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**Farmers Inaccessibility to Agricultural Credit in Nyandarua District, Kenya**

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## **Farmers Inaccessibility to Agricultural Credit in Nyandarua District, Kenya**

### **Abstract**

Smallholder farmers face various challenges in production one of them being inaccessibility to credit. This study specifically sought to identify household socio-economic characteristics and institutional requirements influencing access to credit among smallholder farmers in Nyandarua District. The study used a Logit model. Both quantitative and qualitative data were acquired from primary and secondary sources. Primary data was collected using questionnaires through a survey design. A sample of 264 smallholder farmers was selected using stratified, multi-stage random sampling techniques. Data was analyzed using descriptive statistics and regression analysis using Statistical Package for Social Sciences (SPSS). The study established that socio-economic constraints such as age, gender, household size, farm income, collateral and awareness are critical determinants of access to credit. The study concludes that household socio-economic characteristics do influence access to credit. Key recommendations made include the need by government to deal with bureaucracies involved in land registration to benefit majority of smallholder farmers who remain insecure in the land they use without proof of ownership and also to make easier the registration of lease certificates for those who do not own land and use land on leasehold tenure system. Financial institutions should also put in place less stringent credit requirements and reduce credit costs especially interest rates to make credit more affordable.

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**Key words:** Credit Access, Smallholder farmers, Socio-Economic Constraints, Kenya.

### **Introduction**

The smallholder farm sector plays a critical role in Kenya's economic development. In 1998, for instance, the sector contributed 75 percent of the country's total value of agricultural output and over 85% of the total employment in the agricultural sector (GoK, 1999). In the year 2000, the smallholder farmers formed more than 80 percent of the farming

community and produced most food and cash crops in the country (Odendo, 2000). In 2008, agriculture, which is a major contributor to the country's gross domestic product, was predominantly practiced by small scale farmers who accounted for 75 percent of the total output (Agricultural Finance Corporation, 2008). There are about three million smallholder farms of which 80 percent are less than two hectares (CBS, 1996). Most agricultural activities in Kenya

are concentrated in the countryside which happens to be entirely rural. More often than not, small scale agriculture is the source of income for the rural poor. Nyandarua District, which happens to be the main focus of the study, is located in the rural set up and is characterized by many smallholder farmers, majority of whom are poor.

The poor in the rural areas, who are mostly smallholder farmers, do require financial services in terms of rural finance, and more particularly, agricultural finance, which is a subset of rural finance dedicated to financing agriculture related activities such as input supply, production, distribution, wholesaling and marketing (Hossain, 1988). The providers of financial services are present. The challenge thus lies in the factors that inhibit the farmers from accessing financial services which forms the basis of this study. Planners and researchers must focus on the constraints that inhibit smallholder farmers from accessing financial services if the objectives of attaining industrialization and decent living standards for all citizens by the year 2020 and the Millennium Development Goal of poverty reduction are to be achieved. Therefore, objective of the study was to establish the major constraints to accessing credit among smallholder farmers in Nyandarua District and formulate policy recommendations aimed at promoting farmers' access to credit.

**Materials and Methods**

To meet the objectives of this study, Logit model was fitted on household data. The major focus of the study was the likelihood or probability of the outcome, that is, whether the respondent has access to credit or not. The binary response in this study was whether the respondent had access to credit from financial institutions (“Success”) or had no access to credit from financial institutions (“Failure”).

If Y is the random variable (dichotomous), it is then assumed that  $Y_i$  takes on the values 0 or 1, where 0 denotes non-occurrence of the event in question and 1 denotes occurrence of the event in question (Maddala, 1983). If  $X_1, \dots, X_p$  are the characteristics to be related to occurrence of this outcome, then the Logistic model specifies that the conditional probability of event (that is, that  $Y = 1$ ) given the values of  $X_1, \dots, X_p$  is as follows.

$$p(Y) = \frac{1}{1 + \exp(-(\alpha - \sum \beta_j x_i))}$$

In order to linearize the right hand side, a Logit transformation is applied by taking logarithm of both sides. The logarithmic transformation stabilizes the variance if the standard deviation in the original scales varies directly as the mean. This results into:

$$\text{Logit } p(Y) = \alpha + \sum \beta_j x_i + u_i$$

where:  $Y_i = 1$  if success (respondent has access to credit), 0 if failure (respondent has no access to credit),  $\alpha$  = Constant term,  $\beta_j$  = Logistic coefficients for the independent variables,  $u_i$  = Error term,  $x_{1-11}$  = Independent variables such that:  $x_1$  = Age of the respondent in years – categorical variable,  $x_2$  = Gender of the respondent – binary variable,  $x_3$  = Marital status – categorical variable,  $x_4$  = Household size: number of persons in the household of the respondent – continuous variable,  $x_5$  = Size of arable land in acres – continuous variable,  $x_6$  = Land tenure system – categorical variable,  $x_7$  = Main occupational activity of the respondent – categorical variable,  $x_8$  = Farm income – continuous variable,  $x_9$  = Perception of respondents regarding cost of credit – categorical variable.  $x_{10}$  = Collateral. Binary: 1 if respondent owns a title deed / registered lease certificate and 0 otherwise.  $x_{11}$  = Awareness of the existence of credit by respondent. Binary: 1 if respondent is aware and 0 otherwise.  $x_{12}$  = Level of education of the respondent – categorical variable.

Using stratified sampling, with access or no access to credit as the criterion for stratification, the population was divided into two strata of those who had accessed credit and those who had not accessed credit. After identifying the strata, multi-stage sampling for both strata was done to identify the groups of smallholder farmers who would be considered in the sample. The six divisions of the District were selected as the primary units and then locations were randomly selected to form secondary units from where the sample would be picked. Proportionate simple random sampling was then done at the location level to select a sample size of 164 smallholder farmers from the secondary units selected under multi-stage sampling.

The study used both primary and secondary data. Both quantitative and qualitative data was collected. Primary data was sourced through survey.

Secondary data was obtained from journals, magazines, Nyandarua District annual reports and any other secondary data source that was deemed necessary for the study.

### **Results and Discussion**

A Logit model was used to assess the factors that influenced credit accessibility among smallholder farmers in Nyandarua District. Statistics for variables incorporated in the model are shown in table 1 below.

There was a positive and significant relationship between credit access and the age of respondent. Age was significant at 5 percent. A unit rise in age led to an increase of log-of-odds in favour of credit access by 9.766. The positive relationship implies that the older people were more likely to access credit from financial institutions than the younger people. That was expected because, though the younger people were found to be more engaged in agriculture followed by the older people in the District, the younger people were more risky compared to the older people since the older people owned most productive assets and hence had a better asset base as they accumulate assets with age. Therefore, financial institutions would prefer to lend the older generation than the younger ones. That was confirmed by most of the younger respondents who cited age as working against them in as far as credit accessibility was concerned. They were of the opinion that financial institutions overlooked them claiming that they (the younger people) were not credit worthy. Moreover, the younger people farmed on small parcels of land either subdivided to them or bequeathed to them by their parents and that still limited their chances of accessing credit due to lack of proof of ownership.

Since most agricultural activities are carried out by youthful people, it would be necessary to ensure that age does not hinder them from accessing credit. It would thus be necessary to encourage the youth to acquire property to boost their asset base and at the same time ensure that they seek ownership for the same to serve as security. In this regard, they should ensure that ownership of land subdivided or bequeathed to them is transferred to them and documented appropriately.

Gender was also significant at 1 percent and negative. The results indicated that an increase in the number of female smallholder farmers into the sample was found to decrease log-of-odds in favour of credit access by 5.916. That implies that women had a lower access to credit compared to men. That could be due to the fact that productive assets in the rural

areas are owned by men and hence financial institutions prefer to disburse credit to men rather than women since women are deemed to be more risky. Therefore, resource access imbalances in favour of men deny women opportunities for credit. There is need to empower women by extending credit to them so as to accelerate production in agricultural and micro-enterprise sectors that are run by women and to also improve livelihoods. This could be achieved by way of encouraging women to form their own credit and saving groups and take viable economic forms of income generation so as to attract lenders. They should also endeavour to own property to make themselves more competitive as credit seekers.

The total size of households was found to influence access to credit by smallholder farmers in Nyandarua District. Household size was found to be significant at 5 percent and negative. A unit increase in the household size was found to reduce log-of-odds in favour of access to credit by 1.915. That implied that those with larger families were more likely to face difficulties in accessing credit as opposed to those with smaller families. This could be explained by the fact that the total size of a household has financial implications in that larger families consume a lot of finances to smooth out their consumption expenditure and hence high budgets. Consequently, many financial commitments are likely to threaten the credit worthiness of a household. With large household sizes being a common feature among rural households, it is necessary to take measures to enlighten them on ways of having manageable family sizes that do not put a strain on their finances and threaten their credit worthiness. Such measures can be by way of having campaigns on effective family planning and its benefits in print and electronic media, particularly radio, which is a major source of information for rural people.

Title deed / registered lease certificate ownership positively influenced access to credit by smallholder farmers in Nyandarua District. The variable was significant 5 percent implying that an increase in acquisition of title deeds / registered lease certificates by one unit would lead to an increase in log-of-odds in favour of credit access by 6.073. That was expected since title deeds / registered lease certificates served as security / collateral for credit lent by financial institutions. Therefore, a farmer who possessed a title deed / registered lease certificate would have easier access to credit as opposed to one without.

**Table 1: Logit Model Regression Results**

Variable	Coefficient	Standard Error	Wald Statistic
Age	9.766*	3.443	8.045
Gender	-5.916**	3.481	2.888
Marital Status	1.278	3.648	0.123
Household Size	-1.915*	0.922	4.314
Land Size	0.567	0.967	0.344
Land Tenure	-3.531	3.458	1.043
Occupation	93.129	40,361.861	0.000
Farm Income	7.999*	2.860	7.825
Perception	-11.858	18.473	0.412
Collateral	6.073*	2.277	7.113
Awareness	0.304**	0.041	54.977
Education Level	-2.630	4.544	0.335
Constant	-13.796	19.135	0.520

-2 Log likelihood → 26.610

Cox & Snell R Square → 0.706

Nagelkerke R Square → 0.941

Omnibus test for model coefficients - Chi-square → 200.742

Hosmer & Lemeshow test - Model Chi-square → 2.809

Sample Size → n = 164

**The \*\* and \* represent 1% and 5% levels of significance respectively.**

*Source: Author's Survey Data, 2009*

With collateral being a major factor in accessing credit, it is necessary that land ownership issues are addressed especially among smallholder farmers. That could be facilitated by ensuring that the government deals with any bureaucracies and red-tapes involved in land registration to benefit majority of smallholder farmers who remain insecure in the land they use without proof of ownership. Registration of lease certificates for those smallholder farmers who don't own land and use land on leasehold tenure system should be made easier so as to give them an opportunity of using such land as collateral to obtain credit from financial institutions.

Awareness of credit availability had a positive and significant relationship with access to credit. Awareness was significant at 1 percent. An increase in the awareness level was found to lead to an increase in log-of-odds in favour of credit access by 0.304. That implied that those individuals who were aware of the availability of credit from financial institutions had a better chance to access credit than those who were not aware.

The relationship between farm income and credit access among smallholder farmers in Nyandarua District was found to be positive and significant at 5 percent. A unit increase in average annual farm

income would lead to an increase in log-of-odds in favour of credit access by 7.999. The coefficient was positive implying that those smallholder farmers in Nyandarua District with a larger farm income outlay would access credit much easily than those whose income was low. Given that majority of the sampled smallholder farmers in Nyandarua District had an average annual farm income below the mean average annual farm income of Kshs 42,896.34, smallholder farmers had difficulties accessing credit from financial institutions due to low farm incomes. That was expected because Nyandarua District is characterized by poor product prices for farm produce hence farmers do not benefit much financially from their agricultural produce.

It is important for farmers to diversify their agricultural activities so as to increase their farm income. Diversification of enterprises will ensure that farmers fetch more income and in turn repay their loans without difficulty. However, as it was observed in the field, majority of farmers fail to diversify their farming activities due to credit / capital challenges and inability to increase their land acreage. It is hence important that extension services be enhanced and effectively linked to research activities and farmers so as to facilitate smooth flow of developed innovations that are beneficial to farmers. That will

ensure that farmers are engaged in successful and profitable enterprises and reduce chances of enterprise failures thereby giving value to credit through the improvement of performance of assisted enterprises. In addition, the government and market players should ensure that farmers obtain competitive prices for their farm produce so as to make their agricultural activities lucrative enough. That will also help increase their income margins significantly.

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