

Analysis of factors influencing loan repayment under the "Entandikwa" credit scheme in Mpigi district

S. Serubugo[†], E.N.B. Nsubuga^{††} and W. Ekere^{††}

[†]Department of Agriculture, P.O.Box Mpigi, Uganda

^{††}Department of Agricultural Economics, Faculty of Agriculture, P.O.Box 7062 Kampala, Uganda

Abstract

The Government of Uganda introduced the "Entandikwa" (Start up capital) credit scheme in the 1994/95 budget as a revolving fund with the objective of improving the incomes of the rural and urban poor. The repayment period was one year. However, by the end of the first round of loan disbursement in 1996, only 21.5% of the total disbursement had been recovered. This study sought to understand the reasons at the borrower level that had influenced loan repayment. Data collected from a systematic sample of 80 beneficiaries was used to determine the key factors responsible for this loan recovery performance. A chi square test and logistic regression models were used to analyse the data. Results indicated a weak relationship (insignificant) between loan repayment and the economic activities financed. The regression results indicated that lack of experience in the financed economic activity, tertiary level education, sex of borrower, brick and tile making, bakery, knitting, tailoring and transport as sources of income had negatively influenced loan repayment. The vigilance of the intermediary agencies positively influenced loan repayment while the fungibility of credit and political preference of the borrowers were statistically insignificant. The poor repayment performance could also be attributed to the way the scheme was implemented: hurriedly and mainly through the political organs of the government. Loans were thus viewed as political handouts and taken by many without any intention of paying back. The need to operate the credit scheme through private micro-finance institutions with expertise in rural credit and Government's continued provision of a conducive economic policy environment for economic growth appear as key to operate any such credit schemes.

Key words: loan servicing, micro-finance, revolving fund, rural and urban income, Uganda

Introduction

Credit has been defined by Adegeye and Dittoh (1985) as a situation where someone obtains control over the use of money, goods or services in the present in exchange for a promise to repay at a future date. Credit plays an important role in improving production by either helping to acquire improved technology or by supporting increased production activities and consequently improving the income of the beneficiaries (Adams and Pischke, 1980). However, loan delinquency and defaults have plagued many credit programmes in developing countries (Adams and Vogel, 1986). The "Entandikwa credit scheme" which was started in 1994 in Uganda was no exception to this phenomenon.

The credit scheme was the latest in a series of government attempts to deliver credit, particularly in the rural areas, for income generating micro-enterprises. It was supposed to be a revolving start-up fund to help micro-projects and small-scale economic ventures that are income and employment generating. It started in the 1994/95 financial year with an initial fund of six billion shillings, and covered all the districts of Uganda, with a promise from government to inject the same amount of money every financial year, over and above what had been recovered in loan repayment. This was

supposed to make money available to more borrowers every year. The fund was administered through the administrative structures of government, with the assistance of selected intermediary agencies (IAs).

In the case of Mpigi district, all the money borrowed under the "Entandikwa" credit scheme was supposed to be repaid by december 1996 (Anonymous, 1996). However, only a small percentage (21.5%) of the total loans disbursed had been repaid by the deadline. This clearly indicated a low rate of loan recovery. Borrowed funds were being retained by the first beneficiaries instead of being put back into the revolving fund. Failure to repay made sustainability of the scheme very uncertain, and the majority of the people were likely to be denied the opportunity to access the credit.

This study was borne out of a need to understand the factors that had influenced the observed poor performance of "Entandikwa" credit scheme in order to improve the performance of this and future credit schemes. The primary objective of the study was to ascertain the factors responsible for the poor loan recovery and recommend remedial measures. The following hypotheses were used to guide the analysis of the above objectives: (a) The economic activities of borrowers are not significant determinants of loan repayment, (b) the socio-demographic characteristics of the borrowers are not significant determinants of loan repayment, (c) attitudinal effects do not have a significant bearing on loan repayment and (d) fungibility of loans is not a significant factor of loan repayment.

Methodology

The study was conducted in Mpigi district in central Uganda. It was limited to the first phase of the scheme in which 1092 beneficiaries received loans. Eighty (80) of the beneficiaries were randomly selected from a list of all beneficiaries from the district for interview. A sampling ratio of 1:13 was used. In order to select the first name on the list, the first 13 names were each written on a separate piece of paper and subjected to a random draw from a bowl. The name on the first paper picked was listed number one on the sample list. Thereafter, every 13th name on the general list was sampled.

Data types and sources

Both primary and secondary data were collected. Primary data were collected on socio-demographic characteristics, economic activities, main sources of income, marketing, business management ability, use of the borrowed funds, attitudes towards the scheme, political preferences, and problems encountered in repayment. These data were obtained from loan beneficiaries using a semi-structured, largely pre-coded questionnaire. The questionnaire was administered by the researchers. Other primary data were obtained from intermediary agencies. Secondary data consisted of; (i) lists and numbers of the beneficiaries for the district, (ii) total amount of money loaned and repayment for the district, (iii) amount of loan repaid and balances of the sampled beneficiaries, and (iv) working guidelines of the scheme.

Data analysis

The Sanderatne (1978) analytical framework was adopted for the analysis. The dependent variable was repayment. It was determined in terms of the percentage of what was repaid to the total loan as at the time of conducting the interview. The independent variables were the following characteristics of the borrowers:

- (i) Economic Activity. This included all categories of funded projects grouped as below such as for crop production, livestock production, trade and commerce and others,
- (ii) attitude, including political inclination and the vigilance of the intermediary agencies in collecting repayment.

- (iii) demography, including sex, age, family size and level of education.
 (iv) Fungibility i.e. the diversion and substitution of loans.

Descriptive statistics, chi-square and the logit model were the tools of analysis used in the study. Under the descriptive statistics, totals and percentages were used for comparative purposes. In chi-square test, the dependent variable, which was repayment, was measured in terms of the percentages of the total loan repaid. Repayments were categorised into only two: 1 = < 30%, and 2 = ≥ 30%. The two categories were compared with the categories of the economic activity as the independent variables, namely crop production, livestock production, trade and commerce and "others" (brick and tile making, tailoring, and knitting, bakery and transport).

A logistic regression model was used to analyse the probability of a borrower repaying the loan given a set of socio-economic variables. Repayment was used as the dependent variable with the following categories 1 = ≥ 30% repayment, and 2 = ≤ 30%. The model for the logit regression was specified as follows:

$$\ln \left(\frac{P_i}{1-P_i} \right) = \alpha_0 + \alpha_1 \text{LUT1} + \alpha_2 \text{SINC5} + \alpha_3 \text{EDUC3} + \alpha_4 \text{Sex} + \alpha_5 \text{VIA} + \alpha_6 \text{EDUC2} + \alpha_7 \text{DEP} + U_i$$

Where

P_i	=	Probability of repayment
LUT1	=	Loan used to begin a project (beginners)
SINC5	=	Brick making, knitting, bakery, transport and tailoring as income sources
EDUC3	=	Tertiary level education
Sex	=	(1 = male; 0 = female)
VIA	=	Vigilance of Intermediary Agencies
EDUC2	=	Secondary level education
DEP	=	Number of dependants owned by the borrower
α_1 - α_7	=	Coefficients
U_i	=	Error term

Two limitations to the study were considered. Firstly, the Uganda National Farmers Association (UNFA) and secondly the intermediary agency (IA) that distributed the biggest amount of loans were not co-operative. The association in Mpigi district appeared to be disorganised and tracing the officials proved impossible. Secondly, the borrowers with poor repayment records were suspicious of the purpose of study. They suspected that certain measures were going to be instituted against them. This may have led to some respondents giving some wrong information on the amount of loan repaid and also exaggerating their problems. The SPSS statistical software (Marija, 1994) was used for data analysis.

Results and discussion

Table 1 shows that a total of Ushs 311,850,000 was disbursed to the beneficiaries by intermediary agencies (IAs). The IAs in descending order of the amount of loan funds handled were: The Uganda National Farmers Association (UNFA), 45.4%; Balyesiima co-operative saving and credit society Limited (LTD), 18.2%; Butambala united growers with 9.2%, and Nkumba growers, Medecos Savings and credit co-operative society Ltd., and Nadangira Agali-awamu savings and credit society, each with 9.1%. Each of the IAs had a specified geographical area of operation.

Surprisingly, out of the 80 beneficiaries sampled, (5%) stated that they never received "Entandikwa" money although their names were included on the list of beneficiaries. This category represented a group of automatic defaulters, as they could not be expected to repay what they never borrowed. This category was excluded from analysis.

Distribution of loan by socio-demographic characteristics of borrowers

(1) Sex: Male beneficiaries were 55% while women were 45% of the sample. The amount of loan received by male beneficiaries was 12,746,000 Ushs. (55.6%) of the total loans while female beneficiaries received 10,190,000 Ushs (44.4%).

(2) Civic status of the beneficiaries: Local council executive members (LC) constituted 50% of the total respondents while non executive members were 43.8%. Local council executive members received 44.5% of the total loan, while non-executive members got 51.8%.

(3) Political inclination of the beneficiaries: Out of the total respondents, 88.7% expressed support of the current political situation while those who were non-committal or non-supporters were 6.3%. Supporters of the current political situation received 88.2% of the total loan, while the non-committal or non-supporters received 8.2%.

(4) Education: Beneficiaries with primary education were 28.8% of the sample and they received 26.9% of the total loans while those with secondary education were 46.3% of the sample and received 47.69% of the loans. Those with tertiary education were 16.3 of the sample and received 20% of the loans.

Loan recovery performance

Generally, loan recovery was poor. Out of 311,850,000 USHs out, only 67,034,250 Ushs had been recovered at the time of the survey. This amounted to only 21.5% of the total that had been recovered by the end of the loan period. This was obviously poor loan recovery performance. The respondents received a total of UShs. 22,936,000 out of which only 42.9% had been repaid.

Loan recovery performance by intermediary agency

The intermediary agencies received a commission of 4% from each loan application approved. However, all the agencies complained that this commission was insufficient to cover their operations and facilitate efficient running of the scheme. Consequently, the IAs could not adequately monitor and sensitise the borrowers to repay, a situation which likely contributed to the poor loan recovery in the district.

Medecos Ltd. of Entebbe municipal council had the highest loan recovery of up to 90% of the money it disbursed (Table 1). Balyesiima of Mawokota north and south, and Nadangira Agali-awamu of Busiro north had recovered 38.1% and 33.4%, respectively. Butambala United of Butambala, and Nkumba growers of Busiro south recovered 19.1% and 17.6% of their disbursement, respectively.

Table 1. Loan disbursement by intermediaries in Mpigi.

Intermediary agency	Shs disbursed	Percentage	Shs recovered	Percentage
Uganda National Farmers Association (UNFA)	141,600,000	45.4	NA	NA
Balyesiima co-operative savings and credit society	56,700,000	18.1	21,611,350	38.1
Butambala United growers	28,500,000	9.2	5,435,300	19.1
Nadangira Agali-awamu savings and credit society	28,350,000	9.1	9,470,000	33.4
Medecos Ltd.	28,350,000	9.1	25,519,600	90
Nkumba growers	28,350,000	9.1	4,978,000	17.6
Total	311,850,000	100	67,034,250	21.5

Loan recovery performance of borrowers by economic activity and socio-demographic characteristics of borrowers

Borrowers engaged in trade and commerce as a group had repaid 64.2% of the total funds loaned by the end of the loan period. Those categorised as "others" had repaid 48.9% while those in crop and livestock production had 40.4% and 34.3% of the loan repaid respectively. Out of the total money disbursed to the respondents, 42.9% had been repaid.

Analysis of factors influencing loan repayment

The borrowers reported a number of problems they thought were responsible for the low rate of repayment. The problems are summarised in Table 2. Unfavorable weather conditions and pests and diseases hit crop and livestock production activities. Borrowers who invested in tomato growing for example suffered severe late blight attack. The high numbers of poultry farmers in some areas led to an oversupply of the poultry products and this caused a fall in prices and, consequently, reduction in ability to repay the loans. Trade and commerce investments had no noticeable problems and this explains their high rate of repayment of over 60%.

The chi-square analysis was used to establish whether there was a relationship between the categories of the financed project or the economic activity, and the rate of loan repayment. The financed projects were categorised as: i) crop production ii) livestock production, iii) trade and commerce iv) and others (Brick and tile making, tailoring, knitting, transport). The results of the analysis are presented in table 3.

The calculated chi-square (7.8789) was greater than the tabulated (critical) value (7.815) at a significant level of 0.05. Therefore, the null hypothesis was rejected. So the economic activities of the borrowers influenced loan repayment. However, although the contingency coefficient was statistically significant at 95%, the value of 0.29948 (30%) suggested that a weak relationship between loan repayment and the economic activities financed. In terms of effect of socio-demographic characteristics of borrowers on loan repayment, several variables were regressed against the repayment categories (Table 4).

The results of the logistic regression as shown in table 4 above and the Wald statistic with a chi-square distribution were used to test the significance of each coefficient. The results show that the vigilance of intermediary agencies, sources of income of respondents, sex, tertiary level education and project beginners significantly influenced loan repayment.

The vigilance of intermediary agencies (IAs) had the most influence on loan repayment. It was highly significant at 1%, and was positively related to loan repayment.

Sex was coded as 1 for males and 0 for females; therefore, the negative sign of the coefficient implies

Table 2. Borrowers perception of problems affecting their loan repayments

Nature of problem	%Borrowers reporting	Most affected economic activity
Failure of projects due to natural hazards	30 (24)	Crop and livestock production.
Illness of family members	15 (12)	All
Laxity of intermediary agency's	11.3 (9)	All
Lack of market for products	10 (8)	Poultry keeping
Thefts	8.8 (7)	Poultry keeping
High cost ,poor quality feeds		Poultry keeping
None	15 (12)	Trade and Commerce

*Figures in parentheses are actual counts

that males negatively influenced loan repayment. The log of odds of repayment decreases by 0.7411 when the borrower is male. This implied that in this case with the Exp (B) of 0.48, males were 0.48 times less likely to repay than their female counterparts.

Possession of a tertiary education had a significant and negative influence on loan repayment at 10%. The exp of 0.44 implies that a unit increase in borrowers under this group reduced the odds of repayment by 0.44 units. In other words, the higher the number of borrowers with tertiary education, the less the probability of repayment.

The source of income of the borrower was another socio-economic factor that influenced loan repayment. Brick and tile making, tailoring, bakery, bicycle transport (boda-boda), and knitting as the main sources of income had a significant (at 95%) and negative influence on loan repayment. These respondents complained of lack of market for their products. Tiles and bricks were not selling; the bicycle transport service was no longer paying because of the increased use of motorcycle transport. Respondents who invested in bicycle transport could not therefore pay back in time due to loss of business. Bakery owners could not easily sell off their products because of the stiff competition and perishability of their products. The results indicate that a unit increase of borrowers under this category reduced the odds of loan repayment by 0.37 units. In other words, the higher the number of borrowers under this category, the less the probability of repayment.

The respondents who borrowed money to begin developmental projects (beginners) were less likely to pay as compared to their counterparts who borrowed to finish the projects. The results indicate that a unit increase of borrowers under this group reduced the odds of repayment by 0.31 units. This means that the higher the number of borrowers under this group, the less the probability of repayment. The negative relationship could have been caused by lack of experience in the project management. Fungibility and political inclination were not significant in influencing loan repayment. Therefore, the null hypotheses were accepted: that fungibility did not significantly influence loan repayment.

Table 3. Chi-square test results.

Economic activity	% < 30	% ≥ 30	Row total
Crop production	12	11	23
Livestock production	15	11	26
Trade and commerce	3	14	17
Others	8	6	14
Column Total	38	42	80

Chi-Square value= 7.8789; degrees of freedom =3, contingency coefficient = 0.29948

Table 4. Results of the logistic regression.

Variable	Coefficient B	Standard Error	Exp (B)
Secondary education	0.4389 ^{ns} (1.4556)	0.3638	1.55
Tertiary education	-0.816 ^{ns} (2.9983)	0.4693	0.44
Number of dependants	0.154 ^{ns} (2.2009)	0.0710	1.11
Beginning project (Beginners)	-1.1574*** (7.5514)	0.3416	0.31
Sex	-0.7411*** (4.7073)	0.3416	0.48
Sources of income (brick and tile making, bakery, knitting, tailoring and transport)	-1.0052** (6.0899)	0.4073	0.37
Vigilance of intermediary agencies	1.055 ^{***} (7.2536)	0.3918	2.87

Notes: (a) *, **, *** coefficient significant at 10%, 5%, 1% level, respectively. (b) Figures in parentheses are Wald statistics

Goodness of fit assessment

The goodness of fit for the model used was assessed basing on observed and predicted outcomes as shown in the classification (Table 5). In effect, 30 of the observed outcomes are correctly predicted by the model, out of the 36 who had repaid more than 30% of their loans. Out of the 32 whose repayments were less than 30%, the model correctly predicts 75%. The model's overall prediction is 79.41% as correctly classified. The significance of all the coefficients, which is equivalent to the F statistic, is given by the model chi-square of 27.95 with 7 degrees of Freedom. This is statistically significant at 1%. The null hypothesis was thus rejected.

Conclusions and Recommendation

Loan repayment performance of the beneficiaries under the "Entandikwa" credit scheme was generally poor. The scheme was started hurriedly before properly assessing its viability and implemented through the political organs of the government mainly local councils in the initial selection of beneficiaries. Furthermore, since the scheme was implemented towards the elections, many members of the public regarded it as an effort of the government to bribe the electorate to vote for candidates who were her supporters. Many borrowers therefore took it as their reward for the political support. Therefore, it is the political interference, rather than political preference that seemed to have influenced loan repayment.

Borrowers used the money to finance various economic activities. Although 30% of the respondents in crop and livestock production attributed failures of their projects due to natural hazards, the results of the chi-square test revealed that the relationship between loan repayment and the economic activities financed was weak. Therefore, the poor loan recovery performance could not have been due to certain economic activities.

If the respondents had borrowed money to start a project, this had a negative relationship with loan repayment. The negative relationship could have been caused by lack of experience in the management of the project. Therefore experience is important in the success of any economic activity and should not be overlooked especially where borrowed funds are involved.

Sex of the borrower significantly influenced loan repayment. Female borrowers exhibited a higher probability to repay than their male counterparts. Females were therefore better borrowers than males.

An examination of the influence of attitudes showed that loan supervision significantly influenced loan repayment. Increased supervision of the borrowers by intermediary agencies (IAS) was very important in influencing loan repayment, which is instrumental in the sustainability of the credit scheme.

Arising from the above, the following are recommended;

- In order to increase efficiency in the management of the scheme, participating priority and micro-

Table 5. Classification table for the dependant variable repayment.

	PREDICTED 1	PREDICTED 2	% CORRECT
Observed 1	30	6	83.33
Observed 2	8	24	75.00
-2 Log Likelihood	66.083		
Goodness of Fit	60.496		
Model Chi-Square	27.950		
Model Prediction	79.41%		