Influence of selected Socio-Economic Factors on Access to Agricultural Credit among Small-Scale Farmers in Nakuru County, Kenya

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Abstract

Agricultural credit can be used to enhance farm productivity and to ensure sustainable food production. However, most small-scale farmers in Nakuru County who need the credit cannot access it for various reasons and therefore its use remains low. This study sought to determine the influence of age, gender, level of education and income on small-scale farmers' access to agricultural credit in Nakuru County. The study used a cross-sectional survey research design to collect and analyse data. The results showed that farmers' fear of being denied credit or not being able to repay were the major reasons hindering them from borrowing. The researchers recommended that Kenya government through agricultural extension agents in collaboration with the financial institutions should provide farmers with information on agricultural credit and should establish cooperatives or credit associations through which small-scale farmers could borrow agricultural credit. Financial institutions offering agricultural credit should ensure agricultural loans are affordable, by reducing interest rates.

Introduction

Availability and use of agricultural credit by farmers can significantly protect them from production risks due to unpredictable weather and fluctuating markets while enhancing agricultural productivity and growth (Atkilt & Issac, 2010; Government of Kenya, 2010). Farmers' access to agricultural credit enables them to acquire farm inputs on time for planned farm operations, which is particularly important for small-scale farmers who are the key drivers of African economies but whose potential is rarely fully realized due to the many challenges facing them (Atkilt & Isaac, 2010; Mwaniki, 2012).

Access to agricultural credit particularly for small-scale farmers in the rural areas, though often limited, improves their agricultural production and livelihood (Sanusi, 2010). Even where agricultural-credit services are available for buying farm inputs, small-scale farmers are usually unable to meet the conditions for

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accessing them (Gamba, 2005). Yet a well-organized rural financial system that is sustainable and widely accessible remains a major development challenge in most countries of Sub-Sahara Africa (Adeleke, Abdul, Zusana, 2010). Access to agricultural credit can be influenced by borrowers' characteristics such as gender, age, education and income level as well the lenders' terms and conditions.

Small-scale farmers' inability to acquire and use agricultural credit thus hinders faster development of their farms and ultimately affects their household income and standard of living. It also hinders their ability to increase and commercialize their agricultural products. Therefore, most small-scale farmers would like to use the credit whenever possible. The literature shows that most financial institutions are willing to lend money for farm operations but for reasons which are not well known, many small-scale farmers in Nakuru North District are usually reluctant to borrow and cannot benefit from the credit. Information on the factors influencing the farmers' access and use of farm credit would help in developing strategies for acquiring the credit. This study sought to provide that information.

The purpose of the study was therefore, to determine the influence of selected socio-economic factors, namely; small-scale farmers' age, gender, education and level of income, on their access to agricultural credit in Nakuru North District.

Research Focus

Farming is a source of livelihood for over 70 per cent of small-scale farmers in Africa but most of them are resource-poor and their productivity and growth are hindered by limited access to credit facilities (Odoemenem & Obinne, 2010). The farms are 2-5 ha or 2 ha on an average, with the farmers owning 1- 2 heads of cattle or none, but some have 10 to 20 (Adera *et al.*, 2008). Kenya's small-scale subsistence agriculture produces 75 per cent of all agricultural output and 70 per cent of marketed agricultural produce (GOK, 2010).

In Kenya, small-scale farmers particularly women lack adequate capital and access to affordable agricultural credit. Compared to men, rural women are 15 per cent to 21 per cent less likely to have basic information on available financial institutions in their communities (Diana & Lisa, 2011; Fletschner & Mesbah, 2010). Lack of capital and access to affordable credit are mainly responsible for low farm productivity, since farmers' use of agricultural credit enhances their use of recommended technologies by enabling them, for example, to buy and apply appropriate farm inputs on time (Adegbite, 2009, GOK, 2009). In Ethiopia and Tanzania, services for providing formal credit are usually better in large urban centres

while in Uganda, high interest rates inhibit agricultural investments (Adeleke *et al.*, 2010).

As farmers get more formal education, their chances of obtaining formal agricultural credit increases due to their ability to read and comprehend conditions for acquiring credit and their ability to write and request for information on credit. The chances of small-scale farmers obtaining credit improves as they get more education, more farming experience, more household income, more contact with extension agents and closer to sources of credit (Sisay, 2008). Potential borrowers are unlikely to apply for credit even where it exists if they think they will be denied access or if they consider its repayment period, required collateral, and provisions of supplementary services are unfavourable (Fletschner & Mesbah, 2010). Significant variables that explain farmers' participation in formal credit markets include income level, distance to credit sources, past credit participation and the assets owned (Atieno, 2001). According to Hussien (2007), farmers are more likely to prefer the informal to the formal sector due to the sector's flexibility in rescheduling loan repayments in times of unexpected income, proximity, comfortable atmosphere, quick credit, all times access, freedom of deployment, and lower transaction costs. Hussien (2007) notes a positive relationship between the chances of borrowing from formal sources of agricultural credit and gender, level of education, household labour and farm size. Education, credit information and extension visits are more likely to increase a farmer's information base and decision making abilities including the ability to compare the pros and cons of choosing appropriate credit and production technology.

Research Methodology

A Cross-Sectional Survey design was used to collect and analyse data. This design, according to Kombo and Tromp (2007) and Kothari (2008) is faster and cost effective compared to case and cohort studies. It allows for hypotheses testing while providing self-reported facts about respondents, their feelings, attitudes, opinions and habits. It also makes it possible for one to study things that are not directly observable such as people's attitude and beliefs and to describe a population too large to observe directly (Kendall, 2007). A cross-sectional design obtains information from a given population or sample at a single point in time (Trochim, 2006).

The study was carried out in Nakuru North sub-county of Nakuru County in Kenya. The sub-county was purposively selected for the study because it is mainly agricultural, with many small-scale farmers who are engaged in different kinds of crop and livestock enterprises, and is therefore representative of many farming areas

in Kenya. The population is approximately 215,000, the number of farms is approximately 25,130 and the number of families is 38,794 (GOK, 2011). It has only two administrative divisions, Bahati and Dundori, and both were used as study sites. A sample of 120 respondents from a sampling frame of 25,130 small-scale farmers was randomly selected from the two divisions using Coefficient of Variation (CoV) formula (Nassiuma, 2000), which recommends a Coefficient of Variation of at most 30 per cent and 2-5 per cent margin of error. Based on this recommendation the researchers chose a CoV of 22 per cent and 2 per cent margin of error to arrive at the required sample size as follows: $n = NC^2 \div C^2 + (N-1)\ e^2$ (n=sample size; N=population size; C=CoV, which is $\leq 30\%$; e=margin of error of 2-5%).

Therefore, the sample size was $25{,}130\ (22\%)^2 \div (22\%)^2\ (25{,}130-1)(2\%^2)=120$.

A self-administered structured questionnaire with open-ended and close-ended items was used to collect data on farmers' personal characteristics and factors affecting their access to agricultural credit. Prior to data collection a panel of 10 agricultural extension experts ascertained the questionnaire's content validity while a pilot test involving 30 small-scale farmers from Njoro division who had similar characteristics as farmers in the study area was used to ensure the questionnaire's reliability, which was 0.83α. This value was above the 0.70 minimum required threshold for acceptable reliability in educational research at a confidence level of 0.05 set *a priori*. Farmers unable to read and write were assisted to complete the questionnaire.

Data analysis was done using the Statistical Package for Social Sciences (SPSS). Chi-Square was used to test hypotheses, dealing with categorical data on farmers' age, gender, education and level of income, at 0.05α confidence level and emerging trends reported in frequencies and percentages.

Findings and Discussions

Personal Characteristics of Respondents

Female respondents outnumbered the male respondents, accounting for 57 percent while the male respondents accounted for 43 percent. This is a reflection of the situation in many rural parts of Kenya, where women make up the majority of small-scale farmers.

Majority (83%) of the respondents were married, 10 per cent were single and 8 per cent were widowed. Their age ranged from 18 to 70 years with a mean of 46 years. The respondents were further grouped into age categories, as indicated in Table 1. The minimum age for the farmers in the study area was 18 years and the maximum

was 70 years with a mean of 46 years. Majority of the farmers (27.5%) were in the 39 to 48 years age category, followed by the 29 to 38 years age category (24.2%), then the 49 to 58 and the 59 to 70 years category (both with 21.7%) and finally the below 28 years category (with 5%). This is seen in Table 1.

Table 1: Respondents' Age Categories

Age categories	Frequency	Percentage
18-28 years	6	5.0
29-38 years	29	24.2
39-48 years	33	27.5
49-58 years	26	21.7
59-70 years	26	21.7
Total	120	100.0

Mean 46.4, se 1.15, Median 45.5, Mode 43, std dev 12.60, minimum 18 and maximum 70

Majority (84%) of the respondents had formal education, with 37 per cent having attained primary school level of education, 33 per cent had secondary school education while 9 per cent had reached the tertiary level of education.

Types and Sources of Agricultural Credit

The respondents used two major types of agricultural credit, namely, formal and informal credit. About 52 per cent reported that they used informal credit, while 22.5 per cent used formal credit. The respondents had a variety of sources of agricultural credit. About 40 per cent reported that they acquired agricultural credit from private moneylenders, 22.5 per cent from financial institutions, 23.3 per cent from friends and 14.2 per cent from relatives. Most respondents relied on private moneylenders for small loans of less than KSh. 20,000 (250 US$) as they charged low interest (below 10%) and were easily accessed. Financial institutions charged more than 20 per cent interest for their loans but gave bigger loans of above KSh. 20,000 (250 US$). Friends on the other hand charged low interest of less than 5 per cent while relatives charged no interest.

Access to Agricultural Credit

The results indicated four levels of access to agricultural credit. The (i) first level was for the farmers who had not accessed any credit, (ii) the second level was for farmers who had accessed one loan, iii) the third level was for farmers who had accessed two loans, iv) the fourth level was of farmers who had accessed at least three loans and above. The findings are summarised in Table 2.

Table 2: Respondents' Access to Agricultural Credit

Access level	Frequency	Percentage
No access	48	40.0
Accessed one loan	50	41.7
Accessed two loans	20	16.7
Accessed three loans and above	2	1.7
Total	120	100.0

About 40 per cent of the farmers had not accessed any loan, 42 per cent of the farmers had accessed one loan (low level), 17 per cent had accessed two loans (medium access), and 2 per cent of the farmers had three and above loans (high access).

The percentage of farmers who had not borrowed agricultural credit in the study area was high (40%). The reasons given by the farmers for not accessing credit are summarized in Table 3. The following reasons were mentioned; i) fear of borrowing credit was mentioned by 49 per cent of the farmers, ii) lack of security for loans was mentioned by 17 per cent of the farmers, iii) lack of knowledge of sources of credit was mentioned by 29 per cent of the farmers, iv) having own funds was mentioned by 4 per cent of the farmers, and v) 1 per cent of the farmers had applied but it was never considered.

Table 3: Reasons for not Borrowing Agricultural Credit

Reason	Frequency	Percentage
Fear of borrowing credit	59	49
Lack of security for loan	20	17
Not aware of sources of credit	35	29
Have enough funds (owned)	5	4.0
Applied but was never considered	1	0.8
Total	120	100.0

The results of the study concur with the Kenyan national data which indicates that about 45 per cent of the small-scale farmers do not access agricultural credit because of the lack of collateral or credit history; most farmers are by-passed not only by business and national development banks, but also by formal micro-credit institutions (GOK, 2010).The results of the study concur with Karlan (2012) in a study which indicated that in northern Ghana, farmers underinvest in potentially profitable agricultural inputs like fertilizer and high-yielding seeds because they are reluctant to borrow agricultural loans for fear that a poor harvest, crop price

fluctuation, or unexpected weather patterns means money lost or a debt to repay the loan.

The results also concur with Gine and Yang (2009) in a study which indicated that farmers fear borrowing agricultural credit due to factors that are unpredictable and outside their control, such as crop prices and weather patterns, which make them unable to repay the loans. Boucher, Carter and Guirkinger (2008) argue that farmers will prefer not to borrow even though the loan would raise their productivity and expected income for fear of default where they end up selling their lands or assets.

Relationship between Gender and Access to Credit

A null hypothesis indicating that there is no statistically significant relationship between gender and access to agricultural credit by small-scale farmers in Nakuru North District, was tested using Chi-square. The test as indicated in Table 4 yielded a χ^2 value of 1.697 and the probability of the computed Chi-square value as 0.638.

Table 4: Relationship between Gender and Access to Agricultural Credit

Gender		Access to Agricultural Credit (0.0= no access; 1.0=1 source; 2.0=2 sources; 3=3 Sources				Total
		0.0	1.0	2.0	3.0	
Male	Count	24	20.0	7.00	1.00	52.0
	%	20.0	16.7	5.80	8.00	43.3
Female	Count	24.0	30.0	13.0	1.00	68.0
	%	20.0	25.0	10.8	8.00	56.7
Total	Count	48.0	50.0	20.0	2.00	120.0
	%	40.0	41.7	16.7	1.70	100.0

Chi-square 1.697, df 3, p value 0.638 p>.05 p

Since the probability of the computed Chi-square value was greater than 0.05, the level of significance, the null hypothesis could not be rejected. The verdict therefore was that there was no statistically significant relationship between gender and access to agricultural credit by small-scale farmers in Nakuru North District. This concurs with the Kenyan national perspective which implies that women have equal access to credit as men. This is probably because of the current initiatives by governmental and non governmental agencies to offer services exclusively for women and also reduce the previous hindrances on access to financial services by women (GOK, 2010).

Relationship between Age and Access to Agricultural Credit

A null hypothesis which stated that there was no statistically significant relationship between the farmers' age and access to agricultural credit among small-scale farmers in Nakuru North District was tested using Chi-square. The aim was to determine if a relationship existed between the farmers' age and access to agricultural credit. The test results yielded a χ^2 value of 12.103 and the probability of the computed Chi-square value (P value) as 0.437. Since the probability of the computed Chi-square value is greater than 0.05 the level of significance set α=0.05, the null hypothesis could not be rejected. It was therefore inferred that there was no statistically significant relationship between the farmers' age and access to agricultural credit among small-scale farmers in Nakuru North District.

Respondents' Income and Access to Agricultural Credit

With regard to income, the respondents were grouped into income categories as indicated in Table 5. Majority of the respondents (40%) had income levels ranging between KSh 20,000 and KSh 50,000, followed by farmers with income below KSh 20,000 (38%), farmers with income above KSh 100,000 (10%), farmers with income levels between KSh 50,000 and KSh 80,000 (8%), and finally farmers with income between KSh 80,000 and KSh100,000 (4%).

Table 5: Respondents' Annual Income

Income Categories (KSh)	Frequency	Percentage
Below 20,000 (250 US$)	46	38.3
20,001-50,000 (250-625 US$)	48	40.0
50,000-80,000 (625-1,000 US$)	9	7.5
80,000-100,000 (1,000-1,250 US$)	5	4.2
Over 100,000 (Over 1,250 US$)	12	10.0
Total	120	100.0

It can therefore be inferred that the respondents were mainly small income earners, in that 38 per cent of them had income below KSh 20,000 (250 US$) and 78 per cent of the farmers earned less than KSh 50,000 (1,250 US$).

Types of Non-Farm Income

The sources of income of the farmers, other than farming, in the study area are summarized in Table 6. Majority of the farmers (55%) had no other income other than farming, while 31 per cent of the farmers relied on business, 28 per cent on wages, 20 per cent on salaries, 12 per cent on pension, and 9 per cent on rental payments.

Table 6: Types of Non-farm Income

Sources of income	Frequency	Percentage
Wages	15	28
Salaries	11	20
Rental payments	5	9
Pension	6	12
Business	17	31
Total	54	100

Relationship between Income and Access to Agricultural Credit

A null hypothesis which stated that there was no statistically significant relationship between farmers' level of income and access to agricultural credit by small-scale farmers in Nakuru North District, was tested using Chi square. The test showed χ^2 value of *20.857* while the probability of the computed χ^2 value was 0.053. Since the computed χ^2 value was less than the text χ^2 value at the significant of level $\alpha = 0.05$ ($p<0.05$), the null hypothesis was rejected. It was therefore concluded that there was a statistically significant relationship between the farmer's level of income and access to agricultural credit in the study area.

Relationship between Education Level and Access to Agricultural Credit

The study findings indicated that the literacy rate was quite high at 84 per cent. This corresponds with the Kenyan literacy level which is above 80 per cent (World Fact book, 2013). However, the percentage of illiterate respondents was also significant at 16 per cent, implying that even if this percentage of farmers access agricultural credit information from any source, they may have little understanding of such information and may not be able to put it into use without assistance from extension staff or financial institutions.

A null hypothesis stating that there was no statistically significant relationship between farmers' level of education and access to agricultural credit among small-scale farmers' in Nakuru North District, was tested using Chi-square. The tests as indicated in Table 7 show χ^2 value of 13.483 and the probability of the computed Chi-square value (P value) as 0.565. Since the probability of the computed Chi-square value is greater than 0.05 the level of significance set $\alpha=0.05$, null hypothesis was not rejected.

Table 7: Cross Tabulation between the Level of Farmers' Education and Access to Agricultural credit

Education level		Access to Agricultural Credit				Total
		.00	1.00	2.00	3.00	
No-formal	Count	8.0	7.0	4.0	0.0	19.0
	%	6.7	5.8	3.3	0.0	15.8
Primary	Count	19.0	18.0	6.0	1.0	44.0
	%	15.8	15.0	5.0	8.0	36.7
Secondary	Count	12.0	21.0	6.0	1.0	40.0
	%	10.0	17.5	5.0	8.0	33.3
College	Count	2.0	1.0	3.0	0.0	6.0
	%	1.7	8.0	2.5	0.0	5.0
Diploma	Count	2.0	2.0	1.0	0.0	5.0
	%	1.7	1.7	8	0.0	4.2
University	Count	5.0	1.0	0.0	0.0	6.0
	%	4.2	8.0	0.0	0.0	5.0
Total	Count	48.0	50.0	20.0	2.0	120.0
	%	40.0	41.7	16.7	1.7	100.0

Chi-square 13.483, df 15, p value.565 p<.05

The conclusion therefore is that there was no statistically significant relationship between the farmers' level of education and access to agricultural credit among small-scale farmers in Nakuru North District.

Conclusion and Implications

Although there were a variety of sources of agricultural credit available to all farmers, more women farmers than male farmers preferred informal sources of agricultural credit. This is because the conditions imposed by the formal lending institutions do not favour women due to their lower capital base and lack of control over productive resources. The implication is that there is need to form and strengthen informal credit (micro-credit) organizations, in order to increase access of farmers to credit, especially women farmers.

The level of farmers' income was significantly related to their access to agricultural credit while farmers' personal characteristics (age and level of education) had no significant influence on their access to agricultural credit. This means that even older farmers and those with little or no education can access agricultural credit if they are given appropriate support.

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