EFFECTS OF CLIENTS' LITERACY ON DEFAULT AND DELINQUENCY OF SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES IN TANZANIA

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ABSTRACT
This study examines the influence of economic and financial literacy on the delinquency and default rate of clients of rural Savings and Credit Co-operative Societies (SACCOSs) in Tanzania. The data were collected from a random sample of 200 individual loan beneficiaries drawn from eight SACCOSs, and analysed using regression models. The findings established that the level of economic and financial literacy of rural borrowers is very low. The study also found a negative relationship between economic literacy and financial literacy, on the one hand, and default and delinquency, on the other. This suggests that borrowers' inability to make prudent borrowing and investment decisions, rather than poor intentions, is the main explanation behind the failure to meet debt obligations. Therefore, conventional microfinance may be penalising those with the least human capital, who happen to be the poorest people. The findings underline the need to invest in enhancing the poor's human capital to ensure sustainable financial deepening and a positive impact on poverty.

Key Words: SACCOSs, Economic and financial literacy, Default, Delinquency, Tanzania

INTRODUCTION

Microfinance is the provision of financial services to the poor and low-income people to support income-generating activities, consumption, the building up of assets and risk mitigation (Mori & Olomi, 2012). Microfinance services are offered by a range of providers, including Savings and Credit Co-operative Societies (SACCOSs). By June 2013, there were 5,559 SACCOSs on mainland Tanzania, with 820,670 members, 65 percent of whom were men, 31 percent were women and four percent5 were groups or institutions. About 59 percent of the SACCOSs were based in rural areas and the remaining 41 percent in urban areas (URT, 2013). SACCOSs are dominant MFIs in both rural and urban areas, whereas financial NGOs, banks and microcredit companies are mostly urban based. SACCOSs are member-owned financial co-operatives, democratically controlled by their members, and operate for the purpose of promoting thrift, providing credit at competitive rates and other financial services to members. The number of SACCOSs in Tanzania has been growing steadily, as have membership, deposits and portfolio. However, these SACCOSs are often limited in terms of their capacity, access to capital and outreach. Many SACCOS, especially in rural areas, have collapsed in recent years due to poor financial management, delinquency and default by members, and inadequate capital (Mtambie, 2016).

SACCOSs in Tanzania have tended to be highly dependent on external borrowing to finance their portfolios, and their repayment rate to their lenders has been poor (Tumaini, 2010). This is partly due to the inability of members to generate sufficient profit to meet their lending needs. The Tanzania government and donors have established a number of funds for lending to SACCOSs. These include the Mwananchi Empowerment Fund (MEF) under the National Economic Empowerment Council (NEEC), the Small Entrepreneurs' Loan Fund (SELF) and the Jakaya Kikwete Fund (Mtambie, 2016). A number of banks and international financial NGOs have also been offering wholesale loans to SACCOSs, although some have recently opted out of this market.

Despite all these efforts aimed at helping rural Tanzanians, the record concerning the repayment of loans made to

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rural borrowers via their SACCOSs has remained poor (Mwakajumilo, 2011). One of the reasons behind this poor loan repayment record could be lending decisions that usually emphasise more on the applicants' shares and/or deposits than on collateral, credit or capacity. This policy may be detrimental to SACCOSs with clients who are predisposed to disproportionately higher levels of default. Yet, tightening the criteria may also discriminate against certain segments of members.

This study, therefore, seeks to examine why members/clients fail to repay their loans. The research question is: What determines delinquency and default on loans among rural-based SACCOSs in Tanzania? We specifically examine the relationship between clients' economic and financial literacy on the delinquency and default rates of SACCOSs' loans.

Delinquency and default are defined using the definitions of the Consultative Group to Assist the Poorest (CGAP, 2009). "Delinquency" refers to a situation in which a loan instalment is overdue. "Default", on the other hand, refers to a situation in which a borrower cannot or will not repay his/her loan (CGAP, 2009). Delinquency and default in rural-based SACCOSs lead to a spiral of consequences—reduced income and clients´, impaired image, and inability to mobilise deposits and loans. In fact, the preponderance of delinquency and default on loans cases can lead to bankruptcy.

THEORY AND LITERATURE

Supply-led Finance Theory

This theory suggests that people in rural areas need more capital than they can save from their income, and that credit is necessary in these areas to support small-scale agriculture and industry (Penny, 1968). Under this theory, finance—as a form of input—is considered to be a means for inducing innovation as a form of input. Patrick (1966) contends that economic growth and development could be encouraged through interventions in the financial system by supplying finance in advance of demand. Access to supply-led funds opens up new horizons, hence enabling the entrepreneur to "think big" (Patrick, 1966). In this regard, if subsidised credit was provided to the agricultural sector, rural entrepreneurs would be induced to buy new and more efficient technology, such as tractors, which would have a positive impact on economic growth and development. Credit programmes were thus expected to help the rural poor to increase agricultural productivity and thereby encourage growth (Adams, Graham, &Von Pischke, 1984).

The result of this "directed credit" approach was expected to increase food production at a time when the world was facing a severe food crisis (Sonne, 2010). A further assumption underlying the need for government intervention and the funding of subsidised credit programmes was that "bad moneylenders"—providing the majority of finance in rural areas—would charge usurious rates (Sonne, 2010). Therefore, formal financial institutions needed to be created to provide alternative access to finance and reduce interest rates (Von Pischke, Adams, & Donald, 1983). Providing credit was ultimately seen to be the responsibility of governments and international donors, either directly or through financial institutions (Sonne, 2010).

These initiatives of supply-led finance are also linked to the establishment of most SACCOs. Indeed, SACCOs were established with an objective of deepening finance in rural areas. Many SACCOSs in Tanzania as well as other parts of Africa have been formed based on the supply-led finance theory. As a matter of fact, people in rural communities first started these co-operatives for saving and helping each other. Later, formal institutions such as banks and other lenders entered into agreements with them and started offering them wholesale loans, arguing that more finance would help members with their businesses. However, repayment problems emerged and many borrowers started to default on their loans, causing the SACCOSs to default as well. This behaviour was caused by many factors that can, to a large extent, be explained by the adverse selection and moral hazard theories.

Adverse Selection and Moral Hazards

Adverse selection is a term used in economics and other disciplines to refer to a market process in which "bad" results occur because buyers and sellers have asymmetric information (i.e. access to different information) (Akerlof, 1970). Three assumptions guide this theory: (1) there is random variation in product quality in the market; (2) there is asymmetry of information about product quality; and (3) there is greater willingness to accept poor quality. Although adverse selection can take many forms, Phillips and Raffard (2009) contend that, all things being equal, an increase in the price of credit charged to clients would result into a deterioration of clients' behaviour and translate into more borrowers defaulting on loans.

Adverse selection in lending occurs when lenders do not know the particular characteristics of the borrowers. For example, a lender may be uncertain about a borrower's reasons for undertaking risky projects (Besley, 2010). The implication is that lenders may consequently reduce the amount they decide to lend, which can result into too little investment in the economy. On the other hand, a lender may decide to offer the amount requested at a high interest rate to cover the expected loss. However, raising the interest rate to combat a potential loss can have adverse consequences for the lender.

The adverse selection problem can thus be characterised as the differences that exist in the riskiness of the projects of individuals. If the interest rate is increased to offset losses from defaults, then those individuals with the less risky projects will probably be discouraged from borrowing, although they are the ones most likely to repay their loans. In contrast, those who are unlikely to repay will not be discouraged by the higher interest rates.

Phillips and Raffard (2009) further note that adverse selection in lending occurs when a less desirable (e.g. higher priced) product is offered to the same group of prospective borrowers, which leads to a higher rate of loss. This is a typical explanation of "asymmetric information". In terms of consumer lending, this would mean that the borrower has private "adverse information" not possessed by the lender—information that, if he possessed it, would increase the lender's *ex ante* probability that the borrower would default. The borrower's private information is "above and beyond" the information that the lender extracts from the borrower, either through the lender's own efforts (e.g. via the loan application form) or from a third party such as a credit bureau.

Although asymmetric information is a plausible explanation, it is not the only possible explanation and may not be the main reason behind the price-driven adverse selection. Another possibility is that borrowers who otherwise appear identical might differ in their ability to understand and manage their financial commitments. This can be understood as the borrower's level of economic and financial literacy. Well-informed and perceptive (highly literate) borrowers, for example, might simply be better at calculating their expected ability to repay, given the prospects they face and may, therefore, make better borrowing decisions than less-informed borrowers with low economic and financial literacy (Phillips & Raffard, 2009).

In addition, the literature shows that, for most borrowers, repaying a loan is less of a priority than buying food, and paying rent and taxes (Mori & Charles, 2016). The difference between a borrower's monthly disposable income and her expenditure on food, rent and other necessities is called the borrower's capacity. If the amount that needs to be repaid monthly for a prospective loan is greater than a borrower's capacity, then an increase in the amount to be repaid each month would increase the probability of default.

Therefore, the lender—whether a SACCOS or a bank—faces a problem as the higher the interest rate, the more the high-risk people ("low types") will be attracted to his/her/ pool. This is intuitive. If the borrower knows that he/she is unlikely to repay anyway, he/she will be more willing to accept a higher rate. If he/she is likely to repay, he/she will go for a lower rate. Since the lender fears pulling these people into his/her/ pool, he/she restricts the amount of loans he/she gives out. Ultimately, some "high types" that would have repaid the loan will not have access to credit (Mori & Charles, 2016).

"Moral hazard", on the other hand, refers to the tendency to take undue risks because the costs will not be borne by the party taking the risks. This term describes a situation where the behaviour of one party may be to the detriment of another after a transaction has taken place. Economists explain moral hazard as a special case of information asymmetry, in which one party in a transaction has more information than the other. In particular, moral hazard may occur if a party that is insulated from risk has more information about its actions and intentions than the party paying for the negative consequences of the risk (Morduch, 2009).

Under moral hazard, once a borrower receives a loan, and if he/she knows that he/she will not get the benefits from the loan, he/she will work less hard. Thus, the probability of default goes up (Hermes & Lesinki, 2007). If the lender anticipates this, he/she should restrict the supply of credit, and provide less credit. Moral hazard in lending is also explained as a problem that occurs after the lending has taken place. In credit markets, borrowers act inappropriately ("immorally") from the lender's point of view, thus increasing the lender's risk ("hazard") (Mori & Charles, 2016). Borrowers may take on excessively risky projects because they are using bank funds and not their own. If the risky investment pays off, then the borrower benefits; if not, then the borrower defaults, leaving the lender with the bill.

As in adverse selection, an increase in interest rates affects the behaviour of borrowers negatively, hence reducing their incentive to take actions conducive to repaying their loans. Higher interest rates may also have a

counterproductive effect on the lenders' profits because of the adverse and moral effects on the borrowers' incentives (Besley, 2010).

SACCOSs have both types of clients, those with adverse selection (taking out loans knowing that they will not repay them) and moral hazard (changing their behaviour after getting a loan) problems. Both problems may result from not only asymmetric information but also from demographic factors, which this study seeks to address. In addition, adverse selection happens when the borrower lacks the ability to make prudent borrowing and investment decisions. This risk is higher in financial co-operatives, such as SACCOSs, which base their lending decisions only on the share or deposits of the applicant. The borrower's ability to make prudent borrowing and investment decisions is a function of their economic and financial literacy.

We refer to economic literacy as the ability to understand, communicate, manage and make decisions based on inflation, price levels, exchange rate and economic growth (Salemi, 2015). Insufficient economic knowledge will limit a person's ability to interpret the environment and make sensible economic decisions. Financial literacy, on the other hand, is the ability to understand, communicate, manage and make decisions about financial issues such as savings, stock market participation and portfolio diversification (Lusardi & Mitchell, 2014; Lusardi &Tufano, 2009). In sum, economic knowledge applies to a broad range of economic and even political decisions whereas financial literacy applies to money management. Generally, insufficient financial knowledge leads to low savings, mortgage defaults and financial mistakes, and extra fees or excessive interest rates on credit card debt.

Review of Empirical Studies

Various previous studies have addressed SACCOSs' and borrowers' behaviour and are relevant to our study. Papias and Ganesan (2008) studied repayment behaviour in Rwanda's SACCOSs. Out of 120 respondents, 80 percent demonstrated a high repayment rate. The study further found that, among the statistically significant variables, household size, the size of the loan provided, the interest rate charged, the number of official visits, and the borrowers' education negatively correlated with repayment performance. The authors concluded that the negative coefficient for education level indicated that, although farmers had a reasonably good repayment record, this did not necessarily improve with an increase in their education level. They argued that the farmers who had not received formal education tended to be older, with a lot of experience of diversified farming practices, and so were more committed and able to repay their loans, outweighing the education factor. This finding was surprising and thus the current study seeks to determine whether the same is true in the context of Tanzania.

Njoku's (1997) study on the determinants of loan repayment under the Special Emergency Loan Scheme in rural Nigeria used the Cobb Douglas function and linear regression to test the relationship between the independent variables—loan volume, years of farming, years of education, household size, loan period, farm size, farm output, value of assets and the interest rate—and the dependent variable, loan default. The results showed that loan volume, education, household size and interest rate had positive coefficients, indicating that the loan repayment rate decreased with an increase in the magnitude of these variables. They also showed that farming experience, the loan period, the farm size, farming as the major occupation and the value of assets had negative effects, indicating that the loan repayment rate increased with an increase in the magnitude of these variables. The findings on formal education are of particular interest here. It is expected in this study that higher education will enhance technology adoption and hence increase farm income and the ability to repay a loan. However, the results turned out to be otherwise in Njoku's (1997) study carried out in Nigeria some fifteen years ago. In this regard, the current study seeks to determine the impact of education on loan repayment in Tanzania's environment today.

Furthermore, Nikhade, Shinde and Nighot (1994) carried out a study on the crop loan repayment behaviour of cotton growers. The aim of the study was to analyse the behaviour and characteristics of the borrowers along with the causes of non-repayment of crop loans. In the study, a relational analysis revealed that personal characteristics, such as education, annual income and land holding, positively influenced the borrowing patterns and repayment behaviour of the borrowers. Clients with these characteristics borrowed more and had had higher rates of repayment.

Mbata (1991) evaluated institutional credit and its role in agricultural production in Nigeria's River State. Simple random sampling was used to select 120 farmers who had obtained credit from a financial institution during the 1988-1989 period. The results show that, despite the high interest rates charged by the institutions, small-scale farming was profitable. It was also observed that the farmers over-utilised labour and land but under-utilised credit. Information gathered from the study also show that the bureaucratic procedures of institutions, the untimely release of funds, high interest rates and the absence of banking facilities in rural areas were major

bottlenecks to credit extension. Arene (1992) used regression analysis to identify variables that have a significant bearing on the loan repayment performance of farmers' associations in Nigeria's Anambra State. Variables such as size of loan, income, education level and the number of years in farming were found to be statistically significant, but family size was not.

There has been increasing interest in the subject of economic and financial literacy. In the recent study, Lusardi and Mitchell (2014) found that both developed and transitional economies had very low levels of financial literacy and that lower levels of economic literacy were associated with poor economic decisions.

Japelli (2010) compared 55 countries from different regions and with different levels of development using international panel data from 1995 to 2008. The study established that there is substantial heterogeneity of financial and economic competence across countries. He further found that human capital indicators positively correlate with economic literacy. Financial literacy was consistently found to be disproportionately low among the young and the old, those with no or little education, the unemployed, and women, across countries.

Moore's (2003) study found that respondents with lower levels of financial literacy were more likely to have costly mortgages whereas Lusardi and Tufano (2009) found that the less financially literate respondents were either unable to judge their debt position or reported excessive debt loads. Similarly, Perry and Morris (2005) found a positive association between financial literacy and financially-responsible behaviour, such as controlling spending, budgeting and planning for the future.

Synthesis and Gaps

The theoretical and empirical literature reviewed provides us with key lessons on lending to people in rural areas. In this regard, the supply-led finance theory posits that rural finance should be used to induce innovation and productivity. Several credit programmes have been established by governments and other actors, in the hope that they can help the rural poor to raise agricultural productivity. However, the poor loan repayment rates among member borrowers mean that the objective is unlikely to be achieved.

The adverse selection and moral hazard theories partly explain why default and delinquency occur. However, they are too general to inform specific remedial measures for the problem. In the context of rural microfinance, the personal context and abilities of the borrower, such as family size, educational background, and financial and economic literacy, should be taken into account. This study seeks to do just that.

In fact, some of the empirical research findings are contradictory. Variables such as the borrowers' level of formal education, family size, loan size, interest rate, annual income, loan duration and age appear in most of the studies reviewed, but the significance levels of the variables that explain loan default differ. Empirical studies in developed countries also show that economic and financial literacy influence investment and borrowing decisions and outcomes, as well as default. There is no evidence of any study that has assessed the significance of financial and economic literacy with regard to loan delinquency and default among rural-based SACCOSs, especially in the context of developing economies. This study was carried out to address these gaps.

METHODOLOGY

Sample and Data

This study uses a quantitative approach. The respondents were selected from rural-based CRDB-Bank-linked SACCOSs. Five regions of Tanzania were purposively selected. These are Kilimanjaro, Manyara, Singida, Dodoma and Morogoro. Each has SACCOSs with strong business relationships with CRDB Bank. We focused only on the rural-based SACCOSs in these regions.

The sample consisted of 200 loan beneficiaries drawn from eight rural-based SACCOSs. This sample size provided sufficient information for the study. The probability sampling technique was used as it provides an equal chance of being selected to each population element. From the selected SACCOSs, a list of loan beneficiaries was obtained, and a random sample of at least 21 beneficiaries per SACCOS was selected to provide 200 respondents. From this sample, data were collected on their demographic and socio-economic characteristics and financial and economic literacy using a structured questionnaire administered face-to-face with each respondent. Data on each individual respondent's default and delinquency rates were obtained from the management of the SACCOSs to which he/she belonged.

Variables

Dependent variables

Two dependent variables were used in our study. ***Delinquency*** measured as the number of days by which a payment is late (CGAP, 1999). Delinquency is important because it indicates an increased risk of loss. It does not only warn the SACCOSs of operational problems, but also helps the management to predict how much of the portfolio may eventually be lost due to loan un-repayment (CGAP, 1999). The second dependent variable is ***default***, which is measured as a binary variable equal to 1 if the customer has (by the time of data collection) defaulted on all the loans he/she has received and 0 if not. The effects of delinquency and default on rural-based SACCOSs are severe and include less income and interest being received, fewer clients, a shortened lifespan for the SACCOSs in question, increased expenses, restructuring, bankruptcy, a decrease in the SACCOS's sustainability, a limit on the growth of SACCOSs, impairment of SACCOSs' image and further delinquencies and defaults.

Independent variables

Economic and financial literacy are the independent variables. These variables were measured using a set of six questions, based on a Likert scale with 1 indicating "strongly agree", 2 "agree", 3 "not sure", 4 "disagree", and 5 "strongly disagree". From the questions (see Table 1), we created construct variables based on factor analysis (Hair, Balck, Babin, Anderson, & Tatham, 2008). Factor analysis helped to establish which sets of questions shared the same underlying variability and which underlying factors were accurate representations of the variables observed. To increase the interpretability of the resulting factors, we rotated the factors using a standard varimax rotation, which maximises the sum or the variances of the squared loading (Hair *et al*., 2008). The factors' reliability was assessed using Cronbach's alpha.

The factor loadings range between 0.63 and 0.73. The alpha coefficients apparently pass Nunnally's criterion, which suggests that an alpha coefficient of 0.60 or above is satisfactory for exploratory research (Hair *et al*., 2008). To obtain the variables, we totalled the results for each construct and averaged them to obtain economic and financial literacy variables (Mori, 2014). Table 1 presents the statements and factor loadings for both variables:

Table 1: Factor Loadings for Economic and Financial Literacy

		Factor loadings	Alpha coefficients
A	**Economic literacy**		**0.7844**
1	Demand and supply forces affect the price of the product I produce/sell	0.7383	
2	Government regulations affect the price and marketability of my products	0.6879	
3	The price of a product must be adequate to cover the cost of production	0.60569	
4	Scarcity is the basic economic problem that arises because people have unlimited wants but resources are limited.	0.6992	
5	Due to monetary policy, the actions of a central bank may have negative/positive effects on the rural credit market	0.6515	
6	For every activity I undertake there is an opportunity cost and productive scarce resources must be used efficiently	0.6577	
B	**Financial literacy**		**0.7545**
1	I spend less money than I get from my income/business	0.6440	
2	I am interested in making money for investment purposes	0.6907	
3	I have enough knowledge about budgeting and finance	0.6317	
4	Saving money for the future is good behaviour	0.6707	
5	I manage my savings account with the SACCOs	0.6614	
6	A two-year SACCOSs loan requires higher monthly payments than a one year loan	*0.6340*	

Control variables

The study also uses respondents' demographic characteristics as control variables. This is because it is possible for individuals to be literate but exhibit characteristics associated with adverse selection or moral hazards that might lead them to repay on time or not. The ***Age*** of a respondent is defined as the number of years from birth to the year 2013 when the data were collected (Mori, 2014). ***Gender*** is a binary variable equal to 1 if the borrower is male and 0 if female. ***Marital status*** is a binary variable equal to 1 if the borrower is married and 0 if single, divorced or widowed. ***Education*** is a binary variable equal to 1 if the borrower's education level is below secondary level and 0 otherwise. ***Family size*** is a binary variable equal to 1 if the borrower has four or more children and 0 when otherwise. We used a threshold of four children as this is about the average number of children per family. It is also the maximum number of children for which a family can benefit from employee entitlements and family health insurance in Tanzania.

Data Analysis

Data analysis was performed in two stages, namely, descriptive analysis and econometric analysis. In descriptive analysis, summary statistics on the demographic variables—financial literacy, economic literacy and default and delinquency status—were produced. Next, we analysed associations among the variables using Pearson's correlation coefficients. After identifying significant associations between the variables, logit and multiple regression analyses were performed to assess the effect of the independent variables on the dependent variables.

RESULTS AND DISCUSSION

Summary Statistics

Table 2 shows the descriptive statistics. On average, loans are delinquent by about 20 days, with the default rate at 22 percent. These results imply that most borrowers delay their loan repayments and this leads to a high default risk. CGAP (1999) showed that the effects of delinquency and default on rural-based SACCOSs are severe and may lead to operational and management challenges.

In terms of economic and financial literacy, we observe most of the clients to be illiterate. The average score for economic literacy is 4, implying that most of the respondents indicated that they disagreed with the statements on economic literacy. This implies that most of the respondents show high levels of economic illiteracy based on the responses given in the statements. The average response for financial literacy is 3, indicating that most clients were "not sure" either about the meaning of the statements or how to answer them.

Demographic characteristics are also important aspects for SACCOSs loans. Table 2 further shows that the average age of the respondents was 49 years, implying youth participation in SACCOSs to be limited. These results are in line with Finscope (2009, 2013), which revealed that youths in Tanzania were being excluded from accessing financial services, which was denying them both an opportunity to develop entrepreneurial skills that would be essential for building a large base of small-scale businesses. Not surprisingly, many of the youths migrate to urban areas to seek low-paying jobs that will sustain them. On the other hand, empowering these youths could significantly reduce the youth's rural-to-urban drift. Also, 77 percent of the clients were male. This result contradicts the rural finance literature, which shows that the majority of SACCOSs members were women (Ndiege, Otieno, Kazungu, & Moshi, 2014). The high representation of males could be explained by the fact that these are rural-based SACCOSs, with most loans taken for agricultural purposes, a sector in which men play a significant role in the cash-based farming as opposed to subsistence farming in which women dominate. The results further show that 80 percent of the clients are married. This could mean that the larger is the household size (linked to marital status due to the likelihood of having children and an extended family to support at home), the more likely a person is to seek a loan to boost survival and advancement prospects. In this regard, the results on family size show that 74 percent of the respondents have four or more children.

With regard to educational background, the results show that 81 percent of borrowers have below secondary-level education. This may partly explain why rural SACCOSs suffer from high delinquency and default rates as these borrowers may not have sufficient knowledge to manage profitably their economic activities. A further implication is that most people lack the necessary skills and knowledge to engage in more productive activities that would facilitate their loan repayment, which results in adverse selection and moral hazard problems. Another implication is that these low levels of education can contribute to low economic and financial literacy; as such skills are more likely to be developed during secondary education and beyond.

Table 2: Summary Statistics

Variables	Observations	Mean	Max	Min
Dependent variables				
Delinquency	200	20.76	0.00	206.00
Default	200	0.22	0.00	1.00
Independent variables				
Economic literacy	199	4.00	2.00	5.00
Financial literacy	198	3.00	2.00	5.00
Control variables				
Age	192	49	29.00	75.00
Gender	195	0.77	0.00	1.00
Marital status	200	0.80	0.00	1.00
Education	200	0.81	0.00	1.00
Family size	200	0.74	0.00	1.00

Correlation Analysis

Table 3 presents the Pearson correlations among the variables. The dependent variables of delinquency and default are significantly correlated with a coefficient of 0.13. This means that delinquency is, indeed, an indication of default. When clients start to delay their payments, it is likely that they will default (Korankye, 2014).

With regards to the correlation between the independent and dependent variables, the results show delinquency to be significantly negatively correlated with both economic (coefficient -0.14) and financial (coefficient -0.17) literacy. Default is also negatively correlates with economic literacy (coefficient -0.09) and financial literacy (coefficient -0.10). The results mean that low levels of literacy correlate with repayment delays and default.

The correlation results among the independent and control variables are interesting. We find a positive correlation between age and economic literacy (0.27). This could mean that, as a person ages, and through learning and experience, he/she gathers knowledge on economic issues and this increases his/her level of economic literacy. Another observation is the positive correlation between family size and economic literacy (0.52). This result implies that a large family size is not always a burden. Family members can learn from one another and increase one another's levels of financial and economic literacy.

In general, the majority of the independent variables exhibit little correlation with each other, indicating that multicollinearity is not a serious problem. The highest correlation is between family size and economic literacy (0.52). However, to test for the possibility of multicollinearity, we calculated the variance inflation factors (VIFs). Factors above 5 would indicate a problem of multicollinearity but all of the factors are well below this.

Table 3: Correlation Results

		1	2	3	4	5	6	7	8	VIF
1	Delinquency									
2	Default	0.13*								
3	Economic literacy	-0.14**	*-0.09							1.50
4	Financial literacy	-0.17**	*-0.10	0.09						1.45
5	Age	-0.04	0.14*	0.27**	0.04					1.12
6	Gender	-0.09	-0.07	0.01	-0.15*	0.16*				1.08
7	Marital status	0.07	0.03	-0.06	0.04	-0.13*	-0.04			1.03
8	Education	0.09	0.01	0.04	0.02	0.01	-0.05	0.01		1.02

9	Family size	-0.04	-0.03	0.52**	0.06	0.11	-0.10	0.01	0.11*	1.02

Significance levels: * p<0.05, ** p<0.01

Econometric Results

Table 4 panel A shows the results of an ordinary least squares regression testing the association between delinquency, on the one hand, and economic and financial literacy and the borrowers' demographics, on the other. The results show a negative effect of economic literacy on delinquency (coefficient -0.26; p<0.05). This means that low levels of economic literacy are associated with a high rate of delinquency. Similar results are evident for the effect of financial literacy on delinquency. There is a high statistical significance for the association between financial literacy and the delinquency rate (coefficient -0.64; p<0.01). These results imply that borrowers with high economic and financial illiteracy delay repaying their loans. They may be delaying their payments without knowing the cost implications of doing so.

Panel B of Table 4 shows the results for the effect of economic and financial literacy on the default rate. The results show a negative and significant association between financial literacy and default (coefficient -0.16; p<0.05). The results for both delinquency and default show that, the lower the borrowers' knowledge of financial and economic issues, the higher the number of days in arrears and the default.

These results have similar implications to the literature that indicates that economic and financial literacy give borrowers/clients the ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt (Lusardi & Mitchell, 2013). Lusardi and Mitchell (2014) further note that being financially illiterate can lead to poor decisions, including getting a loan without proper planning (so that the use of that loan can generate sufficient income for repaying it). This study shows the same effect. Borrowers take loans without first knowing the exact costs of the loans; fail to undertake proper planning for the usage of the loans, which results into delayed payments and finally default. These behaviours are also associated with moral hazard, as the behaviour of a borrower changes after he/she takes a loan and then is unable to repay it. Similarly, Boon, Yee, and Ting (2011) found that individuals who lack financial literacy are deterred from embracing innovative financial products, and making sound financial planning decisions. Thus, it can be deduced that SACCOSs' clients seem to delay making payments and default on their loans, not because they are bad clients but because they lack economic and financial knowledge that could help them better prepare for loan management. Poor financial knowledge is not only a problem in a developing economy context but also in developed economies (Boon *et al*., 2011). In other words, there is a need for appropriate financial education to be conducted not only to help individuals to manage their financial well-being but also to prevent them from becoming the victims of bad debts (OECD, 2008).

Borrowers' demographics were also tested as they may contribute to the high delinquency and default rates of SACCOSs' loans. The results in panel A of Table 4 show a positive association between education and delinquency (coefficient 0.35; p<0.05). Since the education variable was defined as equal to 1 if a borrower had a low level of education (below secondary), this result implies that a low level of education is associated with a high delinquency rate. Similar to Boon *et al*.'s (2011), our results may be interpreted as meaning that the level of education received by an individual might be the main cause of his/her lack of economic and financial literacy, which in turn leads to the moral hazard issue. This may mean that intervention in the content and delivery of the existing education systems is necessary so as to help increase the financial literacy of the public at large.

Panel B shows significant results for the effect of age on the default rate (coefficient 0.02; p< 0.01). This means that older clients default more than younger ones. This inclination could be explained by the fact that, as people grow older, their family size increases, and so too their budget and expenditure (Gomes, 1984). This may prompt them to get more loans and default more often because the money is diverted to meeting various family obligations. These results also imply that younger people should be encouraged to access financial services since they are energetic and more likely to engage in income-generating activities that will generate them funds for not only repaying their loans but also supporting their families and creating employment for others (ILO, 2011).

Table 7: Regression Results

	Panel A: Ordinary least squares (OLS)	**Panel B: Logit regression**
	Delinquency	**Default**
Economic literacy	-0.26*	0.05
Financial literacy	-0.64**	-0.16*
Control variables		
Age	0.12	0.02**
Gender	-0.44	-0.16
Marital status	0.26	0.06
Education	0.35*	-0.07
Family size	-0.05	-0.05
R square (Pseudo R^2)	**0.09**	**0.08**
Observations	**188**	**188**

Significance levels: * p<0.05, ** p<0.01

CONCLUSION AND IMPLICATIONS

The main objective of this study was to determine the factors leading to the high rates of delinquency and default among rural-based SACCOSs in Tanzania. We specifically examined the effect of borrowers' economic and financial literacy on these rates.

The results of the study show that SACCOSs' borrowers have very low levels of economic and financial literacy. This suggests that borrowers' inability to make prudent borrowing and investment decisions, rather than poor intentions is the main explanation behind their failure to meet their debt obligations. Therefore, conventional microfinance may be penalising those with the least human capital, who happen to be the poorest people. The findings underline the need to invest in enhancing the poor's human capital so as to ensure sustainable financial deepening and a positive impact on poverty. This is especially important for financial co-operatives, which base their lending decisions on the borrowers' savings rather than their ability to repay. Such an intervention could take the form of special programmes aimed at providing prospective rural borrowers with basic knowledge on financial and economic issues. This should be developed by stakeholders providing microfinance in rural areas, such as SACCOSs, the government, banks, financial NGOs and microfinance companies. SACCOSs are advised to guard against poor borrowing decisions by training and counselling applicants with low levels of education, economic and financial literacy.

This study concentrated on examining the factors behind the high loan delinquency and default rates among rural-based SACCOSs in Tanzania, using a sample of 200 borrowers from eight selected SACCOSs based in five regions. Similar studies with a wider reach could be carried out. Future research undertakings could also look at effective ways of monitoring borrowers' loan portfolios, which may help to reduce the high loan delinquency and default rates. Finally, studies including more variables that may affect loan repayment are suggested. Future research could also examine in-depth the impact of microfinance on the poorest segment of borrowers.

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