

Full Length Research Paper

Factors determining access to formal credit in Ghana: A case study of smallholder farmers in the Abura- Asebu Kwamankese district of central region of Ghana

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Accepted 24 September, 2012

This study sought to identify factors that limit or increase smallholder farmers' access to formal credit in the Abura Asebu Kwamankese district of the central region of Ghana. The study was conducted in five towns of the district (that is Abura, Abakrampa, Asebu, Edumfa and Nyamebekyere). Sampled farmers comprised twenty previous credit applicants from each of the five towns. Primary data was collected from both farmers and bank officials in the study area whilst secondary data was collected from four formal financial institutions in the study area. Descriptive statistics and a binary logistic model were used to analyse quantitative data collected. Results of the logistic regression model revealed that extension contact, education level and saving habit had significant positive influence on farmers' access to formal credit. The odds of a smallholder accessing formal credit increased by a factor of 601.09, 371.40 and 10.98% for savings habit, extension contact and education level respectively. Output of the study revealed that 35% of sampled farmers had access to formal credit.

Key words: Factors, access, formal credit, smallholder farmers, Ghana.

INTRODUCTION

The agricultural sector has been a major contributor to gross domestic product (GDP) in the Ghanaian economy since independence in 1957. Despite efforts to increase production, output from the sector dropped from 34.5% of total gross domestic product in 2009 (GSS, 2009a) to 29.9% of gross domestic product in 2010 (GSS, 2009b). Agriculture creates employment for about 55% of the population, from production to marketing and processing of various agricultural produce (Global development program, 2010).

In spite of the huge agricultural potential of the country, the growth in agricultural production has not been able to keep pace with that of the demand for agricultural products. The country is still not self-sufficient in terms of production of food crops. There is therefore the need for

efforts to be made to enhance production.

The Ghanaian agricultural sector is predominantly made up of smallholder farms (farm sizes less than 2 ha) which produce 80% of the sector's output. These smallholders "comprising 90% of the sector", are predominantly rural based and resource constrained (MoFA, 2007). Since smallholders constitute the larger percentage of food producers, efforts aimed at increasing food production should be geared at the small farm sector.

Unfortunately, however, the smallholders seem to have reached their limit in their production potential because in an attempt to increase production, smallholders will either have to undertake area expansion or intensification of current practices which require external funding.

Food and agriculture sector development program (MoFA, 2007) was meant to provide a framework for modernising the agricultural sector and making it a catalyst for rural transformation, in line with the goal set for the sector in the Ghana Poverty Reduction Strategy

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(GPRS I). However, the desired impact of these policies was not achieved partly due to limited access to credit and technology by the smallholder farmers (MoFA, 2007).

Despite efforts to overcome the widespread lack of financial services especially among smallholders in rural areas of the country, the majority still have limited access to bank services to support private initiatives. Financing of agricultural inputs and labour wages requires liquid cash which often is not readily available to the smallholder farmers. Therefore, it is essential to find ways of expanding formal credit to smallholders to improve agricultural productivity

Credit is a very important resource that allows farmers to expand their operations or adopt new technologies. Unfortunately, several factors are thought to limit smallholder farmers' access to credit. In light of these factors, this study sought to identify factors that limit or increase access of smallholder farmers in the Abura Asebu Kwamankese district of central region to formal credit.

Specifically, the study sought to identify the lending institutions in the study area, determine the major factors that affect smallholders' access to formal credit, assess loan application requirements and criteria for credit allocation employed by lending institutions in the area, and determine major reasons for farm credit application rejection by formal lending institutions in the study area.

The rest of the paper is organized as follows: Subsequently, reviews of literature that are relevant to this study are conducted, after which the research methodology is presented. This is followed by a presentation and discussion of the results/findings of the study. Finally, the conclusions and recommendations are presented.

LITERATURE REVIEW

Credit access by smallholder farmers in low income countries

In most parts of the world, smallholder agricultural producers are entrepreneurs, traders, investors, and consumers, all rolled into one (Kloppinger-Todd et al., 2010). In all these roles, smallholder agricultural producers constantly seek to use available financial instruments to improve their productivity and secure the best possible consumption and investment choices for their families. But the package of financial services available to small farmers in developing countries is severely limited, especially for those living in remote areas with no access to basic market infrastructure (Kloppinger-Todd et al., 2010).

Agricultural credit plays an important role in the development of agriculture and augmenting employment opportunities in the rural areas (Cygnus Business Consulting Report, 2004). De Janvry and Sadoulet (1995)

observed that agricultural household models suggest that farm credit is not only necessitated by the limitations of self-finance, but also by uncertainty pertaining to the level of output and the time lag between inputs and outputs.

Access to formal financial services in smallholder farmers in rural areas is lacking despite the general growth in financial service delivery worldwide (World Bank, 2007). Agricultural producers constitute 40% of the credit constrained population in Honduras, Nicaragua and Peru, with credit constrained producers using on average 50 to 75% of the purchased input of unconstrained producers (Boucher et al., 2006).

A survey of 6,000 households conducted in two states of India found that 87% of the surveyed marginal farmers had no access to formal credit and 71% had no access to a savings account in a formal financial institution (World Bank, 2007). Only 16% of rural households in Nepal have bank accounts, indicating an even weaker access to formal financial services (World Bank, 2006). Similarly, only 27% of marginal and small farmers have access to formal sources of credit in Bangladesh (Khalily et al., 2002).

Formal lending institutions in Ghana

Ghate (1992) categorised financial markets into two forms: formal and informal financial markets. He defined formal financial markets as those financial market activities that are controlled by government, which are largely urban-oriented in terms of distribution of bank branches and the concentration of deposits and lending activities. Informal financial markets are defined as activities of various financial intermediaries ranging from farmers, money-lenders, friends, relatives, shopkeepers, merchants, traders, and rotating savings and credit associations.

Ghana's formal financial market sector comprises the central bank of Ghana, 26 universal banks and 127 rural and community banks (RCBs) (Bank of Ghana, 2008). Rural and community banks are the largest providers of formal financial services in rural areas and also represent about half of the total banking outlets in Ghana (IFAD, 2008). Before the establishment of the first rural bank in 1976, the availability of formal credit in rural communities predominantly made up of small farmers and fishermen was extremely limited. The main sources of credit were moneylenders and traders charging exorbitant interest rates (Nair and Fissaha, 2010). The Government of Ghana had taken some policy measures to improve access to finance in rural areas. These measures included a requirement that commercial banks lend at least 20% of their portfolio for agricultural uses and the establishment of the Agricultural Development Bank (ADB) in 1965 with an exclusive mandate of lending for agriculture and allied industries in rural Ghana. Subsequently, commercial banks and the ADB opened branches in rural areas, with

an emphasis on cocoa-growing rural areas. Nevertheless, lending to the rural sector remained low; the commercial banks used their rural branches primarily to make payments to cocoa farmers and collect deposits for lending in urban areas. Other banking services, like credit, were not provided as initially envisioned. Commercial banks demanded higher deposit accounts and stronger collateral requirements to provide loans to rural areas. Many small farmers and fishermen did not have deposit accounts in commercial banks, and the collateral they had available was not satisfactory for commercial lending (Steel and Andah, 2003). Mensah (1993) and Ranade (1994) found that the ADB's credit provision and coverage were limited. Only 27% of its branches were in rural areas, and lending to smallholder farmers made up only about 15% of its total portfolio.

The first rural bank was established in 1976 in the central region to help mitigate the gap in credit delivery to smallholders in the rural areas. Over the period 1980 to 1984, the number of rural banks rose rapidly and reached 106 due to increasing interest by rural communities in establishing their own banks (Nair and Fissaha, 2010).

RCBs and their agencies represent about 5% of the total banking assets and account for about half of the total banking outlets in the country, and they are especially significant in rural areas. Formal financial service providers such as commercial banks represent about 40% of the money supply in the overall financial sector.

The remaining amount is believed to be outside the formal system (IFAD, 2008) and mainly in rural areas. Thus, institutions such as RCBs and informal and semiformal service providers play an important role in addressing the lack of access in these areas.

Factors influencing smallholder farmers' access to formal credit

There is a general belief that women are discriminated against informal credit markets (Buvinic et al., 1979; Morris and Meyer, 1993; Mohamed, 2003). On the contrary, Kedir (2007) observed from studies in Ethiopia that formal financial institutions offered more loans to female headed households than male headed households (Mohamed, 2003).

Farmers know the specific risks profits of the agricultural enterprise they are engaged in and try to manage these risks using several strategies. For any risk management technique employed, the experience of the smallholder farmer is the core requirement for good results (Bankakademie Micro Banking Center, 2005). Yehuala (2008) observed that, farmer's experience in credit use from formal institutions played a significant role in accessing formal credit.

Hussein (2007), Yehuala (2008) and Tang et al. (2010), confirm through empirical studies on credit access, that

smallholder farmers are less likely to borrow from the formal sector the further their households are located from formal financial institutions.

Hussein (2007), Yehuala (2008) and Adeola and Ayoade (2009), note that technology adoption and decision making abilities of the farm household are significantly influenced by extension contact. Owuor (2009) observed in Kenya that literacy and education level have a significant positive influence on farm households' ability to access credit information. Using discriminant analysis to differentiate between borrowers, non-borrowers and potential borrowers, Miller and Ladman (1983) realised that borrowers were characterised by higher resource base, higher risk management and higher level of education.

According to Amjad and Hasnu (2007), the amount of formal credit used per acre by smallholder farmers increases as the size of land holdings increases, then falls for the largest farm size operators. This corresponds with Yadev et al. (1992) findings that formal sector borrowing per unit of cultivated land initially increases then falls with farm size in Nepal.

In recent years group lending has become an important method of providing formal credit to the rural poor who cannot guarantee individual loans (Yehuala, 2008; Konare, 2001; Paxton et al., 2000). For instance, smallholders in Mali are required to be members of village associations before they can access credit from a commercial bank (Konare, 2001).

Personal savings serve as a form of economic security for the farm household. It also provides formal financial institutions with a financial history on which they can base lending decisions (Morris and Meyer, 1993). Mohamed (2003) notes that few rural people actually make use of banks for saving and borrowing.

METHODOLOGY

Population and sampling

All formal credit institutions in the study area were included in the sample. The target population was all smallholder food crop farmers in the study area. Simple random sampling was used to select five out of twenty towns in the district by use of assigned random numbers from random number tables.

Farmers sampled comprised only those who had expressed interest in formal sector credit by actually submitting a formal application to any of the formal lending institutions in the study area. A total of 100 respondents were interviewed. Structured and semi-structured interviews were conducted with 20 respondents from each of the selected towns. Respondents were selected randomly using assigned random numbers. Both qualitative and quantitative data were taken from primary and secondary data sources. Secondary data were obtained from lending institutions in the study area whilst primary data will be collected from the farmers and bank officials. Data collected include farmers' characteristics (educational background, gender, age, extension contact, farm size etc). Data on loan application requirements, loan approval rate, and reasons for refusal of loans were also obtained from the financial institutions.

Data analysis

Data collected on factors influencing credit access was analysed using descriptive statistics such as means, percentages, tabulation, ratios and frequency distribution. A binary logit model which according to literature best fits the analysis for determinant factors that affects smallholder farmer's access to formal credit was employed (Yehuala, 2008).

The generic form of the logit model as presented by Mohamed (2003) is;

$$\text{logit } P(Y) = \beta_0 + \sum \beta_i X_i + \mu$$

$$Y = \beta_0 + \beta_1(GNDR) + \beta_2(EXP) + \beta_3(EXT) + \beta_4(SAV) + \beta_5(DIST) + \beta_6(GRPMEM) + \beta_7(LONS) \\ + \beta_8(FRMS) + \beta_9(LIT) + \beta_{10}(DEF) + \beta_{11}(SGUA) + \mu$$

where; Y= ("1" if respondent has access to formal credit and "0" if

respondent has no access to formal credit); β_0 = Constant term; GNDR = Gender (1 if male, 0 if female); EXP = Farming experience (years); EXT = Extension contact (1 if respondent receives extension services, 0 if otherwise); SAV = Savings habit (0 if respondent does not have a bank account, 1 if otherwise); DIST = Distance to bank (km); FRMS = Farm size (acres); GRPMEM = Group membership (1 if respondent is a member of a Farmer Based Organization (FBO), 0 if otherwise); LONS = Size of credit demanded during the 2009 farming season (cedis); LIT = Literacy level (1 if respondent has formal education, 0 if otherwise); SGUA = Access to salaried guarantor (1 if respondent has access, 0 if respondent has no access to a salaried guarantor); DEF = Default on loan repayment (1 if respondent has defaulted before, 0 if otherwise); β_i = Logistic coefficients for the independent variables; μ = Error term.

RESULTS AND DISCUSSION

Demographic characteristics

Educational level

Respondents were grouped into five categories with respect to educational level. The majority of respondents had formal education (76% in total), whilst only 24% had no formal education. Most respondents had attained junior high school level education (34%) whilst few (7%) had attained tertiary education. 43% of the sample could neither read nor write, 34% could read but not write whilst only 23% could read and write. Due to the larger male presence in the sample, males also dominated all literacy level categories. It is also worth noting that 29.2% of the male population could read and write whilst only 11.4% of females sampled fell in this category.

Extension contact

Extension service provision in the sampled towns was limited. According to extension agents contacted during

where Y = credit access, X_i = determinants of credit access, β_0, β_i = coefficients, μ = error term.

Data collected on loan application requirements, criteria for credit allocation and the reasons for rejection of credit applications will be analysed qualitatively using percentages, ranking and frequency distributions.

The specific model employed in this study will be

the study, each agent is assigned five towns with their corresponding sub-communities in which to work. Lack of access to motorbikes and other transportation services and manpower hinders efficient delivery of extension services. To this end, as a work around these constraints, it was realised that extension agents attended to farmers who called them personally on their mobile phones for assistance. This implied that apart from contact during open fora, extension services in the district were delivered when farmers personally requested for such services thus eliminating farmers who did not have personal contact with extension officers. This reflected in the sample since only 40% of respondents had received extension contact with 67.5% of this number being males whilst 32.5% were females.

In addition, it was also realised that, of a total of 43 respondents who could neither read nor write, 34.9% had received extension contact whilst of the number that could read and write, 65.2% had received extension contact. This implies that more literate respondents had more frequent interactions with extension agents and called on them more often for assistance.

Farmers' multipurpose groups

25 respondents belonged to registered farmers' multipurpose groups. Information from the district agricultural office (MOFA) on farmer based organizations (FBOs) indicated that there were a limited number of farmers' groups and societies in the district but the data showed an increasing trend in FBO numbers, indicating a growing need for such associations. It was also found that some farmers formed ad-hoc groups to facilitate credit access. Of a total of 25 respondents who belonged to registered FBOs, 11 had accessed group loans whilst of the 75 respondents that were non-members of FBOs, 22 respondents had accessed group loans (implying they formed ad-hoc groups). This can be explained by the assertion by some respondents that formal lending institutions in the area gave more preference to group

loans than individual loans. This was confirmed by two banks (Mfantseman Community Bank and Nyankumasi Ahenkro Rural Bank), whose managers stated that they gave preference to group loans since those were more secure (due to group responsibility) and less likely to default than individual loans.

Savings habit

There are five formal financial institutions in the study area. A study of savings culture conducted by the ministry of local government and rural development on a sample size of 900 respondents from the district, found that 82% of respondents had no savings indicating a culture of poor savings habit among the people (Ghana districts, 2006). On the contrary since this study concerned itself with a sample of previous credit applicants, it was expected that the savings culture of this portion of the population would be better. The survey found that 58% of study respondents possessed savings accounts whilst 42% did not. Of the 58% that had bank accounts, 69% were males whilst 31% were females. That is 61.5% of sampled males had savings accounts whilst 51.4% of sampled females also had savings accounts.

Farm size

Farm size was measured based on the total cultivated land in hectares. Minimum farm size recorded was 0.09 ha and the maximum was 3.83 ha. The mean farm size was 1.21 ha whilst the modal farm size was 0.73 ha.

Farming experience

Most respondents had farming experience between 10 and 19 years.

Farming activities

The main cultivated crops identified from the study were; cocoa, oil palm, citrus, coconut maize, cassava and vegetables. These farming activities were however not mutually exclusive since most respondents were engaged in two or more of these cropping activities.

Farmers' access to credit

Table 1 provides an analysis of farmers' access to credit based on various farmer characteristics and socio-economic factors. About 35% of farmers interviewed had access to formal credit whilst 65% had no access. In terms of gender, 66% of respondents who had access to

formal credit were males whilst 34% were females. Chi-square test of independence showed that the relationship between access to formal credit in the study area and gender was independent implying that there is no statistically significant relationship between the two variables. It was also found out that access to formal credit and farmer's educational level was significantly associated at the 1% level. Overall, only 20.8% of respondents with no formal education received formal credit. Extension contact, membership of FBO and ownership of Bank savings account were all significantly related with farmer's access to credit. However, access to credit was found to be independent on the availability of guarantor to secure the loan. This was mainly due to the group lending methodology used by formal credit institutions to advance credit to farmers in the study area.

Assessment of lending activities of lending institutions in the study area

Five formal lending institutions identified in the study area included Ghana Commercial Bank, Akoti Rural Bank, Mfantseman Community Bank, Nyankumasi Ahenkro Rural Bank and Kakum Rural Bank.

A review of all farm credit applications processed by these institutions in the year 2009 indicated a loan approval rate (total loan applications approved/total loan applications) of 77.56%. The approval rate estimated for only sampled farmers was 76.60%. Majority (72%) of respondents reported that they understood the lending procedures adopted by the banks. About 54% of loan applicants were able to complete application forms without help. For farmers who could not complete loan application forms, all the banks offered assistance. However, most of such respondents preferred assistance from family members and friends when completing these forms.

On the average, a farmer in the sample spent about GH¢9.73 on loan application and GH¢11.83 on follow-up. The average loan amount requested by a typical farmer in the study area was found to be GH¢216.24 during the 2009 cropping season. The study revealed that majority (70%) of loan applicants did not receive any form of communication from banks on the status of their loan applications. As a result, loan applicants had to follow-up on their loan applications for between 2 to 5 times. For those that received information from the banks, they were contacted through telephone calls and formal letters. The repayment period for farm loans was six months. Farmers who accessed loans from Banks reported that the repayment plan was a fixed monthly schedule on flat rate basis. Considering the fact that farming is seasonal and proceeds from investment are also seasonal in nature, most farmers found it difficult repaying their loans; they resorted to either using savings for payments or borrowed from friends and family member to meet

Table 1. Relationship between credit accessibility and some socio-economic factors.

Variable	Proportion of farmers with access to credit (%)	Proportion of farmers without access to credit (%)	Calculated χ^2	P-Value
Gender				
Males	35.4	64.6	0.012	0.912
Females	34.3	65.7		
Literacy level				
No formal education	20.8	79.2	14.303	0.006***
Formal education	39.5	60.5		
Group membership				
Yes	56.0	44.0	6.462	0.011***
No	28.0	72.0		
Extension contact				
Yes	55.0	45.0	11.733	0.001***
No	21.7	78.3		
Savings account				
Yes	55.6	44.4	16.978	0.000***
No	0.0	100.0		
Default on previous loan				
Yes	0.0	100.0	4.053	0.044**
No	37.6	62.4		
Availability of guarantor				
Yes	33.3	66.7	0.127	0.721
No	36.7	63.3		

***Significant at 1%; **Significant at 5%. Source: Estimated from field data.

monthly repayment schedules.

ii. Account turnover

Reasons for application rejection and criteria for loan allocation

Interviews with formal financial institutions in the study area revealed the following major reasons for farm credit application rejection

1. Default of previous loans
2. Incomplete application forms
3. Non-guaranteed applications
4. Limited viability of proposed project
5. Timing of application

Banks use certain criteria to select among available viable projects which one to devote scarce resources to. The major criteria for credit allocation identified include the following:

i. Farming experience

Empirical results

A binary logistic regression model was used to determine the factors that contributed significantly to formal credit access by smallholder farmers in the study area. Farmers who had successfully acquired credit from a formal financial institution were deemed to have access to credit whilst those whose applications were turned down were deemed as not having access to formal credit. Results of the binary logistic regression model are shown in Table 2. Evidence from Table 2 shows that: extension contact, possession of savings account, and educational level of the farmer were the principal factors that significantly influenced smallholder farmers' access to formal credit. Extension contact was found to have a positive effect on credit access at the 1% significance level. The odds of a farmer who received extension services accessing formal credit was 471.40% higher than the one who did not receive extension services.

Table 2. Results of binary logit on determinants of access to formal credit.

Variable	Coefficient	Odds ratio	Z- values	P> Z
Gender (male)	-0.0016754	0.998326	-0.06	0.956
Farming experience	0.4193068	1.520907	0.72	0.473
Extension contact	1.550539	4.714011	2.68***	0.007
Education level	0.1041587	1.109777	1.77*	0.077
Savings account	1.947464	7.010884	2.86***	0.004
Distance	-0.216913	0.805	-1.03	0.302
Group membership	0.741621	2.099336	1.13	0.260
Loan size	0.0001328	1.000133	0.13	0.897
Farm size	0.235729	1.265831	0.63	0.531
Salaried guarantor	0.8608588	2.365191	1.45	0.146
Default on previous loan	-1.331628	0.264047	-1.17	0.241
Constant	-3.983967			

Dependent variable: Access to formal credit (1 = farmer has access; 0 = otherwise). *** Significant at 1%, * significant at 10% level.

The level of education attained by a farmer was significant at 10% significance level and showed a positive relationship with formal credit access. The result implies that level of education influences a farmer's chances of accessing credit. This is because higher level of education is associated with the ability to access and comprehend information on credit terms and conditions, and ability to complete loan application forms properly. Ownership and operation of a bank savings account was used as a proxy for savings habit and it was expected that a good savings habit would enhance credit access since rural banks in the study area required all loan clients to have accounts with them as one of the main criteria for credit allocation. The possession of a savings account increased the odds of a respondent accessing credit by 701.09%.

Hussein (2007) explained that education, credit information and extension visits are more likely to increase the information base and decision making abilities of farm households, including the ability to compare the pros and cons of choosing appropriate credit and production technologies.

CONCLUSIONS AND RECOMMENDATIONS

This study was conducted to identify factors that determine smallholder farmers' access to formal credit in the Abura-Asebu-Kwamankese district in the Central Region of Ghana. Data for the study was elicited from a total of 100 farmers and officials of five formal lending institutions through cross sectional survey. A typical farmer in the sample was about 50 years old, had an average farm size of 1.2 Ha and about 15 years of farming experience. Evidence from the study showed that 35% of farmers interviewed had access to formal credit whilst 65% had no access. The average loan amount

requested by a typical farmer in the study area was GH¢216.24 during the 2009 cropping season. Chi-square test of independence showed that access to formal credit was significantly related to farmer's educational level, extension contact, membership of Farmer Based Organization (FBO), and ownership of Bank savings account. The logistic regression analysis showed that extension contact, possession of savings account, and educational level of the farmer were the principal factors that significantly influenced smallholder farmers' access to formal credit in the study area. To improve farmers' access to formal credit, the study recommended that efforts should be made by the Ministry of Food and Agriculture (MoFA) to enhance farmer-extension agent contact by providing logistics on time for Agricultural Extension Agents (AEAs) to pay periodic visits to farmers in their communities. Also, farmers should be encouraged through periodic education and sensitization to save with Banks to improve access to formal credit.

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