

Determinants of Seasonal Loan Default among Beneficiaries of a State Owned Agricultural Loan Scheme in Uasin Gishu County, Kenya

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Abstract

This study analyzed the determinants of seasonal loan default by small scale farmers in Kenya. It specifically identified socio-economic characteristics of the respondents and quantitatively determined some socio-economic characteristics of these farmers that influence loan default. The study employed a stratified random sampling technique to select 272 small scale farmers who took seasonal loan of AFC in the period 2005 to 2010 in Uasin Gishu County. Descriptive statistics was used to analyze the socio-economic characteristics of the respondents. Cross tabulation was used to present a summary of data related to the determinants and logit regression analysis, quantitatively determined the probability of default given the factors that influence loan repayment among the respondents in the study area. The results of the logistic regression indicated that personal factors and facility factors are both significant at 1% and farming conditions are not significant. These results show that measures to lower loan default should focus more on personal and facility factors rather than farming conditions.

Keywords: loan default, determinants, farmers, afc & uasin gishu county

INTRODUCTION

The agricultural sector contributes about 24 % of GDP and provides about 70 % of total employment in Kenya. About 19 % of formal waged workers are in agriculture. Through linkages with agro-based sectors and associated industries, the sector indirectly contributes a further 27 % of the country's GDP (KIPPRA, 2009). Kenya is therefore an agricultural country with over 80% of farmers in Kenya being small scale who live in rural Kenya. The majority of these farmers are constantly faced with financial constraints. The lack of finance motivates them to look for credit from commercial banks, MFIs, NGOs and the government sponsored Agricultural Finance Corporation (AFC). The procedure for acquisition of these loans is tedious but the major hurdle is loan repayment. This research was intended to establish the key determinants for predicting the failure of small scale farmers to repay their seasonal crop production loans. This is because such defaults threaten the country's food security as well as the well-being of the agricultural sector in Kenya.

The need for agricultural credit amongst the small-scale farmers cannot be over emphasized. It enables them to establish and expand their farms. Provision of a viable credit delivery system has been an important mission of governments in developing countries (Udoh, 2008). Often these governments

practice the policy of providing subsidized credit to resource-poor farmers through the formal financial intermediaries with the view to insulating them from commercial banks that offer expensive loans with punitive terms. In Kenya, the government is involved in small to large-scale financial assistance to farmers as a major policy strategy for increased agricultural productivity.

The Agricultural Finance Corporation (AFC) has been Kenya's largest single agricultural credit institution providing agricultural loans and advisory services for the development of agriculture and agriculture-based industries. It provides loans to farmers, agriculture-based co-operative societies, incorporated groups, private companies, public bodies, local authorities, and other persons engaged in agriculture or agricultural industries. AFC operates a wide range of loan types based on the geographical suitability and tailored to suit the individual farmer's unique requirements (AFC Website). The loans are of different maturities depending on the need of the client. For example, the maturity periods for seasonal crop credit schemes, livestock loans and development loans are 1 year, 2-3 years, and 3-5 years, respectively. Loans to buy farm machinery mature within a period of 2-3 years. The Corporation restricts seasonal crop lending to those who farm more than five acres while development loans are

available to farmers of all sizes. The Corporation has been making a substantial contribution to agricultural development in Kenya (KIPPRA, 2006).

The interest charged by AFC for seasonal crop loans is 10 % simple interest. The seasonal loan is for production of hybrid maize and wheat in high potential gazetted areas. The aim of the corporation is to issue the loan and recover it in one installment after one 12 month- season and reissue the same to farmers in the next production season. However this has been frustrated by continuous reduction of available funds due to default by farmers in repayment of these loans (AFC, 2010).

This research targeted small scale farmers who took seasonal crop credit offered by AFC between 2005 and 2010 production seasons. The total seasonal crop credit portfolio as at December 2010 stood at Kshs 1,018,894,343 of which Kshs 611,874,293 was in arrears. This represents a default rate of 60 % of seasonal loans disbursed by AFC country wide in the period under review. The seasonal loan total portfolio in branches within Uasin Gishu County is Kshs 312,653,255 with arrears of Kshs 127,368,184 representing loan default of 40%. The branches within the County are Eldoret, Ziwa and Turbo. There has been a restructuring effort in AFC to try and mitigate the high rate of delinquency. These interventions include writing off bad debts and injection of new capital through government allocation and foreign government grants and loans. Non-performing loans written off amounted to Kshs 7.9 billion owed by 20,761 farmers country wide (KIPPRA, 2006). This was followed by an injection by the government of Kshs 1.3 billion as additional capital in five equal tranches of Kshs 260 million annually. The government of Japan gave a grant of Kshs 769 million to support the seasonal crop program of maize and wheat in 2004. Despite the restructuring efforts, there has not been much improvement in loan repayment of small scale farmers especially on seasonal loans, where the rate of default had peaked in 2002 with loan arrears of Kshs 2,453.7 million, representing a default of 89.9%. (KIPPRA, 2006). Although the bulk of loan arrears in 2002 had been written off there is still continued default of new loans disbursed

Loan default can be defined as the inability of a farmer to repay the loan as agreed when due. The extent of default differs from one farmer to another. Some farmers repay half of the loan, others fail to pay absolutely. The ratio of non-repayment differs greatly from farmer to farmer. The underlying assumption is that every farmer has the intention and willingness to repay the loan, but there are certain factors that frustrate their intentions. The loan forms filled by farmers when applying for the seasonal loans reveal certain similarities between those

farmers who repay their loan successfully as well as the common underlying characteristics between those farmers who fail to repay the loan successfully. This research sought to bring to light the contribution of each factor identified to loan default among farmers

RESEARCH METHODOLOGY

Study Area

The study was conducted in Uasin Gishu County, Kenya. It is one of the 47 counties in the country, and is located in the North Rift region, considered as the bread basket of the country due to the favorable climate. The study area is characterized by four climatic seasons. The county exhibits two major rainy seasons, the March–May «long rains» and the October–December «short rains», both related to the passage of the ITCZ, but differing in the amount of rainfall recorded and its inter-annual variability. The dry and hot season is between January and mid-March and the dry and cold season between June and September. The county is made up of two local government authorities and three constituencies and has a population of 894,179 people (National census report 2009). Uasin Gishu County is bordered by Trans Nzoia County in the north, Nandi and Kericho counties in the south, Elgeyo/Marakwet and Baringo counties in the east and Kakamega and Bungoma counties to the west. The main agricultural activities in the county are maize, wheat and dairy farming which have encouraged about 80% of the inhabitants to engage in farming. Farmers in the county are predominantly small-scale.

Sampling Technique

Stratified random sampling technique was used to select 272 small-scale farmers from 6 divisions in Uasin Gishu County. The divisions are Kesses, Kapseret, Soy, Turbo, Moiben and Ziwa. The sample picked from each division was allocated on pro-rata basis, and randomly selected from the divisional database in the AFC loanees register. Structured questionnaires and schedules were administered to selected beneficiaries of the loans. Two hundred and seventy two copies of structured questionnaires were administered on random basis, but two hundred and seventy one were found to be useful for analysis.

Methods of Data Analysis

Descriptive statistics, including frequency distribution and percentages were used to analyze the socio-economic characteristics of the sampled farmers. Logistic regression was used to quantitatively determine the factors that influence loan repayment among the respondents in the study area.

Model Specification

The function postulated is implicitly presented by the following:

$$Y = f(X_i) \dots\dots\dots \text{Equation (1)}$$

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, \dots\dots\dots X_{12}) \dots\dots\dots \text{Equation (2)}$$

Where:

Y = Seasonal Loan Default indicated by loan arrears

X₁ = Sex

X₂ = Family size

X₃ = Age of borrower

X₄ = Education level

X₅ = Income from off-farm activities

X₆ = Loan Diversion

X₇ = Climatic condition

X₈ = Non farm income

X₉ = Technology used

X₁₀ = Cost of farm inputs

X₁₁ = Number of repayments installments

X₁₂ = Timing and number of loan disbursement.

u_i = Error term (which is assumed to have zero mean and constant variance.)

The linear, semi log and exponential functional forms of the production function was tried to determine the best form of production function to use. A production function was selected because it quantifies the relationship between the dependent variable, (in this case the farmers who have defaulted on loan repayment of the seasonal AFC loan) and the independent variables (X1-X12), (Mudida, 2009). The Cobb-Douglas linear form was selected as the lead equation. This equation was as follows:

$$Y_i = \alpha + \beta_1 X_1 + \dots\dots\dots + \beta_n X_n + u_i \dots\dots\dots \text{Equation 3}$$

The logistic form of this model was used where Y is a dichotomous dependent variable which is explained as: Y= 1, if farmer defaulted on loan repayment and Y= 0 if otherwise.

The independent variables were computed selectively for subsets of data based on logical conditions. The subsets obtained were personal factors, farming conditions and facility factors.

Logit model limits probabilities for each values of dependent variable between 0 and 1. The

specification for the Logit model is:

$$\text{Log} \frac{P}{1-P} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu$$

.....Equation 4

Where X₁- Personal factors

X₂- Farming conditions

X₃- Facility factors

RESULTS AND DISCUSSION

From the table 1 below, it can be observed that 60% of the respondents were male out of whom 74% were defaulters. This gives female farmers a favorable comparison as only 27% of them defaulted. This observation agrees with Udho (2008) and Adegbite (2007) that male loanees have higher tendencies to default than female loanees. The low number of female loan beneficiaries is partially due the lack of collateral, the land title deed being the main security

required by AFC. Women are also seen as largely subsistence farmers and are therefore more risk averse, which makes them shy away from taking farming loans.

The majority of farmers were in the age bracket of 36-45 years and the lowest proportion being those aged above 65 years. 54% of the respondents were married and those found to be single, divorced and widowed were distributed almost evenly. The number of dependants associated with these farmers was 4-6 among 40% of the farmers sampled This may have a positive effect on the availability of family labor which may lead to an increase in their level of production that may translate to higher income, hence higher loan repayment capacity.

The farmers sampled, 68.6% of were literate (above primary level of education), which can have a positive effect on the adoption of new agricultural practices and enhance ability to repay loans. This confirms the findings of Oladeebo (2003).

Table 1: Socio-economic characteristics of respondents

Variables	Frequency	N = 271	Percentage
<i>Gender</i>			
Male		162	59.8
Female		109	40.2
<i>Age (Years)</i>			
< 25		40	14.8
26-35		48	17.7
36-45		56	20.7
46-55		50	18.4
56-65		48	17.7
> 65		29	10.7
<i>Marital Status</i>			
Single		41	15.1
Married		147	54.2
Divorced		43	15.9
Widowed		40	14.8
<i>Number of Dependants</i>			
< 3		71	26
4-6		107	40
7-9		60	22
> 10		33	12
<i>Level of Education</i>			
Primary		85	31.4
Secondary		78	28.8
College		73	26.9
University		35	12.9
Total		271	100

Logistic Regression of Loan Default

Eleven beneficiary-related component variables were computed selectively for subsets of data based on logical conditions. The subsets obtained were personal factors, farming conditions and facility factors. The dependent variable (Y) is a dichotomous variable capable of taking a value of either 0 or 1, if borrower has defaulted or otherwise. P is the predicted probability of the event which is coded 1

(loan default) and $1-P$ otherwise or the probability of default not occurring.

$$\text{Log} \frac{P}{1-P} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu \quad \text{.....Equation 5}$$

Table 2 Final Output

	B	S.E.	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
					Lower	Upper
PERSONAL	-9.036	1.234	.000	.000	.000	.001
FARMING	.273	.806	.735	1.313	.271	6.373
FACILITY	-2.699	.823	.001	.067	.013	.338
Constant	23.810	4.131	.000	756.01		

Source: SPSS Output

Variable(s) entered on step 1: Personal factors, farming conditions, facility factors.

The variables in the equation output shows that the regression equation is:

$$Y_i = 23.810 - 9.036 X_1 + 0.273 X_2 - 2.699 X_3 + \mu \quad 6$$

Where:-

Y_i is the probability of default

23.810 The Intercept

X_1 Personal Characteristic

X_2 Farming Conditions

X_3 Facility Factors

μ Error

The variables X_1 and X_3 are both significant with a level of significance of less than 0.001 and X_2 is not significant due to the level of significance being more than 0.01 (1%), i.e. 0.735.

Interpretation of Logit Regression Findings

Using the logit probability model, the study revealed negative correlation between personal factors and loan default. Personal factors include a combination of gender, age, marital status, and number of dependents, level of education, main occupation and main source of income. The personal factors with negative correlation are gender, age, education level, main source of income and main occupation. This implies that the higher the proportion of female beneficiaries, the lesser the tendencies for loan default; also, the older the farmer, the lesser the tendency to default and the higher level of education, the lower the tendency to default. This is in agreement with the findings of Oni *et al.*, (2005)

Farming conditions are positively correlated to loan default. Farming conditions are an aggregate of individual determinants: type of farming, farming experience, seasonal loan use, buyer of produce, mode of payments for produce delivered, payment duration and difficulty in farming. Positive correlation means that the higher the factor mentioned, the higher the probability of default. The factors that are positively correlated are farming

experience, buyer of produce and payment duration for produce.

Facility factors are negatively correlated. The facility factors are a combination of the individual determinants, including loan amount, frequency of borrowing, frequency of loan officer's visits, timing of loan disbursement, loan disbursement installments and loan repayment installments. Negative correlation means that an increase in the facility factors results in lower probability of default. Factors that contribute to the negative correlation are frequency of borrowing, where a beneficiary who has borrowed more times is less likely to default as opposed to a beneficiary taking the loan for the first time. Loan amount also has a negative correlation as the higher the loan amount, the lower the likelihood of the default. AFC visit is also negatively correlated as a beneficiary who receives visits is less likely to default compared to those beneficiaries who were not visited.

Loan diversion occurs when a beneficiary does not receive the loan on time. It also occurs when the loan is disbursed in one installment. These places a lot of cash at the farmer's disposal, hence the temptation to divert the extra money to other unproductive uses. All these affect loan repayment because agricultural production is time specific. Instead of utilizing the loans for the intended agricultural purposes, farmers may divert the loans because disbursement did not coincide with the appropriate planting time. High production costs also lead to less profitable agricultural ventures, hence poor loan repayment capacity.

The result of this study confirms the findings of Afolabi (2010) and Olagunju (2010) who stated that "the fact that the study confirmed the significance of loan disbursement lag in reducing repayment ability points to the crucial importance of timeliness in loan negotiation and delivery. When loan delivery misses the critical period of use, there is the tendency that such a loan would be diverted to relatively less productive or utterly unproductive activities."

RECOMMENDATIONS

Based on the findings from the study, the following suggestions are therefore made:

1. AFC should review the products on offer to encourage farmers who do not have access to title deed collateral required, e.g. group lending. This had been introduced during the 2005-2006 season, but had to be withdrawn due many loopholes. It should be reintroduced after studies of successes in other financial institutions that have used the system.
2. AFC should encourage more women to take loans by introducing women-friendly loan products.

3. The AFC should educate the small-scale women farmers to seek extra financing for expansion and increase productivity. This section of clients has been dominated by micro finance institutions.
4. AFC should fast-track its loan processing procedures to save time and costs. Logistical procedures such as land searches for repeat borrowers should be eliminated.
5. AFC should disburse loans in tranches based on requirements, e.g. One tranche during seedbed preparation, another during planting, during weeding and the last during harvesting. In addition the institution should make arrangements to issue vouchers for fuel and inputs to avoid loan diversion.

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