52 [-0.730]
Household Size (X ₃)	297.12 [-0.489]	155.77 [-0.626]	153.20 [-0.430]	9.63 [-0.002]*	284.42 [-0.355]	333.69 [-0.337]
Farm Size (X ₄)	-152.39 [-0.411]	-42.34 [-0.886]	-62.06 [-0.684]	23.99 [-0.874]	-67.54 [-0.005]*	-50.47 [-0.749]
Farming Experience (X ₅)	15.90 [-0.577]	3.67 [-0.846]	-1.17 [-0.941]	-1.28 [-0.035]**	4.79 [-0.782]	-16.40 [-0.741]
Hired Labour (X ₆)	129.90 [-0.008]*	-9.13 [-0.951]	2.46 [-0.975]	-1.50 [-0.985]	11.88 [-0.883]	15.81 [-0.845]
Marital Status (X ₇)	(Omitted)	(Omitted)	(Omitted)	(Omitted)	(Omitted)	(Omitted)
Number of loan applications (X ₈)	105.60 [-0.011]**	-155.40 [-0.335]	-137.79 [-0.396]	-1.74 [-0.998]	78.19 [-0.522]	76.17 [-0.547]
Amount of Loan Collected (X ₉)	.005 [-0.000]*	.002 [-0.058]***	.003 [-0.528]	.002 [-0.539]	.001 [-0.777]	.001 [-0.748]
Farm Income (X ₁₀)	-.002 [-0.547]	-.001 [-0.620]	-.001 [-0.380]	-.001 [-0.390]	-.001 [-0.758]	-.001 [-0.703]
Off-farm income (X ₁₁)	-.002 [-0.737]	.0004 [-0.093]***	.001 [-0.763]	.001 [-0.765]	.001 [-0.633]	.001 [-0.702]
Interest Rate on Loan (X ₁₂)	-33.34 [-0.644]	-13.12 [-0.627]	-10.84 [-0.039]**	7.37 [-0.697]	10.15 [-0.573]	10.41 [-0.719]
_CONS	468.54 [-0.424]	-347.48 [-0.621]	-360.51 [-0.546]	-449.85 [-0.470]	-63.56 [-0.006]*	21.99 [-0.975]
Log-likelihood	-10.749103					
LR chi2(66)	325.46 [-0.0000]*					
Pseudo R-squared	.9380					

Source: Authors Computation from Field Survey 2018

Note: *, ** and *** denote 1%, 5% and 10% level of significance respectively

5. SUMMARY AND CONCLUSION

The study concluded that age, household size, hired labour, marital status, number of loan applications, amount of loan collected, off-farm income and interest rate on loan are the variables that determine farm output in the study area. From the results obtained, the study recommended the followings

- (i) Since loan is one of the supposing avenue that farmers can increase their farming output which will product the growth of gross domestic product, government agency should instruct commercial banks to direct more loans to agricultural activities.
- (ii) Farmers should not give up in applying for loan because at the end of the day, they will be surely granted.
- (iii) Interest rate on loans given to farmers by commercial banks should be lower in other to encourage them to borrow more.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

REFERENCES

- Afful, C.F., J. Hejkrlik and T. Doucha, 2015. Rural banking in Ghana and its impact on rural farmers. Case study of the Birim South District, Ghana. *Asian Social Science*, 11(25): 101 – 110.
- Agunuwa, E.V., L. Inaya and T. Proso, 2015. Impact of commercial banks' credit on agricultural productivity in Nigeria (time series analysis 1980-2013). *International Journal of Academic Research in Business and Social Sciences*, 5(11): 337-350. Available at: <https://doi.org/10.6007/ijarbss/v5-i11/1921>.
- Ayegba, O. and D. Ikani, 2013. An impact assessment of agricultural credit on rural farmers in Nigeria. *Research Journal of Finance and Accounting*, 4(18): 80-89.
- Essien, U.A., U. Ibekwe, S. Akpan and N. Ben-Chendo, 2016. Determinants of informal credit delinquency among food crop farmers in rural Niger Delta of Nigeria. *Review of Agricultural and Applied Economics*, 19(1): 1-6.
- Gregorio, D.K., 1996. Determinants of commercial bank interest margins and profitability: Some International evidence. *The World Bank Economic Review*, 13(2): 37 – 40.
- Kuye, O.O., 2015. Comparative analysis of constraints to cassava production by cassava farmer loan beneficiaries and loan non-beneficiaries in South-South Nigeria. *Global Journal of Agricultural Research*, 3(3): 38-52.
- Kuye, O.O., 2015. Determinants of loan default and repayment rates by cassava farmers in South-South Nigeria: A case study of bank of agriculture and first bank of Nigeria. *European Journal of Agriculture and Forestry Research*, 3(4): 48-57.
- Maikasuwa, M., A. Ala, M. Jibir and M. Daouda, 2012. Effect of "Irkoy Gomni" micro-credit scheme on resource-use in cattle fattening in Tillabery Region of Niger Republic. *International Journal of Applied Agricultural and Apicultural Research*, 8(1): 39-45.
- Obilor, S.I., 2013. The impact of commercial banks' credit to agriculture on agricultural development in Nigeria: An econometric analysis. *International Journal of Business, Humanities and Technology*, 3(1): 85-94.
- Ololade, R. and F. Olagunju, 2013. Determinants of access to credit among rural farmers in Oyo State, Nigeria. *Global Journal of Science Frontier Research Agriculture and Veterinary Sciences*, 13(2): 16-22.
- Shumpeter, J.A., 1934. *The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle*, translated from the German by Redvers Opie. New Brunswick (U.S.A) and London (U.K.): Transaction Publishers.
- Tasie, C., G. Wilcox, F. Uche and S. Emeya, 2013. Measurement of livestock farmers' attitude towards agricultural credit in Imo State, Nigeria. *Researcher*, 5(11): 13-16.
- Tasie, C.M., A.O. Ejiogu and O.N. Wariboko, 2016. Analysis of poultry farmers perception of farm credit in Obio/Akpor Local Government Area of Rivers State, Nigeria. *Academia Arena*, 8(10): 33-37.

- Toby, A.J. and D.B. Peterside, 2014. Analysis of the role of banks in financing the agriculture and manufacturing sectors in Nigeria. *International Journal of Research in Business Management*, 2(2): 9-22.
- Udoka, C.O., D. Mbat and S. Duke, 2016. The effect of commercial banks' credit on agricultural production in Nigeria. *Journal of Finance and Accounting*, 4(1): 1-10.

Views and opinions expressed in this article are the views and opinions of the author(s), Asian Development Policy Review shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.