Impacts of Rural Savings and Credits Cooperative Societies (Saccos’) Loans on Borrowers in Tanzania

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Abstract
This study applied the paired t-test and logistic regression analysis to assess the impacts of the rural SACCOS’ loans on borrowers in Tanzania where 431 borrowers from 37 rural SACCOS in Morogoro, Dodoma and Kilimanjaro regions were involved. The study noted that 73.5% of the rural SACCOS’ borrowers in Tanzania (P<0.01) realized the improvement of their livelihood on education and health, physical assets, crop yields and business capital. The study registered the increase of 50% to 200% of minimum and maximum value of the impacts variables after taking loans and the study noted that the high impacts of loans and low default rate for borrowers were positively related. This study recommends the following: borrowers should use credits risks mitigation techniques to reduce the amount of defaulted loans such as covering their business activities with insurance to minimize the credits risks, use loans according to the conditions stipulated in contracts, avoids multiple borrowing and the SACCOS should be keen in processing and follow-up of overdue loans. Moreover, the supervisory and regulatory role played by government of Tanzania to promote the rural SACCOS should be sustained.

Keywords: Impacts, Rural SACCOS, Loans, Borrowers, Tanzania

1.0 Introduction
According to Olomi (2006) over 80% of the Tanzanians live in rural areas where the provisions of financial services have been very limited. In Tanzania, Savings and Credits Cooperatives Societies (SACCOS) have been established since the 1980s after adoption of the free market liberalization policies. Wangwe (2004) stressed that SACCOS are very important MFIs which provide the financial services in rural Tanzania where most people are not served by the formal financial institutions. Bwana and Mwakujonga (2013) and Qin and Ndiege (2013) asserted that SACCOS are essential for the growth of small and medium enterprises in Tanzania and contributes about 40% to the country’s GDP. Moreover, SACCOS play vital role in promoting the socio-economic development of the rural poor community (Maghimbi 2010). The government of Tanzania views SACCOS as an important agency of change especially in its efforts to alleviate poverty and hence campaign throughout the country encouraging people to form or join SACCOS (REDET, 2008). Thus the government of Tanzania continues to play its major role of promoting the SACCOS through regulatory and policy frameworks. From 2000s to 2013 the government has established and amended the cooperative policies for promoting cooperatives and SACCOS in Tanzania. Up to March 2013 the registered SACCOS in Tanzania reached 5346 while credits issued to members reached shillings 627.2 billion in 2011 (MOFT 2013). Improvement of the clients’ livelihood is one component of the Social Performance Evaluation of the MFIs (Bédécarrats et al 2011). Various authors are interested to evaluate the impacts of MFIs on beneficiaries as one way of examining the contribution of MFIs on the improvement of the clients’ welfare. Simanowitz (2001) asserted that impact assessment can be an important tool for promoting MFIs greater accountability to their clients. However, various authors target different impacts variables when assessing impacts of MFIs according to the objectives of their studies.

Proper utilization of loans by SACCOS’ clients can lead to significance impacts on livelihood of the rural people. Contrary, if loans are poorly utilized, it is not easy to realize the significant impacts of loans. Most studies done in Tanzania revealed that loans from SACCOS have impacts on borrowers’ livelihood. However, most authors measure the impacts of MFIs in the context of livelihood improvement and poverty alleviation. Moreover some studies focus the impacts of MFIs in terms of how it empowered the women. Some of the empirical impacts studies done in Tanzania and worldwide and their focus are: SACCOS and housing improvement (Kyessi 2010), SACCOS and

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agricultural productivity (Girabi and Mwakaje 2013), MFIs and women empowerment (Kato and Kratzer 2013). Most scholars noted that both SACCOS and MFIs have positive impacts on their clients. The empirical studies revealed the increase of clients’ expenditure, accumulation of assets, improvement of health education, food security, nutrition and business growth of the poor people (Kihongo 2005; Kessy and Uri 2006; Brannen 2010; Kessy and Temu 2009; Stewart et al (2010). The impacts of MFIs and SACCOS on clients are not always positive. Some scholars have reported the negative impacts of MFIs and SACCOS which include confiscation of their properties which activates poverty, increase of stress for micro-credits clients and increase of the workloads for women (Frohberg and Müller 2007; Nghiem 2009; Dean and Zinman 2010; Kato and Kratzer (2013).

1.2 Problem statement and justification
Cooperatives and SACCOS are important contributor to economic growth and development of both rural and urban Tanzanians (Bwana and Mwakujonga 2013; Qin and Ndzie 2013). Hence it is worth to examine the level of impacts of loans on beneficiaries. Most empirical studies portray that SACCOS and rural MFIs have lead to positive impacts on beneficiaries (Kyessi 2010; Haque et al 2011; Al- Mamun et al 2011 Nzakwe 2012; Okwoche et al 2013). However, some studies reported the negative impacts of rural MFIs and rural SACCOS for beneficiaries (Diagne and Zeller 2001; Frohberg and Müller 2007; Dean and Zinman 2010; Nghiem 2009; Ngeheve and Nembo 2010). In Tanzania most of studies assessed the impacts of rural MFIs only descriptively and qualitatively. However, some studies focuses only on Village Community Banks (VIKOB) or rural MFIs in a generalized manner (Kihongo 2005; Kessy and Uri 2006; Kessy 2009; Brannen 2010; Maghimbi 2010; Kato and Kratzer 2013). Moreover, some authors studied the impacts of urban SACCOS on their beneficiaries (Kyessi 2010; Kushoka 2013). To the best of my knowledge, only Girabi and Mwakaje (2013) examined empirically the impacts of rural SACCOS on beneficiaries. Nonetheless, their study investigated the impacts of microfinance (SACCOS) as far as agricultural productivity of smallholder farmers is concerned. Furthermore, their study was done only in one (Iramba) district where the sample size was 98 rural SACCOS’ beneficiaries; hence their study was narrow focused. Therefore this study was conducted to assess the impacts of the rural SACCOS’ loans to beneficiaries in three regions of Tanzania (Morogoro, Dodoma and Kilimanjaro). The study was done in Kongwa, Morogoro rural, Mvomero, Hai, Moshi rural, Rombo and Same districts where the total sample size of 431 SACCOS’ beneficiaries were interviewed. The study evaluated the impacts of rural SACCOS’ loans in regard to agriculture productivity, increase of the number of meals, buying of assets, improve of education and health, increase of the capital of business and improvement of housing and business premises.

2.0 Literature review

2.1 Empirical literature review of MFIs impacts worldwide
Sharma et al (2005) applied the univariate regression and descriptive analysis to evaluate the impacts of SACCOS in Nepal. The study noted that loans were mostly taken for productive purposes, social activities, purchasing and repairing assets and for repaying previous loans. Also the study noted that most women took loans for social activities and for repaying the previous loans, thus loans were diverted to other purposes. However, SACCOS’ members registered higher increases of incomes, assets, food consumption, education expenditure, improved housing and decline of health expenditures compared to non-members. Nzekwe (2012) by using descriptive analysis found out that cooperative societies have increased the members’ business profitability up to 180000 naira in Yoruba, Nigeria. Sebhatu (2012) by using correlation and regression analysis found out that years of stay in the SACCOS, savings, size of loan and number of times loan had significant positive correlation with post income and profit of the borrowers in Ethiopia. Likewise the study noted that education and years of stay in the SACCOS have significant negative relationship with the post income. The study further noted that non members were not benefited by SACCOS. Okwoche et al (2013) used t-test to analyse the impact of loans on the cooperative farmers in Nigeria. The study noted that the average farmers’ annual output before and after utilization of loan was 65.22 and 77.44 metric tons.
respectively while the average annual income of the farmers before and after utilization of loan was 108907.69 and 146192.31 Naira respectively.

Haque et al (2011) applied logistic regression model and the Perception Index to measure the effects of Community Based Microfinance Organization (CBO) in Bangladesh. The study revealed that CBO microcredit programme had significant positive effects on livelihood improvement of the poor beneficiaries. Their study noted that 96%, 84%, 60%, 44%, 50%, 76% and 80% of CBO beneficiaries’ perceived the improvement of their family income, members’ awareness of social, economic and environmental aspects, food intake, health facilities, clothing, education and furniture possession respectively. The clients reported the loan expenditure as follows: purchasing rickshaw (100%), daughter’s marriage (62%), housing (56%), business (54%), children education (50%) and taking care of children (40%). The results recorded the minimum and maximum annual income of 25000 and 72000 (Tk) respectively. Correspondingly, Zamora and Agutaya (2011) applied descriptive and ranking analysis to assess the performance of multi-purpose cooperatives in Philippines. Their study revealed that livelihood was improved and income of the members of the multipurpose cooperatives increased. Furthermore, Morduch and Haley (2002) used descriptive analysis to examine the effects of microfinance on poverty reduction and their study revealed that Grameen bank have lead to 95% borrowers’ children to attend school and also have lead to improved housing and empowered the borrowers capacity in handling the natural disasters in India, Bangladesh, Philippines and Guatemala. The study further noted that GB has led to the improvement of latrines which reduced fever, influenza and typhoid by at least 50% in Bangladesh. Stewart et al (2010) argued that both micro-credit and micro-savings in Sub Saharan Africa increased clients’ expenditure and their accumulation of assets. Likewise both had positive impact on children’s education, health, food security and nutrition of the poor people. Though, the effect of micro-savings was not observed clearly. Lapenu and Reboul (2006) found out that 90% of the MFIs clients realized the increase of their income in Comoro due to engagement in a new activity. Also 92% of the clients felt that the loans increased their food, education and health-related expenditure while 34% of clients had used their loans on housing. MFIs clients in Uganda reported 25% 23%, 20%, 11%, 10%, 4% and 3% contribution of MFIs in business expansion, improved farming practices, increased ability to pay taxes, increased ability to meet financial obligations, increased incomes, improved in infrastructures, meeting customers’ demands in time and attaining of other impacts respectively (Kyeyune 2007). Johnson (2004) found out that MFI clients had a significant proportion of annual income above Kshs 200000 compared to the national average in Kenya. Ngehnev and Nembo (2010) realized that Cameroon Cooperative Credit Union League (CamCCUL) promoted a positive impact in the development of the members’ businesses.

Cambodia Institute of Development Study (CIDS-n.d) examined the impacts of MFIs in Cambodia. The study noted that the annual net household income of borrowers was 21% higher than non borrowers (USD 2170 versus USD 1800). The study further noted the higher crop yields for borrower than non borrowers and the clients had more assets (bicycles, car, land, television, radio, telephones) and owned land 1.3 hectares compared to or 0.9 hectares) than non-clients. The study realized that 86% of clients had enough food to eat compared to 83% of non-clients and also the study noted that the use of microcredit empowered female in the household. Al-Mamun et al (2011) noted that the poverty rate in Malaysia declined significantly from 16.5% in 1990 to 3.6% in 2007 due MFIs contribution. Oke et al (2007) found out that amount of business capital for MFIs borrowers in Nigeria ranged between 2000 and 101250 naira while only 38 percent of the respondents invested more than 30000 in their businesses. The study also recorded the annual income of 17550 and 298800 naira for poor and rich member respectively. The study further noted that 62% of members earned 100000 naira or below per annum while 13 % earned over 200000 naira and the mean income was 98147.32 naira.
Christopher (n.d) revealed the positive contributions of MFIs loans towards promoting their market share, product innovation achieving market excellence and the overall economic company competitive advantage to small and medium business enterprises in Nigeria. The study noted that 16%, 49% and 35% of SMEs recorded 70-100, 50-69 and 10-49 percent of their goal’s achievement after receiving loans from MFIs. The study also noted that 62%, 38%, 35% and 65% of SMEs reported that MFIs loans contributed to high and low sales and marketing and high and moderate level of competition respectively. Kaboski and Townsend (2005) used descriptive and regression analysis to investigate the influence of policy on the impacts of rural MFIs in Thailand. The study noted 26% (higher) growth in assets over six years. The study recommended that rural MFIs in Thailand with good policies can promote asset growth, consumption smoothing and occupational mobility and can decrease money lender reliance.

2.2 Empirical literature review of MFIs impacts in Tanzania
Some studies have been conducted to assess the impacts of MFIs and SACCOS in Tanzania. Kyessi (2010) applied the descriptive and qualitative analysis to assess the impacts of WAT SACCOS’ loans to poor people. His study noted that there is close relationship between the loans offered, housing improvement and poverty alleviation for WAT SACCOS’ members in Dar es salaam-Tanzania. The study also disclosed that SACCOS’ members used the loans to renovate their houses and this caused the increment of their rental accommodation from 5000 to 20000 Tanzanian shillings (Tshs) per month. The author stated that the good impact of SACCOS had been attained because the SACCOS did not set the loan ceiling and the repayment period for loans was relatively short. Girabi and Mwakaje (2013) applied the descriptive and multivariate regression model to investigate the impacts of microfinance (SACCOS) on agricultural productivity of smallholder farmers in Tanzania specifically in Iramba District (Singida region). The study found out that majority of the beneficiaries invested only Tshs 198179.1 or 26.5% of the total credit received for agricultural production. However, the credits beneficiaries realized high agricultural productivity compared to the non credits because they were relatively better in accessing markets for agricultural commodities, use of inputs and adoption of improved farming technologies. Productivity per acre between beneficiaries and non beneficiaries were on average of 31.8 and 17.7 bags of sunflower and maize respectively.

Kato and Kratzer (2013) examined how microfinance empowered women in Tanzania by using Mann-Whitney U test. The study noted a significant difference between the women members and non-members of the MFIs where the women members had more control over savings and income and were empowered in decision-making. Hence they had greater self-efficacy, self-esteem and freedom of mobility. Kushoka (2013) argued that employee-based SACCOS are essential for economic development of its members in Tanzania because they provide capital. Maghimbi (2010) noted that some SACCOS in Tanzania expressed their sympathy to the surrounding communities as a way of sharing their impacts. Example Uru Njari, cooperative society in Kilimanjaro region in the northern Tanzania, built the schools and also donated money for construction of water scheme, gave the aids to the dispensary and supported the caring of orphans. Moreover, in Same district some primary cooperatives facilitated the construction of water scheme for their members. Similarly, Nelson (2012) reported that in November 2012 Lulu SACCOS donated 25 matrices and 60 school benches worth 3.4 million Tshs (about 2,100 $) to Luanda ward health centre in Mbeya city.

Brannen (2010) studied the impact of the Village Savings and Loan Association (VSLA) Program in Zanzibar-Tanzania and the study revealed the improvement of housing, food availability and quality and improvement in financing the social needs such paying for school fees, family celebrations and medical expenses. Kihongo (2005) studied the impacts of Village Community Bank (VICOBA) in Tanzania. The study revealed that 85% of members were women and the women with the age above 35 to 50 years were the most beneficiaries of the VICOBA. The clients of VICOBA declared 57.5%, 37.5% and 5% of

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growth, no growth and losses on their business respectively. All clients affirmed that they were training in business management and entrepreneurship and they admitted to purchase the physical assets such as carpentry materials, hand tools, sewing machines, driers for women hair salons, bicycles and refrigerators. Also the clients confirmed the increased of their income from 23000 Tshs to 1017000 Tshs. Kessy (2009) noted that male owned enterprises have higher level of assets, sales revenue and number of employees compared to female owned enterprises in Tanzania. Kessy and Urion (2006) revealed that MFIs have improved the livelihood of poor people in Tanzania where the MFIs clients reported to double their business volume and capital from 10 to 20 bags of maize and 1million to 3 million Tshs respectively. Training of MFIs clients in various aspects is vital for them to realize the impacts. Kessy and Temu (2009) revealed that the trained microcredit’s entrepreneurs in Tanzania had higher level of assets and sales revenue compared to those who were not trained.

2.3 Negative impacts of Rural MFIs
Some times MFIs don’t bring any impacts to the clients because of the loans default. Various scholars have reported negative or no impacts of MFIs to their clients. Diagne and Zeller (2001) found out that there is no statistically significant differences in both acute and chronic malnutrition for preschoolers between members and non members participated in credit program in Malawi. The study further noted no significant impact of access to credit on the per capita incomes, food security, and nutritional status of credit program members. Frohberg and Müller (2007) by using econometric regression model revealed that households participated in joint liability borrowing in Kenya had significantly lower incomes than non participating households because MFIs clients sold their properties to recover the defaulted loans. The study found out that about 17%, 60% and 4% of MFIs clients recovered their loans through selling of their pre-existing properties, by duress and confiscation of peers’ properties respectively. It is obvious that recovering loans through cohesion don’t lead to realization of impact on loans by MFIs clients. Similarly, Grades (2007) noted that households participating in joint liability borrowing had significantly lower incomes than non participating households in Kenya. The same results were revealed by Diagne and Zeller (2001) who asserted that when households choose to borrow they realize lower net crop incomes than non-borrowers in Malawi. Dean and Zinman (2010) applied regression analysis and witnessed the small decline in subjective well-being and an increase in stress for micro-credits clients in Manila, Philippines. Likewise, Nghiem (2009) used descriptive analysis to assess the relationship between loans portfolio and sustainable livelihood system for microfinance in Vietnam. The study noted that even though microfinance promotes the development of the poor women, sometimes increase the workload for women and this may reduce their leisure time and time for performing other social responsibilities. Similarly, Kato and Kratzer (2013) found out that despite MFIs empowered women to attain more freedom, it increased their workloads in income generating activities.

Stewart et al (2010) argued that microcredit clients are made poorer and not richer by microfinance, because sometimes their businesses fail to generate enough profit which is necessary for repaying the loans in Sub Saharan Africa. Similarly, Lapenu and Reboul (2006) noted 10% decline of MFIs clients in their household’s standard of living in Comoro, since they had been forced to sell personal items to repay the loans. Moreover, loans have fueled the economic difficulties for MFI clients because they had increased market competition and hence they reduced the profits obtained from their business. Nghienevu and Nembo (2010) noticed that the poorest of the poor were not benefited from the Cameroon Cooperative Credit Union League (CamCCUL) financial services. Jenkins (n.d) found out that credits services expansion result into higher loan default rate by MFIs in Senegal. This has implication with declined impacts for MFIs beneficiaries. Bichanga and Aseyo (2013) revealed that loan repayment default was the result of non supervision and inadequate training of borrowers which led to poor utilization of loans. The study also revealed that most borrowers diverted their loans hence were likely to experience the negative impacts. Gómez and Santor (2008) reported that the...
ratio of household income to loan payment was higher for successful borrowers while business revenues and profits to loan payment were higher for delinquent borrowers in Canada. The findings imply that delinquent borrowers utilize their loans without repaying to the credit union and hence realized greater impacts than borrowers who didn’t default their loans while the Cambodia Institute of Development Study (CIDS-n.d) found out that microfinance clients were more indebted than non-clients (59% vs 48%) and 23% of clients households were living below the national poverty line in Cambodia.

Al- Mamun et al (2011) revealed that more than 50% of the MFIs clients reported that they used credit in non-income generating activities which increases the chance of encountering repayment problem in Malaysia. This situation exacerbated the borrowers’ realization of loans impacts. Similarly, Maximambali et al (1999) disclosed that in East Africa the cumulative dropout rate in one of the Microfinance Institution clients was over 50% because of loans repayment problem caused by market problems, natural calamities, non-repayment behaviour and poor economic conditions. It is evident that the dropout clients can’t realize the impacts from using loans. The findings suggest that credits risks mitigation techniques for borrowers are vital for true realization of loans impacts. The government regulatory and policy framework is also very essential for promoting the impacts of rural credits cooperatives. Park et al (2003) reported that despite Agriculture Bank of China and Rural Credits Cooperatives adopted the micro-finance practices they had very limited impacts in China. The impacts for Rural Credits Cooperatives were low because they were not given necessary motivation and freedom which could help them to apply their creativity and innovation to enhance the profitably and impacts of Rural Credits Cooperatives to their members. Similarly Lau (2008) reports that in China there is a competition between financial facilities for poverty alleviation promoted by the central government and the microfinance services provided by the microfinance institutions. This may threat the survival of microfinance institutions and hence slows down the impacts on their clients.

2.4 Variables for measuring impacts

Scholars focus on various borrowers or MFI variables when measuring the impacts of the MFIs. Moreover, authors describe how impacts variables are important to borrowers or particular MFI. Simanowitz (2001) stressed that impact assessment studies, impact monitoring, client portfolio monitoring and market research give managers useful and timely information that can be used to improve the MFIs effectiveness and efficiency. Hence he recommended that the MFIs impacts assessment should focus on clients’ needs, example how to serve the surrounding community and the very poor. Brau et al (2009) assessed the impacts of 393 clients from 5 Guatemalan MFIs, in two dimensions i.e financial and social dimensions by surveying new clients, current clients and graduated clients. In order to measure the social well-being of the participant families, the study examined four quality of life measurements which are food availability, access to medical services, housing and children’s education. On the other hand the social well being was measured by the women empowerment and women social capital. The results from the descriptive and multivariate regression analysis revealed that the improvement of MFI’s concentrated along the social dimensions of housing, health and client empowerment.

Ghalib (2009) considered the livelihoods (lifestyle and empowerment example gender equality and participation in social activities), literacy (knowledge and awareness example children’s schooling), community (social and cultural interaction) and health (physical and mental well-being, example provision of food with required nutrition) as the four variables and indicators of a social impact assessment. Karlan and Goldberg (2007) asserted that when assessing impacts of MFIs, researchers can focus on the variables such as repayment rate, client retention rate, new client enrollment, average loan size, savings balances, profitability and composition of clients (demographics).

Kessy and Urio (2006) listed job creation, business profitability, change in business assets and product/business diversification as important factors that MFIs needs to consider in measuring impact.
They further argued that the reason for assessing the impact of the MFIs is to investigate if clients and MFIs are meeting their objectives. Zeller et al (2003) argued that when we analyse the impact (outcome) of MFIs, we can focus on change in income, expenditure, assets, living standard, food security and employment creation at the community level. Nghiem (2009 argued that the economic effects of MFIs include mainly growth and stability of income/consumption. The study asserted that the economic effects on households can be measured by the accumulation of physical assets, and the structure of saving and investment while the long-term livelihood effects of households are measured by the actual and perceived return on long-term investments such as housing, education, and fixed assets and the effects on intra-household relations can be measured by the level of interactions among members in household activities and the distribution of income/consumption. Mwakajumilo (2011) focused the impacts of MFIs in poverty reduction and recommended that proper microfinance program suitable to reduce poverty among most rural population in Tanzania should be designed after taking into considerations specifics social economic conditions and major economic activities found in each rural areas of Tanzania. This study evaluated the impacts of loans on borrowers in relation to the improvement of households’ education, health, assets, food intake, income, business capital and crops’ productivity.

3.0 Methodology
This study was conducted in Morogoro, Dodoma and Kilimanjaro regions in rural areas of Tanzania between February and May 2013. The study used a cross sectional survey design where the purposive sampling was used to select 37 SACCOS and 431 borrowers for interview by using the structured questionnaires. The data was analyzed by using SPSS version 16 software. The qualitative, descriptive, paired t-tests and logistic regression analysis were used to describe the impacts of loans to the beneficiaries. The variables of crop productivity, number of meals, buying of assets, improve of education and health, capital of business and improvement of housing premises were described. Also their significance differences were investigated while the Logit model was used to test the dependent variables measured whether socio-economic wellbeing of the respondent’s household improved or otherwise, after receiving loans from the rural SACCOS. As adopted from Haque et al (2011) and Tranmer and Elliot (n.d), the logit model is written as follows:

\[
\text{Logit}(P) = \log \left( \frac{P}{1-P} \right) \quad \text{……………..(1)}
\]

Where the term within the square brackets is the odds of an event occurring, i.e odd of a SACCOS borrower to perceive the impacts from using loans

Let: \( P_i = \Pr(Y = 1|X = x_i) \) …………………(2) Then we can write the model:

\[
\log \left( \frac{P_i}{1-P_i} \right) = \text{Logit}(P_i) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \mu \quad \text{…….(3)}
\]

Where \( \beta_0 \) is the intercept and \( \mu \) is the error term, \( P_i = \text{Probability that socio-economic well being would be better off after receiving loan from the rural SACCOS and (1-P_i) =probability that socio-economic well being would not be better off. The dependent variable, a score of ‘1’ was assigned to the positive response while a score of ‘0’ was assigned to negative outcome (indicating ‘no’ improvement or impacts took place). The selected six independent variables (\( x_i \)) were:

\( X_1 = \text{Improve in health and education (1 if the health/education of borrower improve;0 otherwise) } \)
\( X_2 = \text{Buying of assets (1 the borrowed bought asset; 0 otherwise) } \)
\[ X_3 = \text{Improved income (Log of income after loan)} \]
\[ X_4 = \text{Improved productivity (Log of yield after loan)} \]
\[ X_5 = \text{Improved capital of business (Log of business capital after loans)} \]
\[ X_6 = \text{Improved housing (Log of housing construction or renovation after loan)} \]

4.0 Results

4.1 Overall impact of loan on borrowers

The findings from Table 1 show the impacts of loans on borrowers. The results show that 73% of borrowers realized impacts from using loans. The results are in line with Girabi and Mwakaje (2013) who asserted that farmers in Singida region in Tanzania realized impacts from loans. The percentage of borrowers reported to have impacts from using loan is convincing that the SACCOS have played the major role of promoting the rural economy. However, some borrowers might realize impacts because they were not responsible for paying their loans. This truth was confirmed by Gómez and Santor (2008) who noted the high delinquency but good impacts for borrowers in Canada. The findings from this study revealed that 27% of the borrowers did not realize the impacts of loans. Probably this happened because of many factors, including misuse of loans and non-performance of the loan activities. Maximambali et al (1999) listed the factors which contributed to repayment problems (and to large extent might restricted MFIs borrower to realize the positive impacts on loans in Tanzania) included diversion of loans, lack of business skills, lack of financial discipline and extravagances, poor performance of business, a culture of non-payment, natural calamities and overall poor economic conditions of the country. Similarly, Magali (2013) noted that the factors which cause loan default for rural SACCOS’ borrowers are: diversion of loans, lack of investment analysis, poor performance of business or agriculture activity, drought, theft, disease, deaths and natural calamities, lack of insurance cover, lack of following regulations, low price of agricultural produce and oversized loan. This study noted that some borrowers reported to sell their assets to repay the loans and this made their livelihood worse than before.

4.2 Impacts on buying assets

Results from Table 1 show that 37.8% of rural SACCOS’ clients confirmed to have impact on loans by buying assets. The assets bought included land plots, iron sheets, water pump, house, motorbikes, irrigation pumps, television sets, houses, sewing machines, milling machines, solar powers, bicycles, dairy cows, indigenous goats, dairy goats, wood cutting machines, generators, photocopying machines and furniture. One SACCOS’ member in Kilimanjaro region stated that after allocating the loan from rural SACCOS properly, he managed to buy a 4 acres land plot in Dar es Salaam city. The land plot was approximately valued 20 million Tshs in May 2013 (1 USD is equivalent to 1610 Tanzanian shillings – Tshs). The impacts of SACCOS on buying assets also have been reported by Sharma et al (2005) who asserted that in Nepal loans were mostly taken for purchasing and repairing assets such as land, gold jewellery, house and vehicles. Stewart et al (2010) also revealed that savings and microcredit increased clients’ expenditure and their accumulation of assets in Sub-Saharan African countries. Furthermore, Haque et al (2011) revealed that CBO MFIs members had accumulated assets in Bangladesh. Kihongo (2005) also reported that carpentry tools, hand tools, sewing machines, driers for women hair salons, bicycles and refrigerators were some of physical assets purchased by the Village Community Banks’ members in Tanzania. However, the findings of this study shows that majority of borrowers (62.2%) did not report any accumulation of assets. Probably these borrowers used the profits obtained from loans for other social economic activities, they didn’t realize profits from loan activities, they misallocated their loans or they encountered uncertain incidences which caused loans default.

4.3 Impacts on education and health

The findings from Table 1 also show that 47.6% of borrowers reported to have impacts on health and education. The borrowers paid for education and health services either by using the profits generated from economic activities or from the loan itself. This was possible because every rural SACCOS
offered the social loan which covered education and health incidences. Some SACCOS’ members acknowledged that the rural SACCOS really helped them to pay the education costs for their children. Some borrowers reported that their children have attained the university education level because of using the loans from rural SACCOS. These results are in tandem with Sharma et al (2005) who noted that expenditure of MFIs households’ members on their children’s education was more than that of non-member in Nepal. Similarly, Haque et al (2011) asserted that 44% and 76% of borrowers perceived that their health facilities and education improved respectively after using loans from the CBO MFI in Bangladesh. Lapenu and Reboul (2006) revealed that loans helped borrower to improve their health and education for their children in Comoro while Stewart et al (2010) found out that both microcredit and micro-savings have positive impact on the health of poor people, though the impact on education for clients’ children was varied from positive to negative in Sub Saharan Africa. The findings from Table 1 also show that 52.4% of rural SACCOS’ borrowers did not realize impacts of loans on education and health of their household members. This is possibly because they allocated loans and profit obtained from loans in other activities, they used other financial sources to pay for education and health costs or loans didn’t become productive.

<table>
<thead>
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<th>Variables</th>
<th>Frequency</th>
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<td>Impact on buying assets (N=431)</td>
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<td>No</td>
<td>226</td>
<td>52.4</td>
</tr>
<tr>
<td>Total</td>
<td>431</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.4 Quantitative variables on the impacts of loans
The findings from Table 2 show the quantitative descriptive quantitative variables on the impacts brought by loans. The findings indicate that 59% of rural SACCOS’ borrowers increased their income through using loans. The results show that the minimum and maximum income before and after receiving loans income changed from 20000 to 30000 Tshs and 5 to 13 million Tshs respectively. The findings register 50% and 160% increase of minimum and maximum income for the rural SACCOS borrowers after taking loans respectively. The results indicate that people of different economic status increased their income through rural SACCOS. The results from Table 3 (P<0.01) shows that there is a significance increase of income before and after using loans. These findings are in line with Kihongo (2005) and Kessy and Urio (2006) who reported the improvement of income by MFIs clients in Tanzania. Similarly, Grades (2007)
revealed the improvement of income by Kenyan MFIs clients while Haque et al. (2011) noted the increase of income in Bangladesh where 96% of CBO MFI beneficiaries perceived the improvement of family income and Kyeyune (2007) reported the increase of income by MFIs in Uganda, to mention few.

The findings from Table 2 show that 40% of the rural SACCOS’ borrowers reported the changes of their crop yields after receiving the loans from the rural SACCOS. The results from Table 2 and 3 (P<0.01) also show that the minimum and maximum crop yields for borrowers before and after using loans from the rural SACCOS increased significantly. The findings show that the minimum and maximum crop yields of the borrowers changed from 100 to 180 kg and 10000 to 26000 kg before and after using loans from rural SACCOS respectively. The finding indicates that minimum and maximum crop yield after loans increased by 80% and 160%. The results of the paired t-tests before and after using loans in Table 3 show that the paired difference mean is -1695.27. The mean difference value indicates the variations of crop yields from one borrower to another. The negative sign of the mean difference shows that there is increase of yields for borrowers after taking loans from the rural SACCOS. The results from this study are in line with CIDS (n.d) who revealed that the use of loans resulted in higher yields and better quality outputs for MFIs borrowers in Cambodia. Similarly, Girabi and Mwakaje (2013) revealed that the average sunflower and maize productivity per acre for SACCOS’ clients in Irama district -Tanzania was higher for rural SACCOS’ credit beneficiaries than non credit beneficiaries (31.8 bags vs 17.7 bags).

The findings from Table 2 revealed that 31% of rural SACCOS’ borrowers acknowledged the contribution of the loans on improvement of food availability. The results from Table 2 and 3 (P<0.01) shows that the number of meals before and after loans for rural SACCOS borrowers changed significantly. The findings show that the minimum and maximum number of meals before and after taking loans was 1 and 3 and 2 and 4 respectively. The findings indicate that loans helped the rural SACCOS clients to improve the food availability. The number of meals improved either because the borrowers’ farm productivity increased or borrowers used the income obtained from the loans activity to buy food. The results from this study are in tandem with Sharma et al. (2005) who noted that the per capita expenditure on food consumption of MFIs member was higher than that of non-MFIs members in Nepal. Also the study noted that MFIs members’ households consumed nutrient (dietary) food such as meat, milk, egg, fruits more frequently than non-member households. Similarly, Haque (2011) reported that 60% of CBO MFI borrowers perceived the change in their food intake in Bangladesh. Lapenu and Reboul (2006) revealed that 92% of MFI clients felt that the loan has helped them to improve their family’s situation through food expenditure in Comoro while Brannen 2010) noted that Village Savings and Loan Association (VSLA) Program in Zanzibar-Tanzania improved food intake and the quality of meal for members. However, Diagne and Zeller (2001) found no significant impact of access to credits on the per capita incomes, food security and nutritional status of credit program members in Malawi.

The findings from Table 2 similarly show that 40% borrowers increased their business capital after receiving loans from the rural SACCOS. The results of the paired t-tests before and after taking loans from Table 3 (P<0.01) show that business capital changed significantly. The findings show that the minimum and maximum amount of the business capital increased from 100 to 150 million Tshs and 5 to 15 million Tshs before and after taking loans respectively. The finding indicates that minimum and maximum business capital after loan increased by 100% and 200%. Zero amount of the business capital before taking loan indicates that those rural SACCOS clients were not involved in business activities before receiving loans. The findings show that the mean amount business capital after receiving loan was 1880700 suggesting that many borrowers borrowed approximately 2 million as their capital for their business. However, the results show the variance of business capital for all borrowers who used loans for business purpose. The findings of this study are consistent with Kessy and Uri (2006) who asserted that MFIs’ clients in

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Tanzania have increased their incomes and capital invested and therefore expanded their businesses. Their study noted that the increase of capital from 1 to 3 million Tshs before and after receiving loans from rural MFIs respectively. Correspondingly, Haque (2011) found out that 54% of the CBO MFIs perceived that their businesses have been improved in Bangladesh. Kihongo (2005) noted that 57.5% of VICOBA clients affirmed the growth of their business in Tanzania while Kyeyune (2007) confirms that that 25% of the MFIs clients reported the business expansion as the major economic contribution of microfinance in Uganda. Likewise Ngeheveu and Nembo (2010) revealed that that Cameroon Cooperative Credit Union League (CamCCUL) had a positive impact on the development of the members’ businesses in Cameroon, to mention few.

The findings from Table 2 show that only 22% of the rural SACCOS members used their loans or profit from their loans activities to build or renovate their houses or business premises. It was noted during the study, most SACCOS provided loans for renovation or building the house or business premises. The study found out that the loan was a bit high in amount, was having low interest rate and high maturity than other loans. The author believes that housing loan was devised by the rural SACCOS in order to promote the impacts of rural SACCOS to their members. The results from Table 2 show that the minimum and maximum costs incurred for renovation or building house or business premises was 0.15 and 10 million respectively. It was revealed that the amount of housing loan was higher or lower depending on the capital strength of the individual SACCOS, spirits of loans repayment and risks associated with loans in particular SACCOS. The results from this study are in line with Sharma et al (2005) who found out that MFIs clients in Nepal used their income obtained from loans to purchase and renovate their houses. Similarly, Kyessi (2010) reported that WAT SACCOS’ members used their loans to renovate their houses and this increased their rental accommodation from 5000 to 20000 Tshs per month in Dar es salaam -Tanzania. Moreover, Lapenu and Reboul (2006) asserted that some MFIs members used their loans for renovating their houses in Comoro.

Table 2: Descriptive quantative variables

<table>
<thead>
<tr>
<th>Variables (Total sample =431)</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income before receiving loan (Tshs)</td>
<td>255</td>
<td>20000.00</td>
<td>5,000,000.00</td>
<td>573,550.00</td>
<td>844,771.00</td>
</tr>
<tr>
<td>Income after receiving loan (Tshs)</td>
<td>255</td>
<td>30000.00</td>
<td>13,000,000.00</td>
<td>1,328,700.00</td>
<td>1,962,320.00</td>
</tr>
<tr>
<td>Yield before loan (kg)</td>
<td>172</td>
<td>100.00</td>
<td>10000.00</td>
<td>1,113.30</td>
<td>1,405.74</td>
</tr>
<tr>
<td>Yield after loan (kg)</td>
<td>172</td>
<td>180.00</td>
<td>26000.00</td>
<td>2,798.10</td>
<td>3,665.58</td>
</tr>
<tr>
<td>Number of meals before loan</td>
<td>135</td>
<td>1.00</td>
<td>3.00</td>
<td>1.7704</td>
<td>0.43948</td>
</tr>
<tr>
<td>Number of meals after loan</td>
<td>135</td>
<td>2.00</td>
<td>4.00</td>
<td>2.87</td>
<td>0.36</td>
</tr>
<tr>
<td>Business capital before loan (Tshs)</td>
<td>174</td>
<td>0.00</td>
<td>5,000,000.00</td>
<td>716,670.00</td>
<td>1,057,500.00</td>
</tr>
<tr>
<td>Business capital after loan (Tshs)</td>
<td>174</td>
<td>50000.00</td>
<td>15,000,000.00</td>
<td>1,880,700.00</td>
<td>2,610,550.00</td>
</tr>
<tr>
<td>Costs of building/renovating the house/business premise (Tshs)</td>
<td>93</td>
<td>150,000.00</td>
<td>10,000,000.00</td>
<td>2,176,700.00</td>
<td>2,337,200.00</td>
</tr>
</tbody>
</table>

Table 3 presents the results from the paired t-test which aimed at assessing if there is a significance differences on the changes of income, yield, business capital and number of meals of rural SACCOS’ borrowers before and after taking loans from the rural SACCOS. The paired t- test (P<0.01) found the significant differences of the variables as displayed in Table 2. The negative mean sign shows that there is a difference when subtracting
before and after taking loan value, where the big the magnitude of the variable, the higher the differences between the two periods.

### Table 3: Paired T-test coefficients

<table>
<thead>
<tr>
<th>Paired variables</th>
<th>Paired Differences</th>
<th>99% Confidence Interval of the Difference</th>
<th>T</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Mean</td>
<td>Std. Error</td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Pair 1</td>
<td>Income before - after receiving loan</td>
<td>-755986</td>
<td>1299740</td>
<td>81713.8</td>
<td>-968073</td>
</tr>
<tr>
<td>Pair 2</td>
<td>Yield before - yield after loan kg</td>
<td>-1,695.27</td>
<td>3076.16</td>
<td>234.56</td>
<td>-2306.26</td>
</tr>
<tr>
<td>Pair 3</td>
<td>Business capital before loan - after loan (Tshs)</td>
<td>-1165690</td>
<td>1970460</td>
<td>149811</td>
<td>-1555910</td>
</tr>
<tr>
<td>Pair 4</td>
<td>Number of meals before - after loan</td>
<td>-1.01</td>
<td>0.66</td>
<td>0.06</td>
<td>-1.16</td>
</tr>
</tbody>
</table>

#### 4.5 Results from the logistic regression

The logistic regression analysis was carried out to examine the influence of impacts explanatory variables (health and education, new assets, income, crop yields, the number of meals, capital of the business and the costs of building or renovation of the house premises on the impact of loans on rural SACCOS’ borrowers. The results from the logistic regression model are displayed in Table 4. The findings from Table 4 show that variables of improved health and education, buying of new assets, crop yields and business capital are positively and significantly influence the impact of loans to the rural SACCOS clients. However, the improvement on the number of meals and costs of building or renovation of the house or business premises were found to unfit the model. The results from Table 4 show that odds ratio for the model is 37 suggesting that the model is strong and the independents variables influence the dependent variables very well. The theory suggest if that Livelihood Ratio (LR)> 10, we can accept the logistic regression results. Thus the study contends that education and health, new assets, income, crop yields and business capital of the borrowers after receiving loans were likely to increase the likelihood of rural SACCOS’ borrowers to realize impacts. Similarly, the value of Cox and Snell $R^2$ and Nagelkerke $R^2$ are 0.563 and 0.76 respectively. The two values of the R- squares indicate that there is a strong association between the independent variables and the dependent variables. Theoretically, the maximum value of Nagelkerke R-square which is an adjustment of the Cox & Snell R-square is equal to or sometimes more than 1.0 while the maximum value for the Cox & Snell R-square is 0.75. Therefore by considering the results of the paired t-tests in Table 3, the likelihood ratio and the two R-squares, this study concludes that there were improvement on health and education, buying of new assets, income, crop yields and business capital for borrowers brought by loans issued by rural SACCOS in Tanzania. The odds ratio from Table 4 indicates that the likelihood improvement or realization of impacts from using loans by the rural SACCOS borrowers’ appeared 138.356 and 37.493 times higher for those borrowers who realized the impacts of loans due to improvement on health, education and buying new assets compared to those who did not realize the impacts on the mentioned items. Similarly, the odds ratio of income, crop yields and business capital are 1.909, 2.177 and 1.750 respectively, indicating that improvement of income is likely to influence rural SACCOS borrower to realize impact of loans 1.909 times higher than other variables while improvement of crop yields is likely to influence a rural SACCOS borrower to realize the impact of loans 2.177 times higher than the other variables. Similarly, improvement of the business capital influence rural SACCOS’ borrowers to realize impact of the loans 1.750 times higher than the...
other variables. The results from this study are in line with Haque et al (2011) who applied the logistic regression model to investigate the impacts of CBO MFI in Bangladesh, where they found out that among the seven independent variables; income, food intake, clothing, sanitation and housing had significant influence on the socio-economic well being while the variables of assets and forced savings were not significant. This study noted that majority of rural SACCOS’ borrowers who reported to default their loans also reported to have negative impacts in Tanzania. Moreover, some SACCOS’ members reported that the loans from SACCOS made their livelihood to be worse than before because they sold their assets to recover the defaulted loans.

Table 4: Results from the Logistic regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>Significance</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved health and education</td>
<td>4.930</td>
<td>1.050</td>
<td>0.000</td>
<td>138.356</td>
</tr>
<tr>
<td>Buying new assets</td>
<td>3.624</td>
<td>1.098</td>
<td>0.001</td>
<td>37.493</td>
</tr>
<tr>
<td>Improved income</td>
<td>0.647</td>
<td>0.174</td>
<td>0.000</td>
<td>1.909</td>
</tr>
<tr>
<td>Improved crop yields</td>
<td>0.778</td>
<td>0.268</td>
<td>0.004</td>
<td>2.177</td>
</tr>
<tr>
<td>Improved business capital</td>
<td>0.560</td>
<td>0.179</td>
<td>0.002</td>
<td>1.750</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox and Snell R²</td>
<td>0.563</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negelkerke R²</td>
<td>0.760</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.0 Conclusion and recommendations
By using the paired t-test and logistic regression analysis, this study noted that 73.5% of the rural SACCOS’ borrowers in Tanzania (P<0.01) realized the improvement of their households’ on education, health, physical assets, crop yields and business capital. The findings registered 50% and 160%, 80% and 160%, 100% and 200% increase of minimum and maximum income, crop yields and business capital for the rural SACCOS borrowers after taking loans respectively. Also the study noted that the minimum and maximum costs incurred for renovation or building the house or business premises was 0.15 and 10 million Tshs respectively. Likewise, the study noted that high impacts of loans and low default rate for borrowers were related. For significance realization of impacts by rural SACCOS’ borrowers, this study recommends the following: borrowers should use credits risks mitigation techniques including cover their business activities with insurance to reduce the amount of defaulted loans. Since high amount of the defaulted loans lowered the intensity of impacts for borrowers. Moreover, borrowers should use loans according to the conditions stipulated in contracts and avoids multiple borrowing. Mpogole, et al (2012) found out that over 70% of the MFIs clients in Iringa region-Tanzania had problems in loans repayment because of the multiple borrowing. Furthermore, loan limit criteria as recommended by wenner (2007) should be practiced and borrowers should be trained in technical, business and entrepreneurship to stimulate their impact as found out by Kessy and Temu (2009). At the same time, SACCOS should screen the loans well before issuing them to their clients. Mwakajumilo (2011) found that SACCOS have concentrated a lot on saving mobilization, loan disbursement and loan recovery, without being involved deeply on assessing the viability of loans activities of the borrowers. Finally the supervisory and regulatory role played by government of Tanzania for the rural SACCOS should be sustained.

6.0 References


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