

Effect Of Microfinance Bank's Credit On Cereal Crops Productivity In Federal Capital Territory, Abuja

Gabriel O. Agada, Cornelius Adebayo, & Sally I. Agada

Abstract: This study was carried out to examine the effect of microfinance bank's credit on Cereal crop productivity in federal capital territory Abuja, Nigeria. Three Area Councils were used- Bwari, Gwagwalada, and Kuje. Specifically, the study described the socio-economic characteristic of cereal crop farmer users and non-users examine the effect of microfinance banks' credit on productivity of users and non-users of cereal farmers, estimate the profitability of cereal crop production, and identify the major constraints associated with microfinance banks' credit. Multi-stage Sampling technique was used to select a total of 180 respondent including 90 users and 90 non- users of microfinance banks credit were randomly selected for the Survey. The sample size was drawn from three microfinance bank namely Hasal, Fortis, and Atlas. Both primary and secondary data were collected for the study. Primary data were obtained through questionnaires administered to the respondent. Indices used in data analysis include descriptive statistic, multiple regression analyses, the socio-economic characteristic of the respondent were analyzed using. The data were subjected to both descriptive and inferential statistical analysis. The result shows that 41% of the respondents were between the ages 31- 40 years, 77% were male, 49% had farming experience of between 11-20 years, 56% had family sizes of 1 – 5 persons and 93% had formal education at various levels. The coefficients of cost of farm size, labour, seed, capital input and amount of credit were all positive and significant at 1%, 5%, 1%, 1% and 1% level of probability respectively. It was concluded that users of microfinance bank's credit were more efficient than the non- users of microfinance bank's credit in the study area. The study identified Bureaucratic procedure, high interest rate, and frequent absences of loan officer, among others as the most pressing constraints encountered by respondent in accessing the loan.

Keyword: Agriculture, Cereal, Credit, Crop, Farmers, Microfinance, and Productivity,

1 INTRODUCTION

Agriculture as a veritable instrument for economic development of a country has always attracted the interest of governments, international and non-governmental organizations[1]. Different governments in Nigeria employed different methods of financing agriculture in order to improve agricultural output in the economy. Despite its importance, its production remains at the subsistent level, due to inability of the peasant farmers to access credit for acquisition of required inputs for improved production. Of course, as the law of diminishing returns was affecting the soil, the need for funds to use new technology to improve the fertility of the soil was also on the increase, but unfortunately the funds were not forthcoming to the farmers [1], [2]. The activities of micro-finance institutions are the supply of loans, saving and other financial services to the poor [3]. The poor rural life, especially the peasant farmers need a diverse range of financial instrument to run their farm business, build asset, stabilize consumption and shield against risks . This will enhance general production in agricultural sector and make significant contribution to the Gross Domestic Product (GDP). The focal point of many studies on microfinance dwells in the domain of poverty [4].

Non-Governmental organization – Micro finance Institutions (NGO-MFIs) are semi-formal, non-governmental and community development organizations involved in rural development [5]. They render both financial (credit) non – financial services such as community development activities on health and training on vocations to their members, mainly the rural poor, especially women, the legal entities and are mostly registered as non-profit companies limited by guarantee and such are able to sue and be sued [6]. They have board of directors (BODs) or trustees. These boards comprise either only the founders or elected member delegate [7]. The size of the loans from the MFIs is usually small and varies from institution to institution, usually in the range of between ₦5,000.00 and ₦50,000.00. However, most banks, state agencies and some informal organizations may give loans up to ₦250,000.00 in 2010. The type of enterprise involved, availability of fund and the target market or population, to a large extent determine the size of the statuses of primary or secondary society (which is legally permitted to mobilize savings from members only) [7]. For the farmers, one of the greatest problems is lack of capital with which to procure improved implements and technology as well as improved production inputs at affordable prices and at the right time and pace [8]. Finance are required for procurement of farming inputs such as fertilizer, chemicals (herbicides and insecticides), machineries, storage and processing facilities and improved seeds and breeds of animals. Several agencies and credit institution has been set-up by the government to assist these farmers or the productive poor. Such institutions or schemes include: National Directorate of Employment (NDE), Family Economic Advancement Programme (FEAP), People's Bank of Nigeria (PBN), and Nigerian Agricultural and Co-operative Bank, Limited (NACB) (now Bank of Agriculture (BOA));Agricultural Credit Guarantee Scheme Fund(ACGSF), and Community Banks now being transformed into unit Commercial Bank/Micro-finance Banks (MFBs), National Poverty Eradication Programme NAPEP (which focuses on community development) and Small and Medium Enterprises

- Gabriel O. Agada, Department of Economics and Extension Technology, Federal University of Technology Minna
- Cornelius Adebayo, Department of Economics and Extension Technology, Federal University of Technology Minna
- Sally I. Agada, Analysis Unit, ICT Department, National Health Insurance Scheme, FCT Abuja

Development Agency of Nigeria (SMEDAN) which focuses on entrepreneurship, Co-operative Societies and self-help groups are also major player in this respect [7] (Ndanitsa, 2012). While microfinance remains the provision of financial services to the poor and under-serve communities, it has emerged as one of the most promising avenue for stimulating rural economic development through provision of credit and loan facilities [7]. This study is undertaken to examine the effect of Microfinance Banks on cereal crops production in FCT Abuja, Nigeria.

2 MATERIALS AND METHODS

2.1 Study Area

This study is carried out the Federal Capital Territory (FCT), within Latitudes 7°25' N and 9°20' N and Longitude 5°45'E and 7°39'E of the Equator covering a land Area of 8.000km². It is bounded to the north by Kaduna State, on the west by Niger, to the East and South-East by Plateau State and to the South-West by Kogi States. According to the United Nations Population Fund (UNFPA), the projected population of FCT in 2013 and 2015 are 2,759,829 and 3,273,157 people respectively. FCT, Abuja experiences two distinct seasons including the rainy season (which begins around March and runs through October) and the dry season (which begins from October and March). Within these seasons, a brief harmattan occasioned by the north-east trade wind and attendant dusty haze increases cold and dryness. During the rainy season, the day time temperature runs between 280°C whereas in the dry season, day time temperature can soar as high as 400°C while night temperature can drop to 120°C [9]. FCT Abuja is typified by the savannah vegetation of the West African sub-region. The Main ethnic groups in the territory are Gbagyi, Koro, Gade, Bassa, Gwandara and Gabagana. Economic activities in the Federal Capital Territory include agriculture, and blacksmith. Major crops grown include millilet, maize, sorghum, rice, yam, cassava, plantain, groundnut and cowpea. Livestock produced include cattle, sheep and goat, poultry, pig, catfish. The main minerals found in the FCT are Marble, tin, mica, and clay, iron ore, lead and gold [9].

2.2 Sampling Technique and Sampling Size

Multistage random sampling procedure was adopted for this study and the frame was provided by Microfinance Banks (MFBs) in the study area. The first stage involved purposive selection of three (3) microfinance banks which are actively involved in financial services to cereal farmers, namely Fortis MFB, Hasal MFB and Atlas MFB. The second stage involved purposive selection of three area councils (Kuje, Bwari. and Gwagwalada), where farmers who borrow money from the MFBs are largely distributed. At the last stage, the users were selected from each of the microfinance banks from the sample frame using the Yamane formula Sallawu [10], [11] (2014) and Pelemo (2016).

$$n=N/(1+N(e)2) (1)$$

Where n = Sample size; N= the Finite population; e = limit of tolerable; 1= constant Ninety respondents were sampled as Users (table1), while equal number of non-users from the list of registered farmers with the MFBs who has not accessed credit facility was also selected. In all, one hundred and eighty respondents were sampled, with focus on famers of cereal crops including maize, millet, sorghum and rice.

Table 1: Selected registered farmers with MFBs and area councils for users and non-users of Credit

MFB	Area council	Sample Frame	Sample Size (users)	Sample size (non-users)
FORTIS	Kuje, Bwari, Gwagwalada	36	33	33
HASAL	Kuje, Bwari, Gwagwalada	31	29	29
ATLAS	Kuje, Bwari, Gwagwalada	30	28	28
TOTAL		97	90	90

SOURCES: Fortis, Hasal and Atlas Microfinance Banks

2.3 Method of Data Collection

Primary data were collected through the use of structured questionnaire and complemented with interview. Data was collected on socio-economic characteristics of respondents including age, gender, marital status, household size, educational status, primary occupation and years of farming experience. Production information collected includes farm size, labour, agrochemicals and fertilizers, yields and sales and revenue as well as constraints faced in accessing MFBs credit. Data were collected with the help of trained enumerators under the supervision of the researcher using a well-structured interview schedule.

2.4 Method of Data Analysis

Both descriptive statistics (frequencies, table and percentages, means and ranking) and inferential statistics (multiple regression model, z-test, data envelopment analysis and stochastic production frontier models) were used to analyze the data for this study (table 2)

Table 2: Description of Analytical Tools

S/No	Objectives	Tools of Analysis
1	i	Descriptive statistics
2	ii	Chow test (using a linear regression model)
3	v	Descriptive statistic
4	Hypotheses 1 (H ₀₁)	Chow test
5	Hypotheses 2 (H ₀₂)	Z-test
6	Hypotheses 3 (H ₀₃)	

2.5 Chow Test

The Chow test was used to determine the effect of credit on the productivity of the farmers in the study and also the hypotheses 1 [12], [13], [14]. The mathematical model is as follows:

$$F = \frac{RSS_c - RSS_1 + RSS_2 / K}{RSS_1 + RSS_2 / n_1 + n_2 - 2K} (2)$$

Where RSSc = Residual sum of square for pooled Sample; RSS1 = Residual sum of Square for credit users; RSS2 = Residual Sum of square for non-users of credit; n1 = Number of credit users sampled; n2 = Number of non-users of credit sampled; K = Number of parameters

2.6 Partial Factor Productivity Index

The partial factor productivity index was used to estimate productivity of the farmers by using various farm inputs in the two states as follows:

Farm size productivity = (Total Cereal Output)/ (Farm size use) (3)

Labour productivity = (Total Cereal Output)/ (Total Labour use) (4)

Fertilizer usage productivity = (Total Cereal Output)/ (Total fertilizer use) (5)

Agrochemical usage productivity= (Total Cereal Output)/ (Total Agrochemical use) (6)

Improved seed productivity = (Total Cereal Output)/ (Improved seed use) (7)

2.7 Total Factor Productivity Index

Total Factor Productivity index was used to estimate the total factor productivity index of the farmers in the study area using the following expression:

Total Factor Productivity (TFP) = (VOP)/TVC (8)

Where TFP index represent Y; VOP= Value of Output in Naira; TVC= Value of Inputs Employed in Naira. The wheat grain equivalent table was used to aggregate the cereal crop outputs.

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$ (9)

The explicit form of the model is given below as: Linear:

$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + \mu$ (10)

Exponential:

$\ln Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + \mu$ (11)

Cobb-Douglas:

$\ln Y = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + b_7 \ln X_7 + \mu$ (12)

Semi-log:

$Y = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + b_7 \ln X_7 + \mu$ (13)

Where; Y = output (kg); X₁ = Farm size (ha); X₂ = Labour (man-day); X₃ = Fertilizer (kg); X₄ = Agrochemical (litre); X₅ = Seed (kg); X₆ = Capital input (Naira); X₇ = Credit amount (Naira) ; μ = Random error term; b₀= constant; b₁-b₇ = regression coefficients; X₁ –X₇ = variable input; Ln= Natural Logarithm.

2.8 Z-test Model for Test of Hypothesis

The z-test model was used to test hypothesis (ii) and (iii) as specified in equation (14).

$z = (\bar{X}_1 - \bar{X}_2) / \sqrt{(\sigma_1^2/n_1 + \sigma_2^2/n_2)}$ (14)

\bar{X}_1 = Mean profit of microfinance credit users

\bar{X}_2 = Mean profit of microfinance credit non-users

σ_1^2 = Profit variance of microfinance credit users

σ_2^2 = Profit variance of microfinance credit non-users

n₁ = Number of observation of microfinance credit users

n₂ = Number of observation of microfinance credit non-users

3 RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of Respondents

The socio-economic parameters analyzed were: age, sex (gender), household size, literacy level, experience of microfinance bank credit users among others (table 3)

3.1.1 AGE

The result presented in Table 3 shows that 81.11% of the users were within the age range of 31 – 50 years while, 76.67% of non-users were within the same age range, with mean age of 41 for users and non-users, respectively. The implication of this is that large proportion of both the users and non- users were active and within the productive age to carry out farm operation. This agrees with Adebayo [12] who found that 57.6% of respondents fall within 20 – 49 years.

3.1.2 Sex

The gender distribution presented in Table 3 revealed that negativity (70% and 82.22%) of users and non-users were male respectively, while 30% and 17.78% were female for users and non- users respectively. This shows a wide range of imbalance. Reason for this will not be unconnected with the people's cultural background which usually place men as the bread winners of family while women are usually associated with domestic work only. This implies that majority of the users were male and were into small scale farming whom can endure the difficulties involve in accessing loan/credit facility. This finding agrees with that of Olaleye [15] that small – scale farming is being carried out mostly by males, while females are involve in light farm operations such as processing, harvesting and marketing. This also indicates that access to micro credit was easy for male farmers.

3.1.3 Educational level

The result in Table 3 further reveals that 94.4% and 92.23% of users and non-users had one form of formal education or the other. Educational level of users of credit determine to a large extent level of awareness or existence of such organization and level of knowledge which will also guarantee to some extent efficient and productive uses of the loan to the benefit of the farmer and the nation at large as well as increase repayment rate. This is in agreement with Olagunju [16] who asserted that the educational attainment of a farmer does not only raise productivity but increase ability to appreciate the essences of credit and understand and evaluate the information on new techniques and processes disseminated through extension agents.

3.1.4 Farming Experience

The distribution of respondents based on their years of farming experience is also presented in Table 3 The result shows that most 52.22% and 46.67% of users and non- users respectively had farming experiences of 11- 20 years. However, the average years of experience of the respondents were; users 15.38%, non-users 17.63% and pool 16.38%. This result explains the fact that microfinance bank operation is at its infancy age.

3.1.5 Household size

According to the result in Table 3, most users (60%) and non-users (55%) have 1 – 5 persons in their household. The average family size, however, was 6 persons. Rajhi [17] opined that a large household size suggests a major source of farm labour which is consistent with the fact that household members constitute an important source of labour force

required for farm work in a typical agrarian population structure in developing countries such as Nigeria and at the same time increases the consumption pressures which may have negative effect on the loan collected, that is, loan divergence for domestic uses.

3.1.6 Membership of Cooperative Societies

The result presented in Table 3 further shows that 82.22% of users belong to a cooperative society. This could be the reason why they had access to micro credit in the study area. This is in agreement with the finding of Obare, Nyagaka, Nguyo, and Mwakubo, [18] that Membership of cooperative society's gives members of the cooperative more access to inputs and information on how to improve farm management practices.. Also, 97% of non- users belong to cooperative society. The gap between users and non-users is due to the fact that non- users realize that cooperative access credit easier than non-cooperative member they was influx into cooperative group. This agrees with the findings of [16], who found that 84.7% had access to credit through membership of cooperatives society. Membership of cooperative affords the farmers opportunities of sharing information on modern rice.

Table 3: Distribution of Respondents According to Socio-Economic Characteristics

Variable	Users Freq. %		Non-Users Freq. %		Pooled Freq. %	
Age						
21-30	11	12.22	6	6.67	17	9.44
31-40	37	41.11	41	45.56	78	43.33
41-50	36	40.00	28	31.11	64	35.56
Above 50	6	6.67	15	16.67	21	11.67
Total	90	100.00	90	100.00	180	100.00
Mean	40		43		41	
Sex						
Female	26	28.89	16	17.78	42	23.33
Male	64	71.11	74	82.22	138	76.67
Total	90	100.00	90	100.00	180	100.00
Mean	0.72		0.83		0.77	
Educational level						
Never been to school	5	5.56	5	5.56	7	7.78
Primary	26	28.89	26	28.89	23	25.56
Secondary	23	25.56	23	25.56	23	25.56
Tertiary	27	30.00	27	30.00	25	27.78
Non-formal	3	3.33	3	3.33	3	3.33
Others	6	6.67	6	6.67	9	10.00
Total	90	100.00	90	100.00	90	100.00

Table 3: Continued

Variable	Users Freq. %		Non-Users Freq. %		Pooled Freq. %	
Farming experience						
1 – 10	24	26.67	22	24.44	46	25.56
11 – 20	47	52.22	42	46.67	89	49.44
21 – 30	19	21.11	17	18.89	36	20
Above 30			9	10	9	5
Total	90	100.00	90	100.00	180	100.00
Mean	15		18		16	
Household size						
1 – 5	54	60.00	47	52.22	101	56.11
6 – 10	32	35.56	41	45.56	73	40.56

11 – 15	3	3.34	2	2.22	5	2.78
16 – 20	1	1.11	-	-	1	0.56
Total	90	100.00	90	100.00	180	100.00
Mean	6		6		6	
Membership of cooperative						
No	16	17.78	3	3.33	19	10.56
Yes	74	82.22	87	96.67	161	89.44
Total	90	100.00	90	100.00	180	100.00
Number of extension visit						
0	26	28.89			33	18.33
1	9	10.00	7	7.78	23	12.78
2	21	23.33	14	15.56	67	37.22
3	22	24.44	46	51.11	45	25.00
4	9	10.00	23	25.56	10	5.56
5	3	3.33	-	-	2	1.11
Total	90	100.00	90	100.00	180	100.00
Mean	2		2		2	

Source: field survey, 2016s

3.1.7 Access to Extension services

The result presented in table 3 shows the distribution of respondent according to access to extension, distance to micro credit bank, mode of land acquisition and secondary occupation. Results reveal that 71% of users have access to extension services. It explained the reason why they are beneficiaries of microfinance credit. Extension service is very essential to the improvement of farm productivity and efficiency among farmers [19]. Extension contact helps bring the latest innovation and technologies such as improved seed, fertilizer and loan, close to rural areas where most small scale farmers dwell. On the other hand, 29% of non – users had no contact with extension agents .this is in agreement with the Study that increase in extension contact has a positive influence on technical efficiency [20], [21], [22].

3.1.8 Farm size

Information on the Farm Size(in hectares) cultivated by the respondents in study area is shown in table 4, result show that most of the users (36.67%) cultivated 1.1 – 2.0ha with average of 1.74ha while most of the non-users (63.33%) had farm sizes ranging between 0.1 – 1.0ha with average 1.22ha. The larger hectares owned by users could be as result of access to credit. Mode of land acquisition also shows that 31.11% and 27.78% of users and non- users acquire land through communal ownership and inheritance respectively. This indicates availability of agricultural land in the study area. Also, 26.67% and 26, 67 % of users and non – users acquired land through rent and leasehold, respectively. This study is in line with finding of Sibiko et.al [23] who found that farm size had positive relationship with access to credit.

3.1.9 Amount Collected as Loan by Beneficiaries

The result in table 4 reveals that majority of the users (33.33%) received amount ranging from N100,001 to N200,000, while 24.44% and 26.67% received between N200,001 to N300,000 and N300,001 to N400,000 respectively. Only 8% collected above N400, 000. This informed their small holding operation on their small farm size. This suggests that non – securitized loan (up to 50,000) is not attractive to the farmers, perhaps due to its smallest and diminishing purchasing power of Naira consequently most of the non- securitized users would be able to meet their

production expenses. Of course, credit to farmers is small compared with loans to commercial industrial enterprise [16]. The demand for credit by the borrowers (farmers) is constrained by lack of information because it is costly to identify profitable investment project and to assess their risk. Financial institutions also suffer from lack of information, as they are uncertain about the borrower's willingness and ability to service the debt.

Table 4: Distribution of Respondents According to Institutional Factors

Variable	Users Freq. %		Non-Users Freq. %		Pooled Freq. %	
Crop type						
Maize	31	34.44	35	38.89	66	36.67
Millet	20	22.22	21	23.33	41	22.78
Rice	24	26.67	15	16.67	39	21.67
Sorghum	15	16.67	19	21.11	34	18.89
Total	90	100	90	100	180	100
Form of land tenure						
Purchased						
Rent	9	10	4	4.44	13	7.22
Gift	24	26.67	9	10	33	18.33
Leasehold	6	6.67	15	16.67	21	11.67
Inheritance	3	3.33	24	26.67	27	15
Allocation	16	17.78	25	27.78	41	22.78
Communal ownership	4	4.44	9	10	13	7.22
Total	28	31.11	4	4.44	32	17.78
	90	100	90	100	180	100
Farm size						
0.1 – 1.0	27	30	57	63.33	84	46.67
1.1 – 2.0	33	36.67	24	26.67	57	31.67
2.1 – 3.0	25	27.78	9	10	34	18.89
3.1 – 4.0	4	4.44	-	-	4	2.22
Above 4.0	1	1.11	-	-	1	0.56
Total	90	100	90	100	180	100
Average	1.74		1.22		1.48	
Type of labour used						
Family	34	37.78	33	36.67	67	37.22
Family and hired	56	62.22	57	63.33	113	62.78
Total	90	100	90	100	180	100

Source: field survey, 2016

Table 4: Continued

Variable	Users Freq. %		Non-Users Freq. %		Pooled Freq. %	
Credit amount						
1 – 100,000	7	7.78				
100,001 – 200,000	30	33.33				
200,001 – 300,000	22	24.44				
300,001 – 400,000	24	26.67				
400,001 – 500,000	2	2.22				
Above 500,000	5	5.56				
Total	90	100			144,416.67	
Mean	288,833.33					

Source: field survey, 2016

3.2 Effect of Microfinance Banks' Credit on the Productivity of Cereal Crop Farmers

The regression estimate of factors affecting cereal crop farmers' productivity is presented in Table 5. The result shows that the Cobb-Douglas function was the lead and chosen equation. The F-ratio of 1237.81 which was significant at 1% level of probability implies that the whole model was statistically fit. The coefficient of multiple determination (R^2) of 0.9805 indicated that 98.05% variation in the productivity of the cereal crop farmers was explained by the explanatory variables included in the model, while the remaining 1.95% not explained is as a result of variables not included in the model as well as errors in the estimation. The coefficients of cost of farm size, labour, seed, capital input and amount of credit were all positive and significant at 1%, 5%, 1%, 1% and 1% level of probability respectively. This implies that a unit increase in these variables holding other variables constant will lead to an increase in the productivity of the cereal crop farmers by 0.5664362, 0.1041072, 0.4412151, 0.0671496 and 0.014848 respectively. In essence, the farm size, labour, seed, capital input and amount of credit are the significant factors affecting the productivity of the cereal crop farmers in the study area.

Table 5: Regression Estimates of Factors Affecting Cereal Crop Farmers' Productivity

Variable	Linear	Cobb-Douglas	Exponential	Semi-log
Farm size	1.014333 (9.71***)	0.5664362 (6.28***)	0.47566 (5.33***)	1.078394 (8.04***)
Labour	-0.00065 (-0.21)	0.1041072 (2.13**)	-0.00116 (-0.50)	0.103714 (0.28)
Fertilizer	0.000387 (1.41)	0.0012676 (0.54)	0.000278 (1.35)	-0.00728 (-0.40)
Agrochemical	0.001847 (0.10)	0.0014273 (0.24)	-0.00038 (-0.03)	-0.04 (-0.88)
Seed	0.036387 (4.59***)	0.4412151 (4.73***)	0.009902 (3.93***)	1.03416 (3.36***)
Capital input	7.88E-05 (5.12***)	0.0671496 (3.48***)	2.78E-05 (2.41**)	0.020616 (0.14)
Credit amount	3.36E-06 (4.95***)	0.014848 (4.75***)	1.53E-06 (3.02***)	0.006641 (0.28)
Constant	-0.01021 (-0.05)	-0.6862507 (-2.96***)	-0.34354 (-2.10**)	-1.54006 (-0.87)
R-Squared	0.9474	0.9805	0.8182	0.8151
Adjusted R-Squared	0.9453	0.9797	0.8108	0.8075
F-ratio	442.64***	1237.81***	110.58***	108.30***

*** = Significant at 1% level of probability, ** = Significant at 5% level of probability (Figures in parenthesis are t-values)

3.3 Constraints Encountered by Respondent in the Study Area

Result from the Table 6 shows that bureaucratic procedure involved in accessing the loan, high interest rate and loan officer not always available which accounted for 73.33%, 62.22% and 40.56% respectively were the major constraints faced by the respondents in accessing microfinance bank's credit in the study area. This result contrasts the finding of Ajibi [24] who found that lack of knowledge on loan usage, lack of guarantor and mode of repayment were the major constraints faced by farmers in accessing microfinance bank's credit in Nasarawa State. Also, some of the farmers that accessed the credit experienced long time lag/delay in credit processing between application and loan disbursement by microfinance

bank and such could not make good use of the loan on the proposed farming activity. From the survey, it was also discovered that as much as 40.56% of the respondents encountered the problem of unavailability of loan officers most of the time respondents try to visit the branch of participating banks either for application or enquiries concerning the loan only not to meet the loan officers which is very frustrating to them. This problem slow down the process of obtaining the loan and ultimately leads to widening of time lag between loan application and release of fund. It was discovered that 38.89% of the respondents opined that unavailability of the collateral as a constraint. It is as a result of problem like lack of collateral that a scheme such ACGSF was introduced by government such that government through the CBN will be the guarantor for the applicants [25]. Forty percent of the respondents also indicated lack of proximity of the branch of participating banks to their locality as one of the major constraints they faced in assessing the loan. This is in line with Osuntogun [26] who asserted that most of the branches of the scheme are not located in the rural area where real farming activities takes place. Late disbursement of loan according to is significant in reducing repayment ability [16]. When loan delivery misses critical period of use there is the tendency that such a loan would be diverted to relatively less productive or utterly unproductive activities. Hence there should be timely release of capital allocation bearing in mind that agricultural activities are exceedingly time specific. Finally it was also discovered from the survey that as little as 18.33% of the respondent had difficulty in reading and writing, that is, illiteracy, this is in line with the result of education status of respondents which reveals that majority of the respondent are educated. This is also an indication that as much as 81.67% had no problem with reading and writing while the few 18.33% with such problem were being guided in filling the forms and supplying the necessary information needed in the course of accessing the loan.

Table 6: Constraints Encountered By Farmers in Accessing Microfinance Bank Credit in the Study Area

Constraints	*Frequency	Percentage (%)	Rank
Bureaucratic procedures	132	73.33	1 st
High interest rate	112	62.22	2 nd
Loan officer not always available	73	40.56	3 rd
Microfinance bank is far away	72	40.00	4 th
Unavailability of security/collateral	70	38.89	5 th
Late disbursement of loan	41	22.78	6 th
Illiteracy	33	18.33	7 th
Total	533	73.33	1 st
Bureaucratic procedures	132	62.22	2 nd
High interest rate	112	40.56	3 rd
Loan officer not always available	73	40.00	4 th

Source: Field survey, 2016

Note: * = multiple responses

3.4 Testing of Hypotheses

3.4.1 Chow Test on Cereal Crop Farmers' Productivity

Chow test was used to test the null hypothesis (Ho1) that there is no significant effect of microfinance bank's credit on the productivity of cereal farmers in the study area. The F (Chow) value of 9.1465 from the result presented in Table 4.7 was statistically significant at 1% level of probability. This implies that microfinance bank's credit had positive effect on the productivity of the cereal crop farmers in the study area. The null hypothesis is therefore rejected.

Table 7: Chow (F) Test Analysis for Hypothesis one

Variable	F-value	Decision
Productivity	9.1465***	Reject Ho1

Source: computed from field survey, 2016

Note: *** = significant at 1% level of probability

Table 8: Z-test Analysis for Hypothesis two and three

Variable	Mean difference	Z-calc value	Z-table value	Decision
Profit	210482.10	3.8536***	2.390	Reject Ho2

Source: computed from field survey, 2016

Note: *** = significant at 1% level of probability

Conclusion

Based on the result of this study, it is concluded that microfinance bank's credit had a positive effect on users in the study area and they are also more technically efficient than the non-users. It also revealed that cereal production is a more profitable venture among microfinance banks users than the non-users in the study area.

REFERENCES

- [1] M. I. Tulu, "Effect of Micro Credit on Small Scale Farmers in Bauchi Local Government Area: Case Study of Rahama Women Development Bauchi, Nigeria," Unpublished Msc Thesis of the Department of Agricultural Economics and Extension, Abubakar Tafawa Balewa University, Nigeria, pp 1-3, 2010.
- [2] M. B. Ajakaye, "Financing Agricultural Programmes in Nigeria: The Role of the Nigeria Agricultural and Cooperative Bank limited," In: Okorie, A. and Ijare, M.O. (eds) Readings in Agricultural Finance; Longman Nigeria Plc. pp. 59-73, 1998.
- [3] M. Robinson, "The Microfinance Revolution: Sustainable Finance for the poor," World Bank: Washington D C., p. 42, 2001
- [4] R. S. M. Kanbur, "Measurement and Alleviation of Poverty: with an explanation to the Effect of Macroeconomics Adjustments," IMF, Staff papers p. 182, (1978)
- [5] M. T Marx, "Nigeria's Rural and Microfinance: Rural and Micro-Finance Options," Report on Formulation Mission by IFAD/World Bank/CBN, Abuja, CBN, pp. 4-22, 2001
- [6] G. U. Manu, "Profitability and Technical Efficiency of Cassava Production in Some Selected Local Government Areas of Abia State, Nigeria," Unpublished M. Tech Seminar Proposal,

- Department of Agricultural Economics and Extension, Federal University of Technology Minna Minna Nigeria, 2015
- [7] M. A. Ndanista, "The Performance of Microfinance Institutions on Poverty Alleviation of Farm Households in North Central Nigeria," Unpublished Thesis, Department of Agricultural Economics and Extension, Faculty of Agriculture, Bayero University Kano. Nigeria, p. 134, 2012
- [8] J. E. Njoku, "Changing Roles of Agriculture in Nigerian Economy," Paper Presented at the Faculty of Agriculture , UNN, 29th January, 2002, pp 4-5, 2002
- [9] Federal Capital Territory Administration FCTA, 2013. [http://www.fct.gov.ng/index7732.html? 78](http://www.fct.gov.ng/index7732.html?78) Date retrieved 2nd of September ,2015.
- [10] H. Sallawu, "Livelihood and Income Diversification Strategies among Farm Households in Niger State, Nigeria," Unpublished M. tech Thesis Submitted to The Department of Agricultural Economics and Extension Technology Federal University of Technology, Minna, Nigeria, 2014
- [11] J. J. Pelemo, "Effect of Cashew Production on Rural Poverty Alleviation in Kogi State Nigeria," Unpublished M.Tech thesis submitted to the Department of Agricultural Economics and Extension Technology Federal University of Technology, Minna, Nigeria, 2016
- [12] C. O. Adebayo, "Evaluation of United Nations Development Programmes Micro Credit Scheme on Food Security Status of Farm Households in Kaduna State," Unpublished Ph.D. Dissertation Submitted to the Postgraduate School, Ahmadu Bello University, Zaria, Kaduna State, p. 110, 2010
- [13] J. B. Simonyan, & R. A. Omolehin, "Analysis of Impact of Fadama II Project on Beneficiary Farmers ncome in Kaduna State, Nigeria: A Double Difference Method Approach," International Journal of Economics and Management Sciences, vol. 1, no, 11, p. 108, 2012
- [14] C. T. Ezeokeke, N. Anyawu, and V. M. Okoro, "Impact of Fadama II Project on Feed, Food and Poverty in Imo State, Nigeria." International Journal of Applied Sociology, vol. 2, no. 3, pp. 22-21, 2012
- [15] R. Olaleye, "Effectiveness of Development Intervention for Economic Empowerment on Rural Women in Ondo Nigeria," An Unpublished Ph.D Thesis Submitted to The Department of Agricultural Extension and Rural Development; University of Ibadan, p. 23, 2010
- [16] F. I. Olagungu and A. Ajiboye, "Agricultural Lending Decision: A Tobit Regression Analysis, African journal of food, Agricultural, Nutrition and development, Vol. 10 No. 5 pp. 2-30, 2010
- [17] M. A. Y. Rahji and S. A. Fakayode, "A Multinomial Logit Analysis of Agricultural Credit Rationing by Commercial Banks in Nigeria," International Research Journal of Finance and Economics, vol. 24, no. 1, pp. 91-92, 2009
- [18] G. A. Obare, D. O. Nyagaka, W. Nguyo, & S. M. Mwalcabo, "Are Kenyan Small Holders Farmers Allocatively Efficient? Evidence from Irish Potato Producers in Nyandarua North District," Journal of Development and Agricultural Economics, vol. 2, no. 3, pp. 078-085, 2010
- [19] M. Obwona, "Determinants of Technical Efficiency Differentials Among Small and Medium Scale Farmers in Uganda: A Case Study of Tobacco Growers," A final research report presented to the Boennial AERC workshop, Niarobi, Kenya, 2010
- [20] S. O. Akinbode, Dipeolu, A. Q. & Ayinde I. A., "An Examination of Technical Allocation and Economic Efficiencies in Ofada Rice Farming in Ogun State, Nigeria," African Journal of Agricultural Research, vol. 6, no. 28, pp. 6027-6035, 2011
- [21] M. Kamruzzaman, & M. Heda etul Islam, "Technical Efficiency of Wheat Growers in Some Selected Sites of Dinajpur District of Bangladesh". Bangladesh, Journal of Agricultural Research, vol. 33, no. 3, 2008
- [22] O. Ogisi, D. Chukwuyi, O. Christopher, & C. O. Daniel, "Efficiency of Resource use by Rice Farmers in Ebonyi State, South East Nigeria: A Data Envelopment Analysis," Asian Journal of Agricultural and Rural Development, vol. 2, no. 2, pp. 149-154, 2012
- [23] K. W. Sibiko, G. Owuor, E. Birachi., E. O. Gido, O. I. Ayuya and J. K. Mwangi, "Analysis of Determinants of Productivity and Technical Efficiency among Smallholder Common Bean Farmers in Eastern Uganda. African Economic Research Consortium, Nairobi, Kenya the International Centre for Tropical Agriculture [CIAT], Kigali, Rwanda, 2013
- [24] B. O. Ajibi, "Effect of Microfinance Banks' Credit Scheme on the Productivity of Small Scale Crop Farmers in Nasarawa State Nigeria," Unpublished M. Tech Thesis Submitted to the Department of Agricultural Economics and Extension Technology Federal University of Technology, Minna, Nigeria, 2016
- [25] S. A. Olomola, "Dimension of Institutional and policy Deficiencies in the Nigeria Agricultural Credit System". Development policy Review, vol. 7, no. 2, pp. 169-181, 1989
- [26] C. A. Osuntogun, "The Impact of specialized Small Holder Credit Programmes on Famers Beneficiaries. A Case of First Bank of Nigeria." African Review of Money Finance and Banking, vol. 1, pp. 35-36, 1997