



Accessibility of formal credit among female farmers from Bank of Agriculture (BOA) in Abia State Nigeria

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Abstract

The study focused on access to formal credit among female farmers from Bank of Agriculture (BOA) in Abia State Nigeria. The socio-economic characteristics; determinants of credit access among female farmers were examined and determined. A total number of one hundred and fourteen (114) respondents were randomly selected through a multi - stage stratified sampling technique. Primary data were analyzed using descriptive statistical tools such as frequencies, means, percentages and inferential statistic; Logit Regression Model. The mean age (44 years), household size (6 persons), educational level (3.28), farm size (2.51 hectares) and service charge (₦19, 789. 47) respectively represents the socioeconomic profile of the female farmers. Logit result identified significant variables that affect the credit access to the farmers to include; farm income (0.113), equity (0.137), marital status (0.114), guarantor (0.052), experience (0.0004), service charge (-0.181) and age (-2.697). It was recommended that improving access to formal credit to female farmers should be encouraged to diversify farm enterprises with the credit obtained from the financial institution by downward review of equity contribution and service charge on credit supplied to the female farmers. It was also recommended that credit be extended to the relatively young people who would be able to embrace new agricultural innovations as to increase their productivity

Keywords: Credit, Female farmers, Lending institution, Access

Introduction

Access to formal credit is crucial for empowering female farmers and promoting agricultural development in Nigeria. Female farmers play a vital role in food production and food security and as such they are the backbone of the development of rural and national economies. They form the majority of those employed in the agricultural sector, they comprise 43% of the world's agricultural labour force (Mugede, 2013) and 60-70 per cent of the agricultural labour force in Nigeria (Sanusi, 2012). However, despite the significant contributions of female farmers to the agricultural sector, they face numerous challenges in accessing formal credit facilities

which results in inadequate access and control over agricultural productive resources.

Credit is an input used in production as well as a facilitator of the efficiency of other production inputs. It enhances the production capacity of the poor resource farmers through financial investment in their human and physical capital (Okurut *et al.*, 2004). Agricultural credit is seen as an undertaking by individual farmers or farm operators to borrow capital from intermediaries for farm operation (Odo *et al.*, 2009). According to Olayemi (1998), credit involves all advances released for farmers' use to satisfy farm needs at the appropriate time with a view to refunding it later. Thus, credit can be in the form of cash or

kind, obtained either from formal, semi-formal or informal sources.

Women face gender inequality in all spheres of life, the most systemic gender bias is in the form of laws and customs that impede women's access to credit, production inputs, employment, education, or medical care (Baba *et al.*, 2015). Poor access to financing is the major setback faced by women in agriculture. Credit is an extremely useful resource to farmers due to the fact that their production activities are most often seasonal in nature and a considerable lag occurs between the time they incur costs and the time that they are able to generate income from their produce. Several researchers have identified number of reasons why women farmers are still not able to access credit easily, some of the most relevant ones include; the lack of collateral requirements, high transaction cost, limited education and mobility, socio-cultural impediments, irregularity of employment, and the nature of women's businesses limit their ability to obtain credit (Drafor and Puplampu, 2013).

In Nigeria, the Bank of Agriculture (BOA) is a key financial institution that provides credit facilities to farmers. However, despite the presence of BOA branches in the three agricultural zones in Abia State, female farmers continue to face challenges in accessing these services (Ugoani *et al.*, 2015) thereby hindering their ability to enhance productivity and income. Therefore, the study aims to explore the factors influencing the access to formal credit through BOA among female farmers in Abia State, Nigeria, with a focus on the services provided by the Bank of Agriculture. The study examined the socio-economic characteristics of the female farmers and estimated the determinants of credit access among female farmers from Bank of Agriculture in the study area. The following hypothesis was tested in the study; that age, marital status, educational level, main occupation, farm size, equity contribution,

availability of guarantor, years of farm experience, membership of cooperative, ownership of account, service charge and annual farm income do not significantly influence female farmers' credit access.

Material and methods

The study was carried out in Abia State, Nigeria. Abia state is one of the thirty-six states of the Federal Republic of Nigeria. The state is located in the Southeast Agro-ecological zone of Nigeria. Abia state lies between longitudes 7⁰⁰ E and 8⁰⁰ E and latitudes 4⁰⁴' N and 6⁰¹⁷' N of the equator. The climate is tropical and humid all year round. The rainy season starts from March to October. The dry season occurs from November to February. The mean annual rainfall ranges from 2000 mm to 2500 mm with the southern areas receiving more than the northern areas. The temperature ranges between 22⁰ C (minimum) to 31⁰ C (maximum), the vegetation is predominantly lowland rainforest. The major crops grown are arable crops (cassava, rice, yam, maize, melon, banana, plantain, vegetables e. t. c). Major cash crops grown in the state include oil palm, kola nuts, cocoa, rubber, oranges and cashew. Other farming activities include sheep, goat, poultry and rabbit rearing (World Bank, 2000).

According to National Population Commission (2006). Abia State has a total population of about 2,845,380 comprising 1,430,298 males and 1,415,082 females representing 49.7 percent of the total population. The annual population growth rate is 3.18 percent. Majority of the population live in the rural areas with a population density of about 580 per square kilometer which is adjudged to be one of the highest among the states of the country. Abia State comprises 17 Local Government Areas (LGA's) in three agricultural zones namely Aba, Ohafia and Umuahia. In Ohafia zone, there are five LGAs namely; Isuikwuato, Ohafia, Bende,

Arochukwu and Umunneochi. In Umuahia zone, there are five LGAs namely; Umuahia North, Umuahia South, Ikwuano, IsialaNgwa North and IsialaNgwa South in Abia zone. There are some lending institutions in the study area such as commercial banks including First Bank of Nigeria Plc, United Bank of Africa and specialized financial institution such as Bank of Agriculture.

A total number of one hundred and fourteen (114) respondents were randomly selected through a multi - stage stratified sampling technique. The respondents were female farmers who had actually submitted a formal application to Bank of Agriculture during 2014 planting season from the three agricultural zones of the state. Three credit officers of the lending institution were interviewed. Bank of Agriculture was purposively selected for the study because they are actively partaking in Agricultural Credit Guarantee Scheme (ACGS) coordinated by the

Central Bank of Nigeria. First, the three branches of Bank of Agriculture were purposively selected. This was based on the location of the units of the financial institution in each of the three agricultural zones which formed the primary sampling strata. The branches of the lending institution in the State are Umuahia, Isuochi and Obehie; representing Umuahia, Ohafia and Aba agricultural zones respectively of the state. Secondly, from the list of all the individuals that made applications for credit during the 2014 planting season, male applicants were separated from female applicants. Thirdly, simple random sampling method was used to select 114 applicants consisting of 76 credit beneficiaries and 38 noncredit beneficiaries for the study. For the year under study, a total of 250 female farmers' applications were received by Bank of Agriculture in the study area. Details of the sampling procedure are shown in Table 1.

Table 1: Sample Selection

State	Bank	Agricultural zone	BOA branch	Farmer respondents
Abia	Bank of Agriculture	Umuahia	Umuahia	41
		Ohafia	Isuochi	37
		Aba	Obehie	36
Total				114

Source: Field survey, 2015

Primary data were used for the study. Data were collected in August and September 2015. Data collected were analyzed using descriptive statistical tools such as frequencies, means, percentages and inferential statistics. Furthermore, the determinants of credit access among the female farmers from Bank of Agriculture in the study area was analyzed using Logit regression model.

The implicit function was stated as follows:

$$L_i = \ln(P_i/1 - P_i) = Z_i = \alpha + \beta_i X_i$$

$$\text{Logit prob. } (Z_i) = \alpha + \sum \beta_i X_i + \mu_i$$

The dependent variable Z_i is the probability of access to credit; whether the respondent had access to credit or not. Since Z is the random variable (dichotomous), it is then assumed that Z_i takes on the values 0 which denotes when a female farmer had no access to credit and 1 when a female farmer had an access to credit.

The model is explicitly stated as follows;

$$Z_i = b_0 + b_1X_1 + b_2 X_1 + b_3X_3+ b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + e_i \dots . 4$$

Where; $Z_i = 1$ or 0 (1if respondent had access to credit or 0 if respondent had no access to credit).

b_0 = Constant term

$b_1 - b_{12}$ = logit coefficients

Independent variables capturing socioeconomic factors and lending criteria;

X_1 = Age of the respondents (years)

X_2 = Marital status (married = 1, otherwise = 0)

X_3 = Educational level (years)

X_4 = Main occupation (1=farming, 0=otherwise)

X_5 = Farm size (hectares)

X_6 = Equity contribution(naira)

X_7 = Guarantor (1 =yes, 0 =no)

X_8 = Years of farm experience (years)

X_9 = Membership of cooperative (1=yes, 0=otherwise)

X_{10} = Ownership of account (1 = yes, 0 = no)

X_{11} = Service charge (naira)

X_{12} = Annual farm income (naira)

e_i = error term

who are more likely to adopt innovations than the older farmers. The mean household size was about six persons. Beneficiaries with relatively large family size are likely to spend more of the loans in financing consumption and other basic household requirements than on farm production (Njoku and Odii, 1991). The mean of 3.28 shows that the female credit beneficiaries attained upper basic (secondary) education which is connoted by 3 in the research design. This implies that most of the respondents were relatively literate. Yamusa and Adefila (2014) reported that educational status of the farmers played a good role in technology adoption and innovative production methods and in understanding risk situations. The mean of years of farming experience was 8.6 years. This indicates that respondents had actually been in farming either as major or minor occupation for some years. Banaszak and Bechmann (2006) indicated that the years of farming experience was necessary for skill acquisition in farming business, which is fundamental to efficiency and effectiveness in farm operations. The mean annual farm income of the respondents was ₦348, 046.10, while the mean farm size was 2.51 hectares. These had shown that respondents are small holder farmers with farm size less than 5 hectares which is characteristic of farming in Nigeria. Asuquo *et al.*, (2014), opined that farm size may be proxy for lower risk exposure and improved access to resources (credit) by borrowers. Mean amount of ₦19, 789. 47 was service charge (amount of interest paid) with the minimum of ₦12, 000 and maximum of ₦48,000 paid by the beneficiaries depending on the amount of credit obtained from the lending institution.

Results and Discussion

Socio-economic profile of the respondents

The socio-economic profile of the credit beneficiaries of Bank of Agriculture in Abia State were first summarized using descriptive statistics in Table 2. The mean age of the credit beneficiaries was 44 years. This implies that majority of the respondents were relatively at their youthful age. This agrees with the findings of Oladeebo and Oladeebo (2008), that credit institutions might be willing to give credit facility to young and dynamic farmers

Table 2: Summary of descriptive statistics of the socio-economic profile of the respondents

Variable	Mean	Std. Dev.	Min.	Max.
Age (years)	44.62	8.72	30	68
Household size (number)	6.22	2.10	2	12
Level of education	3.28	1.18	2	5
Farming experience (years)	8.64	4.32	1	20
Annual farm income (naira)	348046.1	236170.5	120000	980000
Farm size (hectare)	2.50	1.07	0.2	4
Service charge (naira)	19789.47	7712.01	12000	48000

Source: Field data 2015

Logit estimate on the determinants of credit access among the female farmers from Bank of Agriculture

The determinants of access to credit among the female farmers from Bank of Agriculture were analyzed using logit model. The result of the logit estimate was presented in Table 3. The result of the logistic regression analysis gave the McFadden R-square value of about 0.663. This implies that 66.3 percent variations in the probability of access to credit by the female farmers was accounted for by the selected explanatory variables, suggesting that the model has explanatory power on the changes in female farmers' access to credit in the study area. Based on the logit coefficients of the explanatory variables on the probability to access credit by the female farmers in the study area, the study identified significant variables that affect the credit access to include; farm income (0.113), equity (0.137), marital status (0.114), guarantor (0.052), experience (0.0004), service charge (-0.181) and age (-2.697) in descending order as the major determinants that had effect on the

probability of access to credit among the female farmers in the study area.

The empirical result showed that Logit coefficients of the variables marital status, main occupation, farm size and income were positive and statistically significant at 10 percent. Age and service charge were statistically significant at 10 percent, but with negative coefficients. Furthermore, equity, guarantor and years of farm experience were positive and significant at 5 percent respectively. Age of the respondents was significant at 10 percent, but with a coefficient of -2.6978. This implies that as the age of the farmer increases, the probability of access to credit decreases. The older the female farmer, the less chances of her access to credit. This result is consistent with the findings of Mitra *et al.*, (2018) and Chandio *et al.*, (2021) agreed that age was negatively related to access to credit because as the age of respondents increases, access to credit decreases with age since farmers become more risk averse, they become less productive and innovative.

Marital status was significant at 10

percent with a positive coefficient. This means that the probability of married female farmers to access credit is higher than those unmarried, that being a married female farmer the log odd of access to credit increases by 11 percent. In line with a related study by Ogbe (2009) who indicated that selection of mostly married respondents for credit allocation showed that, they are responsible and are of good standing in the society. Kolapo *et al.*, (2022) also showed that marital status significantly influenced farmers' access to microcredit from cooperative society. Equity was statistically significant at 5 percent with a positive coefficient. This indicates that there is a direct effect of equity on access to credit. An increase in the respondent's equity would increase the probability of the farmer's access to credit. Equity contribution is the 20 percent lien security of loan amount required by the lending institution (BOA). This is true to afore mentioned lending criteria as obtainable in Bank of Agriculture. The higher the farmer's ability to make available higher percentage of equity contribution, the more the range of credit accessible.

Farmers' access to credit was positively affected by availability of guarantor. Guarantor was significant at 5 percent with a positive coefficient. This indicates that the ability of the respondent to provide the required number of two guarantors, the probability of access to credit increases. This is in contrary with Dzado (2012), where access to credit was found to be independent on the availability of guarantor to secure the credit. That was due to the group lending methodology used by the lending institution where the study was carried out. Unlike in Bank of Agriculture, availability of a guarantor is a major lending criterion since credits were advanced even more to unorganized individuals. Hounbedji (2021), showed that, having one person as a guarantor and the seniority in obtaining the loan influenced the granting of credit. Years of

farming experience was significant at 5 percent with a positive sign. The effect of years of farming experience showed that a unit increase in the number of farmer's years of farming experience would increase the probability in favour of access to credit. This is in agreement with apriori expectations and with the result from Eze *et al.*, (2009) and Obisesan, (2012). Female farmers must have appreciable years of experience in farming such that they could manage credit efficiently and effectively in other to make profit to repay both principal and service charges on the credit borrowed.

Service charge was significant at 10 percent with a negative coefficient. Service charge in Bank of Agriculture is the amount the credit beneficiaries pay as interest rate on borrowed money. This is the unit cost of taking credit as the prices increase, credit accessibility decreases and vice visa. This result indicated that a unit increase in the service charge would reduce the probability of access to credit by the female farmers by 18.1 percent. The implication is that the negative effects of service charge on access to credit were disincentive to access to credit among the female farmers surveyed. This in line with the findings of Nwaru (2005); Eze *et al.*, (2009) and Ike *et al.*, (2009) who variously asserted that the demand for credit decreases with an increase in its cost (interest rate). Annual farm income was significant at 5 percent with positive coefficient. This implies that increase in farm income increased the probability of access to credit by 11.3 percent. Female farmers in the study area with larger farm income would access credit much easily than those whose incomes were low. This conforms to apriori expectation and in line with Owolabi, *et al.*, (2011), that credit use is associated with higher income than average economic performance. The lending institution would prefer to grant credit facility to female farmers whose income is high because of higher chances of credit

default. Moreso, Houensou, (2021) showed that access to credit has a positive impact on the productivity of smallholder farmers, with a gain of 15%.

Table 3. Logit Estimate on the determinants of credit access among the female farmers'

Variable	Coefficient	Standard error	z-statistic	Probability
Constant	-13.57711	4.960370	-2.7371117	0.0062
Age	-2.697834	1.091245	-2.472253*	0.0134
Marital status	0.113516	0.044572	2.546788*	0.0109
Education	0.752329	0.688510	1.092691	0.2745
Main occupation	0.285123	0.165051	1.727482	0.0841
Farm size	0.177738	0.445418	0.399037	0.0899
Equity	0.137258	0.093345	1.470443**	0.0014
Guarantor	0.052284	0.456447	0.114545**	0.0088
Experience	0.000356	0.000118	3.006464**	0.0026
Cooperative	-1.150671	1.085806	-1.059738	0.2893
Bank account	0.017959	0.069363	0.258905	0.7957
Service charge	-0.18147	0.708890	-0.255991*	0.0170
Farm income	0.112960	1.357800	0.008319*	0.0163
McFadden R squared	0.663			
Log likelihood	13.739			
LR statistic	54.069***			

Source: Field data, 2015 * = significant at 10 percent, ** = significant at 5 percent

Conclusion and Recommendations

The study was carried out on access to credit among female farmers in Abia state, Nigeria. The findings of the study served as the basis for making conclusions. Provision of credit by BOA to the female farmers was positively influenced by both socio-economic and lending criteria variables. These include; age, marital status, equity contribution, years of farming experience, farm income, guarantor, and service charge. It was recommended that improving access to formal credit to female farmers is crucial for empowering women, reducing gender disparities, and promoting agricultural development in Abia State, Nigeria. Female farmers' need to be encouraged to diversify farm enterprises with the credit obtained from the financial institution by downward review of equity contribution and service charge on credit supplied to the female farmers. This will

reduce the cost of the credit accessed and increase the annual farm income level of the farmers. It was also recommended that credit be extended to the relatively young people who would be able to embrace new agricultural innovations as to increase their productivity.

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