

Factors influencing Smallholder Farmers Access to Credit in Ondo State, Nigeria

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Abstract

Access to credit among smallholder farmers is a major problem confronting smallholder farmers in the rural areas. The study investigates factors influencing smallholder farmers' access to credit in Ondo state, Nigeria. A multistage sampling technique was used to select respondents for the study. The primary data for the study was gathered with a structured questionnaire. The descriptive statistics and multinomial logit models (MNL) were used to analyze data collected. The mean age of smallholder household heads was 44.3 years, 60.3% were male headed households while 57.1% were married with an average of 7 members per household and 58.3% had a primary school education while 51.9% were farmers with 10.4 years of experience. The main source of credit to smallholder farmers was through the money lenders. A few of the challenges they faced were inadequate funds and collateral security. The factors influencing smallholder farmers' access to credit include; age, education, gender, household size, farm size, and occupation. Smallholder farmers' access to credit could help to improve productivity on the farm, increase technology adoption and procure agricultural inputs.

Key Words: Access, Informal credit, collateral security, Smallholder farmers, Ondo State.

INTRODUCTION

Farm credit is widely recognized as one of the intermediating factors between production and consumption among smallholder farmers (Akudugu, 2012). Credits is an important instrument for improving the welfare of the poor, consumption, procurement of inputs, adoption of technology and payment for labour and reduce vulnerability in income on the farm (Odu, 1996; Okurut, Schoombée and Berg, 2004). The problem of smallholder farmers' access to credit remains crucial in affecting their production pattern and level of productivity (Ortmann, 2000). Moreover, World Bank (1996) reported that credit is necessary for small-scale farmers to increase their agricultural productivity and farm income; however their access to institutional credit is curtailed. Smallholder farmers individually look insignificant but collectively form an important foundation upon which the agriculture sector of the developing countries rests upon (Nwaru, Onyenweaku, Nwagbo and Nwosu, 2004). Despite lack of access to credit and other support services in the rural areas, smallholder farmers still manage to produce to meet the basic needs of the family and the market.

Credit could be secured either through formal (Commercial Banks) or informal sources. Some of the informal sources include family/friends/relatives, Non-Governmental Organisations (NGOs)/cooperative society, Rotation Savings and Credit Associations (ROSCAs) and money lenders (Okurut,

Schoombée and Berg, 2004). However, the interest rate charged by formal financial institutions especially commercial banks make it difficult for small-scale farmers to access credit from this source. Moreover these formal credit institutions are not available in almost all the rural areas and the distance and cost to urban centers discouraged them from benefiting from the banks in the urban centers. As a result the informal sector becomes the only alternatives for accessing credit. The informal market receives wide patronage because of the timeliness of loan disbursement to farmers, accessibility and flexibility of services. They are also collateral free, however, the volume of loans disbursed are usually small.

An understanding of the characteristics of smallholder farmers' in relation to accessing agricultural credit could assist policy formulation to improve the welfare of the rural smallholder farmers. From this background this study is set out to address following questions: What are the socio-economic/demographic characteristics of the smallholder farmers in the study area? What are the sources of credit available to smallholder farmers in the study area? What are the challenges facing the smallholder farmers in accessing credit in the study area? What are the factors influencing smallholder farmers' access to credit in the study area?

Materials and Methods

This study was carried out in Ondo State in the South-west geo-political zone of Nigeria. The study area consists of 3,441,024 people occupying 14,798.8 square kilometre land area (NPC, 2006). Geographically, Ondo State lies between latitude 50 451 and 80 151 North and longitude 40 451 and 60 East (Ondo State, 2010). The state has a typically tropical climate of averagely high temperatures and relative humidity, seven months or more of rainfall patterns and five months of dry season. The primary data for this study was gathered with the aid of a structured questionnaire. A multi-stage sampling technique was employed in the selecting the respondents. The first stage

entailed the random selection of four (4) Local Government Areas (LGAs) from the four agricultural zones in the state. The second stage involved a random selection of five (5) rural communities from each LGA. The third stage was the random selection of eight (8) farming households from each rural community. A total of One hundred and fifty-six (156) respondents were used for the analysis. Descriptive statistics were used to analyze the socio-economic variables of respondents while the multinomial logit model was adopted to analyze the factors influencing smallholder farmers' access to credit in the study area.

Model Estimation:

The multinomial logit model was used to analyse smallholder farmers' access to credit by individual choice; Banks, cooperative society, ROSCAs, money lenders and family/relatives. The MNL model has response probabilities;

$$P(y=j/X_i) = \frac{\exp(X_i\beta_j)}{\sum_{j=1}^4 \exp(X_i\beta_j)} \dots\dots\dots 1$$

$P(y=j/X_i)$ denotes the probability that is associated with the sources of credit. The various sources of credit were classified as the dependent variables. It is assumed that the dependent variables D_{it} can take on one of the j categories 1,2,3....., k five responses were used as dependent variables $j = 0$ if household head does not access credit from any source (reference category); $j = 1$ if credit is sourced from banks; $j = 2$ if credit is sourced from cooperative society; $j = 3$ if credit is sourced from ROSCAs; $j = 4$ if credit is sourced from money lenders So setting $\beta_1 = 0$, the MNL model can be expressed as;

$$P(y=j/X_i) = \frac{\exp(X_i\beta_j)}{\sum_{j=2}^4 \exp(X_i\beta_j)} \quad j = 2,3,4) \dots\dots\dots 2$$

and

$$P(y=1/X_i) = \frac{1}{\sum_{j=2}^4 \exp(X_i\beta_j)} \dots\dots\dots 3$$

Result and Discussions

Table 1 reveals the age, gender, marital status, household size and educational status of smallholder household heads. Age is an important factor that determines individual's choices and decision making in relation to household activities. The result in Table 1 revealed that 57.0% of the

When $j=2$, β_2 is a $K \times 1$ vector of unknown parameters of individual smallholder household head who source credit from the various sources of credit (Mpuga, 2008). The maximum likelihood was used to estimate the empirical models in order to obtain asymptotically efficient parameter estimates (Greene, 1992). The log likelihood function for the multi-nomial logit can be written thus:

$$\ell = \sum_{i=1}^n \sum_{k=1}^n d_{ij} \log(P_{ij}) \dots\dots\dots 14$$

Access to credit is modeled as a function of the socio-economic/demographic characteristics (Mpuga, 2008; Durojaiye, 2011).

The explanatory variables include: X_1 = Age of household head (years); X_2 = Gender of household head (1 male, 0= otherwise); X_3 = Education level of household head(number of years spent in formal schooling); X_4 =Marital status of household head (1 if married, 0 otherwise); X_5 = Household size (number); X_6 = Occupation of household head(1 if farming, 0 otherwise); X_7 = Dependency ratio (number of non-working members/ working members); X_8 = Distance to source of credit (Km); X_9 = Total farm size (hectares); X_{10} = Non-farm income (₦).

smallholder farmers were between 43-60 years. The mean age of the smallholder farmers in the study area was 44.3 years. It implies that the majority of the respondents are economically active. The sex of the smallholder farmers revealed that 60.3% were male while 39.7% were female.

The marital status of smallholder farmers is important for households because it promotes specialization and risk sharing strategies. The result shows that a majority (57.1%) of the household heads were married, hence are expected to have produced more and receive higher income than the singles and widowed or divorced. This submission is in line with Mercer and Zhang (2005) that being married yields economies of scale and provides a risk-sharing protection against unexpected events hence yields greater productivity and income. The analysis of household size shows that 41.7% and 53.8% of the smallholder farmers have less than 6 members and between 6-10 members per household respectively. The mean household size was 7 members per household. Household size and composition could affect the diversion of credit facilities to other uses (such as feeding, clothing and payment of bills) aside farming (World Development Report, 2008).

Education of the household head often influences the household choices of economic activities. The result shows that 60.3% of the smallholder farmers had primary education while 11.5%, 20.5%, and 9.6% had non-formal education, secondary education, and tertiary education, respectively. It shows that the respondents have low literacy level. According to Adegoroye and Adegoroye (2008) low literacy level of the rural farmers could denied them of access to vital information on sources of credit, and access to loans from the formal financial

institutions. Also, Kiplimo (2013) that low level of education among smallholder farmers is a major constraint to understanding lending policies, complicated application procedures and the bureaucracies of the formal lending institutions. The years of experience in farming revealed that 59.0% of the smallholder farmers had between 15-24 years of farming experience. The mean years of experience of smallholder farmers in the study area was 10.4 years. The years of experience is expected to boost their productivity. Farm size an important factor among the smallholder household heads. Results show that 71.8% of the respondents cultivate between 1-3 hectares of land. The mean land holding was 1.7 hectares. The finding is in line with Matshe and Young (2004) that farm size is a major factor influencing demand for credit, since this affects inputs and labour use among farmers. The distance to the nearest credit/financial institutions revealed an average kilometer of 20.9 kilometer. Durojaiye (2011) affirmed that the high cost of transportation discourages smallholder farmers from accessing credits in urban areas. The income of the respondents revealed that 63.5% earn between ₦100,000:00 - ₦220,000:00 per annum. The mean income of the smallholder farmers was ₦56,015:28. It shows that the farmer's income was low. This is informed by the farm size. This finding is not unconnected with the fact that income from the farm is poor which is revealed in the poverty status of the farmers.

Table 1: Socio-economic characteristics of the respondents **n= 156**

Variables	Frequency	Percentage (%)
Age (Yrs)		
<25	8	5.1
25-42	47	30.2
43-60	89	57.0
>60	12	7.7
Mean(SD)		44.3±7.6
Gender		
Male	94	60.3
Female	62	39.7
Marital Status		
Single	12	7.7
Married	87	57.1
Widowed	21	13.4
Divorced	34	21.8
Household Size (No of Person)		
<6 persons	65	41.7
6-10 persons	84	53.8
>10 persons	7	4.5
Mean(SD)		7.3±2.6
Educational Attainment		
Non-formal Education	18	11.5
Primary Education	91	58.3
Secondary Education	32	20.5
Tertiary Education	15	9.7
Years of farming Experience		
>5	8	5.1
5-14	29	18.6
15-24	92	59.0
>24	27	17.3
Mean(SD)		10.4±7.1
Distance (Km)		
<5.00	6	3.8
5.00-19.00	14	9.0
20.00-34	23	14.7
>34.00	113	72.5
Mean(SD)		20.9±11.4
Income of Household Head (₦)		
<100,000.00	14	9.0
100,000.00-220, 000.00	99	63.5
230,000.00-340,000.00	32	20.5
>340,000.00	11	7.1
Mean(SD)		56015.28±16.213:66

Source: Field Survey, 2015

Table 2 shows the sources of credit available to the smallholder farmers in the study area. The results revealed that 44.2% of the smallholder farmers patronized the local money lenders while 26.3%, 17.9%, 7.1%, respectively patronized the cooperative societies, friends/relatives and rotating savings and credit associations (ROSCAs). Most respondents obtained credit facilities from informal sources. The use of informal sources might result from collateral free arrangements, timeliness of release and easy access to credit (Kiplimo, 2013). According to Oladeebo and Oladeebo (2008) availability of adequate and timely credit will help in expanding the scope of operation and adoption

of new technology as well as enhancing the purchase and use of improved inputs which are not available on the farm. However, only 4.5% of the smallholder farmers accessed credit from the formal sector (Banks) this could be linked to the difficult procedural arrangements smallholder farmers will undergo before accessing the credit.

Table 2: Distribution of respondents by Sources of Credit**n= 156**

Sources of Credit	Frequency	Percentage (%)
Cooperative Societies	41	26.3
Friends/Relatives	28	17.9
ROSCAs	11	7.1
Money lenders	69	44.2
Banks	7	4.5
Total		100.0

Source: Field Survey, 2015

On constraints in accessing credit in the study area (Table 4), the result shows that 29.5% of the smallholder farmers reported that request for collateral security has prevented them from accessing or approaching the formal credit sector (commercial banks) for credit. Collateral security requirement is a major factor that influences credit access, especially in the formal sector. Inadequate fund/rationing of credit as indicated by 26.9% of the respondents is one of the major problems of the informal credit sector despite the accessibility and timeliness of loan release to borrowers. Other identified problems included delay in the release of credit (15.4%) and high transaction cost (22.4%). These problems may not be unconnected with the

bureaucratic procedures of accessing the loans and the distance to formal financial institutions (commercial banks) which are usually located in urban centres. This is an agreement with Kiplimo (2013) that the distance between the rural areas and the urban centres where the formal credit institutions domicile accounted for high transaction cost. 5.8% of the respondents also reported high interest rate as a bane to accessing credit from the formal sector. However, Atieno (2001) on accessing credit from the informal sector reported that, despite the flexibility, easy accessibility of loans and the short maturity, the rationing of credit among borrowers makes it unattractive for working capital and investments.

Table 4: Challenges of Accessing Credit by Household Heads in the study area (formal and informal institutions) n= 156

Constraints to Accessing credit	Frequency	Percentage (%)
Inadequate fund/Rationing of credit	42	26.9
Delayed release of credit	24	15.4
High transaction cost	35	22.4
Collateral security demand	46	29.5
High interest rate	9	5.8
Total		100.0

Source: Field Survey, 2015

Factors Influencing Smallholder Farmers

Access to Credit in Ondo State

The results of the multinomial logit estimates (Table 5) shows the likelihood ratio chi-square test was 197.21 with a p-value of 0.0000 and Pseudo R² was 0.4613 while the log likelihood was -149.4367. It implies that the model as a whole fit significantly to the variables as good predictors of access to credit in Ondo state. The sources of credit available to the smallholder farmers are; banks, cooperative societies, rotating savings and credit associations (ROSCAs) and money lenders.

Access to Credit from the Banks

The variables that determine access to credit in Ondo state on Table 5 include age,

numbers of years spent in formal schooling, household size and land size. Age has a positive coefficient significant at 5% level of significance with positive marginal effect. It implies that an additional year of the age of household head would increase the probability of accessing credit by 0.3% relative to household that do not apply for credit. Zeller, Braun, Johm and Puetz (1994) reported that access to credit from the Gambian Co-operative was positively and significantly influenced by age and household income. The effect of numbers of years spent in formal schooling was statistically significant but with negative coefficient at 1% level of significance with negative marginal effect. This means that an additional years spent in formal schooling by household head decreases the

probability of access credit from the banks in the study area by 0.5% compared to the reference category. However, this is contrary to a priori expectation that better educated individuals are likely to possess the skills and knowledge which facilitate successful processing of relevant financial information and documents.

On household size, the coefficient was positive and significant at 1% level of significance with positive marginal effect. This implies that increase in the household size, increases the probability of accessing credit by 0.2% from the banks relative to household heads that did not apply for credit. On farm size, the coefficient was negatively significant at 10% level of significance with negative marginal effect on access to credit from the banks. This implies that as farm size decreases, the probability of accessing credit increases by 4.7% compared to the base category with no request for credit. This is consistent with the assertion that smallholder farmers did not request for credit because of the constraints of gaining access to productive inputs on the farm (Matshe and Young, 2004).

Access to Credit from Cooperative Societies

On access to credit from cooperative societies, the result shows that gender; occupation and non-farm income were the significant variables. Gender had a positive effect and statistically significant at 10% level of significance. This implies that being male increases, the probability of accessing credit from the cooperative societies increases by 0.4%. This is supported by Zeller, Braun, Johm and Puetz (1994) that female household heads had a negative and significant effect on accessing credit in Gambia cooperative societies. On occupation, the result shows a positive coefficient and positive marginal effect significant at 1% level of significance on access to credit from cooperative societies. This implies that the probability of accessing credits by farmers from cooperative societies is higher by 2.4% than other occupations.

Non-farm income of household heads was found to be negatively significant at 1% level of significance to accessing credit from the money lenders. This implies that as non-farm income increases the probability of accessing credit from other source decreases by 0.01%.

Access to Credit from ROSCAs

Table 5 shows that age; gender and occupation were found to be important variables influencing smallholder farmers' access to credit in ROSCAs. The effect of age of household heads on access to credit was statistically significant and positive at 5% level of significance. This implies that as the age of household heads increases, the probability of accessing credit increases by a marginal value of 2.7%. This means that an increase in age of household head increases the likelihood of access to credit. The gender of household heads' shows a positive sign of coefficient significant at 5% with positive marginal effect on access to credit in ROSCAs. This implies that the probability of accessing credits by the male gender is higher by 23.8% relative to the household that failed to apply for credit in the study area. The result on occupation showed a negative significance at 10% level of significance. This implies that with non-farm as the main occupation decreases the probability of accessing credit from cooperative societies by 21.5% relative to the reference category.

Access to Credit from Money Lenders

Table 5 shows that numbers of years spent in formal schooling, marital status, and dependency ratio and non-farm income were significant in influencing access to credit from the money lenders in Ondo state. Years of completed education show a positive sign of coefficient at 10% level of significance with positive marginal effect. The result implies that as years of completed education increases, the probability of accessing credit increases by 1.6%. The finding supports the fact that education increases the probability and ability to complete the loan documents and

understand the lending policies. The marital status of the household head shows negative coefficient significant at 5% level of significance. This implies that being a married household head decreases the likelihood of access to credit from the money lenders by 1.0%. This is at variance with the submission of Ferede (2012) that single-headed households or widowed are often considered 'less lucky' or disadvantaged in accessing credit however, Jappelli (1990) submitted that married couples could be given more credit because they are less mobile and loans may be jointly underwritten and singles are more likely to be constrained than married couples. Dependency ratio shows a negative sign of coefficient but statistically significant at 1%

level of significance with negative marginal effect on the probability accessing credit from the money lenders. This implies that a unit increase in dependency ratio decreases the probability of accessing credit by 13.1% ($p < 0.10$) relative to the reference category. This is in line with the findings of Balogun (2011). Non-farm income of household heads was found to be positively significant at 5% level of significance to accessing credit from the money lenders. This implies that as non-farm income increases, the probability of accessing credit increases by 0.3%.

Table 5: Multi-nomial Logit Model for Factors Influencing Smallholder Farmers Access to Credit in Ondo State

Explanatory Variable	Banks			Cooperative Societies			ROSCAs			Money Lenders		
	Coefficient	Marginal Effect		Coefficient	Marginal Effect		Coefficient	Marginal effect		Coefficient	Marginal effect	
Age	0.0356(0.67)**	0.003		0.1555(1.64)	0.000		0.0027	0.0046(0.10)		-0.213		
Gender	0.3822(0.55)	0.000		3.6386(2.12)*	0.004		0.1398(2.94)**	0.238		0.0332(-0.06)	0.136	
Education		0.005		-0.0313(-0.82)	-0.000	*	*	-0.009		0.0071(-0.15)*	0.015	
Maristat	0.0550(0.94)**	0.062		-0.0607(-0.02)	-0.000		1.2714(2.07)**	-0.052		-0.1042(-	-0.021	
H/H size	*	-0.002		0.1123(0.36)	0.000		-0.0405(-0.78)	-0.001		0.10)**	0.025	
Occupation	0.7071(0.46)	-0.149			0.024		-0.2178(-0.15)	0.215		0.1475(1.24)	0.039	
Depend ratio	0.0421(0.25)**	0.001		5.9046(3.25)**	0.003		0.0658(0.52)	-0.020		0.6243(0.96)	-0.131	
Distance	*	-0.002		*	-0.000		1.2413(1.77)*	-0.002		-0.9113(-1.76)*	0.001	
Land size	-1.2918(-1.34)	0.047		1.7486(1.53)	-0.000		-0.5894(-1.13)	-0.056		-0.0122(-0.40)	0.067	
Nonfarminco	-0.5024(-0.76)	0.119		-0.0420(-0.56)	-0.015		-0.0254(-0.87)	0.107		0.0748(0.29)	0.026	
Constant	-0.0484(-1.14)			-0.1395(-0.28)			-0.3198(-1.15)			1.3103(-		
	0.6779(1.95)*			-4.6310(-			0.0017(0.00)			2.05)**		
	1.1728(1.20)			2.59)***			--4.5986(-			1.1286(0.56)		
	-1.3833(-0.50)			-4.4997-			1.97)**					
				2.83)***								
Observation	156	LR	191.23	Pro	0.0000	Pseudo R ²	0.4603	LogLikelihood	-			
		chi ² ₍₁₀₎		b>chi ²				149.3373				

Source: Field survey, 2014 * ** and *** significant at 10%, 5% and 1% level. The absolute value of z statistics in parenthesis

Conclusion and Recommendations

This study examined the factors influencing smallholder farmers' access to credit in Ondo state. The study revealed the mean age of household heads was 44.3 years, 60.3% were male and 57.1% were married with mean household size of 6 members per household however, 60.3% had primary education. The major source of credit to the smallholder farmers in the study area was the money lenders. Lack of collateral security and high transaction cost were some of the challenges militating against easy access to credit in the formal institutions while inadequate fund and credit rationing are the peculiar problems with informal financial institutions. Furthermore, the MNL model revealed that age, education of smallholder

farmers; household size and occupation among others were some of the factors influencing access to credit from the various sources of credit in the study area. Hence smallholder farmers should be given access to education to enhance their access to information and operations of financial institutions. Also, there is need for financial institutions to review the collateral security arrangements; women should be encouraged to access facilities to boost their productivity. Policies on credit facilities should be flexible and accessible to the smallholder farmers. Household heads should be mobilized into various cooperative groups to enable them harness resources to boost their access to credit from the formal institutions.

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