Influence of Microfinance Operating Model on Clients’ Impacts Reliaization: Evidence from BCC MFI from Tanzania

Author’s Details: (1) Elirehema Kaayab (2) Dr. Joseph Magali
(1)Head of Deacon Training - ELCT Northern Diocese–Ushirika wa Diakonia Faraja, P.O. Box 167 Sanya Juu – Kilimanjaro-Tanzania (2)Lecturer-The Open University of Tanzania, P.O. Box 23409, Dar es Salaam, Tanzania

Abstract:
The main objective of this paper is to assess the impact of Building a Caring Community (BCC) microcredit program on livelihood improvement of the clients at Moshi town, Tanzania. Specifically, the study evaluates the client’s changes of livelihood on income, food adequacy, assets, capital, health, and education. The purposive sampling procedure was applied to select a sample size of 123 BCC beneficiaries who received loans for a period of more than one year. Interviews and questionnaires were used as main data collection tools and data were analyzed using descriptive, paired t-test and logistic regression model. The findings of this study (p-values < 0.05) reveal that there was a significant improvement in overall family annual income, number of meals taken per day, ability to buy assets, access to health and education services and business value after taking a loan from BCC microcredit program. Specifically, the study reveals that the maximum income increased from 0.5 to 1.5 million Tanzanian Shillings (Tshs) while the maximum business capital changed from 1 to 2 million Tshs and the number of meal increased from 1 to 3 meals per day before and after taking loans from BCC MFI respectively. The study recommends more training to BCC members and management so as to promote more impacts to BCC and members.

Keywords: Building a Caring Community, Microcredit Loans, Borrowers’ Livelihood Improvement, Tanzania

Background of the Study
Building a Caring Community (BCC) is a nonprofit entity which was established in October 2007 under the Evangelical Lutheran Church in Tanzania Northern Dioceses with the aim of providing a comprehensive set of services to children with developmental disabilities and their families regardless of their cultural or religious background. It provides central services support health and rehabilitation services both in the centers and in-homes and the microcredit for parents of the individual with mental disabilities (BCC, 2007).

Amin (2014) argued that the Grameen Bank (GB) and Association for Social Advancement (ASA) in Bangladesh have developed a successful model of reaching credit to poor households that were generally not served by private and Government financial institutions. Khan (2014) argued that Microfinance Institutions (MFIs) have managed to create income generation for more than 25000 clients at Danyore in Pakistan where MFIs clients invested in different activities such as livestock, agriculture, dry fruits, handicrafts and home industries. Hence, MFIs which serve clients who are excluded from formal MFIs such as BCC can be a panacea for capital access for poor people and possibly make poor people realize the MFI’s impacts

Studies done in East Africa and other countries show that MFIs especially Non-Governmental Organizations (NGO) have impacts on the welfare of the clients. For instance, Kyeyune (2007) examined the contribution of (MFIs) to the economic activities of the youth and women in Luwero district who borrowed from Foundation for International Community Assistance (FINCA) in Uganda, and found that FINCA contributed positively on economic growth of rural youth and women.

However, sometimes the MFI does not contribute impacts to the beneficiaries. For example, Lwidiko (2007) assessed the impacts of MFIs at Ilala District in Dar es Salaam, Tanzania focusing on Small Industry Development Organization (SIDO) and the study revealed that the amounts of money received by clients were too small to boost the growth of their business. Moreover, the comparison between borrowers and non-borrowers indicated that there was no significant difference, which means that the loan did not help much because the money was used to repay the loans. Some of the scholars who have revealed the negative impacts of MFIs on clients include Dean and Zinnman (2010) and Kato and Kratzer (2013).
Haque et al. (2011) asserted that although interest rates, conditions given by MFIs and amount of loan are said to have negative effects on loan accessibility and repayment rates, the Community Based Organization (CBO) microcredit program has been found to have significant positive effects on livelihood improvement of the poor beneficiaries in Bangladesh. Therefore, this study seeks to explore impacts of the BCC microcredit loan on the improved living standard of a household containing the individuals with intellectual disabilities in Moshi Municipality in Tanzania. 

Some of the studies which assessed the impacts of MFIs in Tanzania are Magali (2013), Girabi and Mwakaje (2013), Brannen (2010), Kessy and Urio (2006), Kihongo (2005) who revealed both positive and negative impacts of MFIs to the clients. However, these MFIs charged the fixed/flat rate to borrowers. BCC charges lower interest rate up to 0% interest rate, and it serves the most disadvantaged groups such as orphans, widow, people with disabilities and street children. Therefore, this study aimed at assessing the impacts of BCC to clients and assess whether BCC’s client's impacts will differ or be the same from MFIs which exclude poor people because of charging the high interest rate.

**Statement of the Problem**

Different studies have been conducted in Tanzania to examine the impact of Microfinance on improving focused on MFIs which have fixed interest rates which limit poorest of the poor from accessing the credit because the repayment for a loan is mandatory for these MFIs while collateral is a condition for the provision of loan.

Charging high interest rates on loans and using collaterals as one of the conditions for loan accessibility limits the poorest of the poor to access the loans. Kato and Kratzer (2013) indicated that MFIs that charge very high interest rates make many women running away from their homes and villages after the failure of repayment of loans because they avoid their properties to be confiscated by MFIs which gave them loans. Moreover, Abbas and Honghui (2016) revealed that high interest rates reduce the probability of the MFIs clients to repay their loans in Tanzania. Therefore, this study is designed to assess the BCC microcredit loans which have diversity loan interest rates (i.e., from 0% to 8%), depending on the nature of the business plan, business model, loan size, the experience of the individual recipient, or the economic history of the individual. The two main issues BCC considers for charging the amount of interest to clients are the state of disability and economic condition status. This means that the clients with disabilities and those who are regarded as poor (with smaller income) are charged low or zero interest rates because the BCC is Non-profit organization. The BCC model is adapted model from the Grameen Bank. Therefore, this study intends to examine the impact of loans on livelihood improvement of the beneficiaries of BCC microcredit because to the best of our knowledge; there is no study conducted to assess the impact of MFIs to beneficiaries which charges different interest rates (including zero).

**Objective**

The objective of the study is to evaluate the clients’ changes of livelihood on income, food adequacy, assets, capital increment and health and education improvement due to using of microcredit loans.

**LITERATURE REVIEW**

**Microfinance model**

BCC used mainly the Grameen Bank (GB0 model. The literature shows that in Bangladesh more than 1.3 billion inhabitants before the establishment of GB were struggling to earn a smaller amount of one dollar ($1) per day. Hence, they were unable to satisfy their basic needs such as food, cloth, shelter, health treatments and education. However, the literature shows that after the establishment of GB, both rural and urban dwellers in Bangladesh and neighboring countries who adapted the GB were able to fulfill their basic needs (Shukran and Rahaman, 2011). Hence, the BCC thought that by adopting the GB model, her clients might improve the livelihood of beneficiaries who organized themselves in the form of GB. Under GB model, clients borrow in groups, and the group is used as collateral. This methodology makes the groups be accountable for an individual who fails to repay the loan on time, and this is one of the weaknesses of the...
group lending (Ngala and Obino, 2016). Under GB model social cohesion encourages borrowers to repay their loans in time because failure to repay loans on time without justifiable reasons replenishes the image of the client by the surrounding community.

**Empirical Literature Review**

This section covers the empirical literature review done worldwide to assess the impacts of various forms of MFIs to the beneficiaries. Haque et al. (2011) examined the effectiveness of community-based organization (CBO) microcredit programmes of Concern Worldwide in Bangladesh by using the logistic regression analysis. The study revealed that the CBO microcredit programme has significant positive effects on livelihood improvement of the poor beneficiaries. However, in this study, CBO did not charge the zero interest rate.

Brau et al. (2009) investigated the micro lending outcomes among Latin American NGO MFIs where they applied the univariate and multivariate regression analyses in Guatemala. The study revealed that MFIs had improved the livelihood of the clients in terms of improvement of housing, health, and clients’ empowerment. However, the NGO MFIs did not charge the zero interest rate. Also the role of MFIs in assets, income, a number of meal and business were not analyzed.

Taiwo (2012) by using descriptive statistics and regression model found that MFIs clients in Southwest Nigeria have increased the entrepreneurial activities through loan granted, by expanding their businesses, raising income, increased the consumption of all durable commodities, increased the children education, enhanced the acquisition of land/asset and enhance social welfare in the community. In this study, the MFIs did not charge the zero interest rate and the role of MFIs in income increment on clients were not considered.

Adjei et al. (2009) found that Ghanaians poor women have managed to pay for education and health costs and buy the households’ assets due to their participation in microfinance. Abiola (2011) investigated effects of microfinancing on micro and small enterprises (MSEs) in the Southwest Nigeria where they used the multiple regression analysis. The study found microfinance has positive effects on productivity and performance of local entrepreneurs. However, these studies also did not specify if the MFIs charged the zero interest rate for her clients.

Empirical studies reveal that MFIs have impacts on beneficiaries in Tanzania. A study was done by Mbwilo (2007) in Mbinga community bank to examine the contribution of microcredit to poverty reduction in the rural society of Tanzania by using Cross tabulation, and multiple comparisons Analysis of Variance (ANOVA) tests revealed that microcredit changed the life of the poor in a positive way. Also, the study revealed that clients who borrowed at least once from MCB have relatively higher income, investment in productive assets and accessibility to education and food sufficiency. None of the MFIs charged the zero interest rate.

Kato and Kratzer (2013) revealed that women members of MFIs have more control over savings and income generated from the business, a greater role in decision-making, greater self-efficacy, and self-esteem, and greater freedom of mobility and increased activities outside the home. However, MFIs caused high workloads to women who participated in MFIs activities. Also it was noted that Sungusia (2007) and Bee (2007) by using Mann-Whitney U test, Tobit analysis and regression analysis respectively found that both income and employment opportunities increased significantly after started borrowing while Mbwilo (2007) and Mkwawa (2005) applied cross tabulation, one way and multiple comparisons ANOVA tests and regression analysis, also revealed that microcredit changed the life of the poor in a positive way. The analysis of the literature indicates that none of these studies charged the zero interest rate.

Magali (2013) by using the logistic regression and paired t-test, 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. Moreover, Mwakaje (2013) by using logistic regression, descriptive statistics, and multivariate regression models revealed positive improvement of livelihood for
rural SACCOS’ clients’ on income and crop productivity. However, Magali (2013) noted that some SACCOS clients’ assets were confiscated and sold to repay the debts. The study also noted that none of the SACCOS charged the zero interest rate and there were no SACCOS that targeted to assist the poor people with low income and disabilities.

Bateman (2012) revealed that poor MFIs borrowers in India ended up suffering due to their participation in microfinance programme in Andhra Pradesh and one of the reasons which have led to loan default was the high interest rate. Ameer (2015) observed the high level of financial sustainability and good outreach within a short time after the establishment of the Interest-free microfinance institutions in Alappuzha district in India. The results signify that free interest rates and anticipated benefits from MFIs prompted many people to join them.

Our study was conducted to assess the impacts of offering the lower interest rate for BCC clients on income, food adequacy, increase number of assets, increase of business capital and improvement of education and health facilities because to the best of our knowledge, none of the studies has been carried out in Tanzania to assess the impacts of MFIs that offer lower and zero interest rates to her clients and clients with special needs such as people with disabilities and street children.

**METHODOLOGY**

**Data Collection and Analysis procedures**

Primary data were collected from different Wards in Kilimanjaro region and Moshi urban especially from sub-urban areas namely; Moshi town, Rau, Pasua, Kiboriloni, Longuo, Soweto, Majengo, Ng’ambo, and Msaranga. After selection of the study areas, a list of current beneficiaries who have had loans under CBO microcredit program of the Evangelical Lutheran Church in Tanzania Northern Diocese (ELCT- ND-BCC) for a period of more than one year was selected for an interview. In this study, a sample size consisted of 123 BCC Microcredit program which supports 223 families. This is 61.5% of the total population of BCC. The response rate was 100%. The sampling method was purposive because it included only the BCC members. However, in the field, systematic random sampling was used to select the BCC members for an interview. Since the members of BCC were scattered, all wards were visited for the purpose of conducting an interview with BCC selected members.

Data were analyzed by descriptive analysis to identify the mean, frequency, maximum, minimum, variance and standard deviation of the quantitative variables such as amount of loan borrowed from BCC, amount of loan defaulted, annual income of participants, amount of business value and amount of meals taken per day; to show the trend of changes in these variables. The paired t-test (P<0.01) was used to test if there are significant changes on income, assets, food intake, capital, health and education of BCC microcredit borrowers before and after receiving loans from BCC Microcredit program. Also in this study, a Logit model was used to measure the likelihood of the socio-economic improvement of respondents on income, assets, food intake, capital, health, and education. According to Magali (2013), the Logit model was written as

\[
L_i = \ln \left( \frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_1 X_1 + \ldots + \beta_k X_k + U_i
\]

Where, \( P_i \) = Probability that socio-economic well being would be better off due to participation in the microcredit programme and (1 - Pi) = probability that socio-economic well being would not be better off. In this model, a score of ‘1’ was assigned to the positive response while a score of ‘0’ was assigned to a negative outcome (indicating ‘no’ improvement took place). The selected independent variables were:

- \( X_1 \) - Increased income of the respondent (Log of income after loan)
- \( X_2 \) - Increased food intake in the family of respondents in a day (1 if food intake increased in a day, 0 otherwise)
- \( X_3 \) - Buying assets (1 borrower bought assets, 0 otherwise)
- \( X_4 \) - Improved health and education (1 if the health/education of borrower improved; 0 otherwise)
- \( X_5 \) - Increased capital for business (Log of business capital after loans)

**The relationship between the Independent and Dependent Variables**
There are many ways of measuring the relationship between the independent and dependent variables, especially when measuring the impacts of Microcredit on clients when there are one or more independent variable and many independent variables. One can decide to use the multivariate regression analysis which justifies the analysis of one or more independent variables with many dependent variables (Aruna and Jyothirmayi (2011). However, in our case, we did not prefer to use the multivariate regression analysis, instead of the logistic linear regression model. Because we have used the logistic regression model, each dependent variable becomes the independent variable, and the outcome of the probability of microcredit to influence impact to a BCC member becomes the dependent variables. The logistic regression model has been used by many scholars who analyzed the impacts of MFI loans to beneficiaries, for example, Haque (2011), Magali (2013), and Asmare et al. (2017).

Validity and Reliability of Data
The pilot survey was conducted to pre-test the questionnaires before starting data collection that also ensured the validity of data. Reliability of data was measured by using Cronbach alpha, and the result was 0.75 proving that data were reliable.

RESULTS AND DISCUSSION
Influence of Demographic Variables on Loans Impacts

Age of the clients
The findings reveal that the mean age of respondents was 43.81 ± 10.30 with minimum age equal to 25 years while the maximum age was 73 years old. These findings signify the fact that most of the BCC borrowers were adults who bear the family responsibilities including meeting the needs of their children with disabilities and their siblings. Such needs include access to therapeutic services, adaptive devices for mobility support, health services, school fees and food. Also, they have responsibilities of helping extended family members such as elders for basic needs including food and health services. Based on the fact that they are adults and that they face all mentioned responsibilities, it appears that they have high needs of acquiring loans from BCC microcredit program, so that they can establish income-generating activities that in turn will fund required basic needs of their particular families. This corresponds with the study by Arupillai and Phillip (2014) who found that the age of the borrowers varied between 21 and 50 years old with a mean of 45 years for all the respondents in peoples’ bank in Sri Lanka. Also, the studies by Girabi and Mwakaje (2013) and Arupillai and Phillip (2014) revealed similar results that the groups of loan borrowers are constituting the majority who are the most economically active segment of the population.

Gender
The study reveals that 86% of clients were women while 14% were men. The findings imply that usually, women engage into small and medium scale income generating businesses such as selling food (commonly known as Mamalishe in the Swahili language), raw crops, second-hand clothes, and shoes, so in most cases, they need loans to expand or to establish such businesses. The results show a majority of BCC beneficiaries were women because there was much emphasis on the community at large to empower women this is why women become more receptive to microfinance services under BCC programme. The results are in line with Kato and Kratzer (2013) who revealed that women members of MFIs had more control over savings and income generated from the business, a greater role in decision-making, greater self-efficacy, and self-esteem, and greater freedom of mobility and increased activities outside the home after given loans by MFIs in Tanzania. Also, these findings are consistent with the study by Magali (2013), who found that the male borrowers for rural SACCOS’ clients in Tanzania were 46.4% while the female borrowers were 52.6% and the group borrowers were 1%. Similarly, the findings reported by Girabi and Mwakaje (2013) indicated that 53.5% of the credit beneficiaries who participated in the survey were women. Their study suggested that women were more active in seeking and accessing credit than men.
Marital status
The study analyzed the marital status of the respondents and findings reveals that 72% of the clients were married, 15% were widows, 9% were single and 3% were divorced or separated. High percentage of the married clients may imply that because married individuals in most cases have more responsibilities in taking care of their family members including children and elders, to make sure there is food on the table, paying their medical bills and other family necessities; Such responsibilities may force the married individuals to seek for microcredit that will fund their small scale income-generating projects which in turn will earn income which may be used to cover the cost of the family needs. However, this may be interpreted otherwise as follows: Since the majority of the Tanzanians are married, it is obvious to have the majority of households’ clients that are married. Aruppilloi and Phillip (2014) have reported similar findings that 86% of the borrowers of the GB were married.

Education
The study also analyzed the education level of the participants, and the result revealed that 81% of clients had a primary level of education while 11% were having an ordinary level of secondary education, 5% have no formal education, 0.8% had an advanced secondary level, and 0.8% had the diploma education. These findings are in line with Garabi and Mwakaje (2013) whose findings pointed out that 88.3% of the credit borrowers group in Singida Tanzania had a primary education while only 11.7% of the clients had either secondary or post-secondary education levels. These findings suggest that most borrowers were literate since they had formal primary education, so were able to follow loan-borrowing procedures and that they were partially confident with microcredit loans’ investments.

Years business established
The findings revealed that 68% of borrowers had a business established in period of 2 years, 8% period of 3 years, 4% period of 4 years, 2% period of 5 and 15% a period of 6 and above. This means that most of the respondents in this study had a business or any other income generating projects that were established for a period of 2 years and above, thus must have gained business and market experiences, since they received continuous training and supervision from BCC Field Workers. This corresponds with Franca (2013) who reported that 22.38% and 16.69% of Small and Medium Enterprises (SMEs) survival and growth were associated with continuous microcredit borrowing in Anambra State Nigeria.

Overall impacts of the loan to borrowers
Results from the logistic regression show the association between taking loan and improvement in the livelihood of the community. The results from analysis indicate that there was a significant improvement in overall family annual income, a number of meals taken per day, ability to buy family assets, access to health and education services and business value after taking a loan (all items having p-values < 0.05). Also, the paired t-test results show that there was a significant improvement of assets, income, and number of meals per day for BCC clients before and after taking loans from BCC. This corresponds with Magali (2013) who noted that 73.5% of the rural SACCOS’ borrowers in Tanzania realized the improvement of their livelihood on education and health, physical assets, crop yields and business capital. Also, Girabi, Mwakaje (2013), Mbwilo (2007), and Mkwawa (2005) all reported positive impacts on the livelihood of borrowers of MFIs in Tanzania.

Impact on Family Income
Results from Table 1 show that the maximum amount of annual income before taking loan was 0.5 million Tshs (1 USD =2242 Tshs as at June 2017). The findings show that after taking the loan, the maximum family annual income changed to 1.5 million Tshs. Clients were asked if borrowing from BCC microcredit had made improvements in their livelihood by increased family annual income. The logistic regression results demonstrate that participants who reported yes, that there was an improvement in annual family income were likely to influence BCC borrowers to realize impacts about 4 times compared to other variables. This means clients who participated in BCC microcredit program for at least two years had relatively higher income compared to the time before starting borrowing from BCC. Such findings had also
been revealed by Mbwilo (2007) who found that client who borrowed at least once from Mwanga Community Bank (MCB) had relatively higher income than the new and prospective borrowers. Also, Teng et al. (2011) revealed that MFIs microenterprise owners increased the total household income in Cambodia.

Impact on buying new assets
Based on this particular variable respondents were asked if borrowing of credit from BCC improved their ability to buy new assets for their families. The logistic regression results indicate that buying new assets after taking loans from BCC borrowers was likely to influence borrowers to realize impacts about 17 times over than other variables. New assets which were bought after participating on loan borrowing from BCC was home facilities like furniture, Mattress, kitchen utensils like pots, a small piece of land for farming, motor bicycle (commonly known as Bodaboda in the Swahili language), dairy goats, indigenous chickens, and pigs. These findings are in line with Magali (2013) who confirmed rural SACCOS clients’ in Tanzania realized impacts from participation in rural SACCOS and bought assets such as land plots, iron sheets, water pump, 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.

Impact on food adequacy
Results from Table 1 reveal that the number of meals taken per day before taking the loan was minimum of 1 and maximum of 3 with a mean amount of 2 meals. After clients participated in loan borrowing from BCC microcredit program, the number of meals changed from the mean amount of 2 to 3 meals per day, with the maximum amount of 3 meals a day. The paired t-test results show that there was a significant improvement in the number of meals taken per day in the family after taking a loan from BCC. The logistic regression indicates that the respondents who reported improvement of the number of meals were likely to realize impacts about 20 times than the other variables. The results are in line with Haque et al. (2011) who revealed that there was an increase in expenditure on food for the respondents, for Community Based Organization (CBO) microcredit program in Bangladesh. This is also consistent with Pakrashi et al. (2014) who noted that participation in microcredit programs significantly lowers the probability of being food-poor.

Impact on Health and Education
Participants were asked whether borrowing from BCC microcredit improved their ability to meet health and education costs for members of their household or not. Findings indicate the ability to meet health and education costs after taking loans from BCC, influence the likelihood of realizing impacts about 28 times than the other variables. BCC clients reported that they were able to meet education and health costs after participating in BCC microcredit program. Clients further explained that they managed to pay required school contributions or fees and also buying necessary school supplies for their children such as uniforms, and books. They also managed to pay some healthcare costs for buying medicine needed for their children especially those who have a regular routine in using medicine. These findings are in line with Abiola (2011) who found that Grameen Bank increased the school enrolment of children in Nigeria.

Impact on capital of the business
Results from Table 1 show that maximum amount of business capital was 1 million Tshs and 2 million Tshs before and after taking loans from BCC respectively. The results from the logistic regression show that increasing of business capital was likely to make BCC clients to realize impacts about 23 times than the other variables. Most of the clients reported that their businesses showed great improvements after receiving loans from BCC. For example, a mother with a child with mental disabilities who owned a retail shop was one of the successful clients who received a loan from BCC four times in a varied amount and managed to repay her loan each time according to the loan contract.
First time and second she borrowed 0.5 million Tshs and 1 million Tshs respectively while the third time she borrowed 1.5 million Tshs for expanding the business in particular and expanded the shop by starting M-Pesa and Tigo Pesa businesses. The fourth time she borrowed 2 million Tshs and bought a motorbike for transport business (Known as a Boda Boda in the Swahili language). Her business has been growing, and she has gained business experiences and confidence. This indicates that borrowing from BCC microcredit program may have a positive impact on increased capital for the small-scale business of the participants. This corresponds with findings by Madole (2013) who revealed that SMEs had been able to improve
businesses in terms of increased business profit, increased employees, increased sales turnover, increased business diversification, increased business capital and assets.

Conclusion
By using paired t-test and logistic regression analysis, this study reveals that there was a significant improvement in overall family annual income, a number of meals taken per day, ability to buy family assets, access to health and education services and business value after taking loans from BCC. However, the study revealed that 20% of the clients who were not exempted from repaying the loans failed to repay loans according to the loan contract. The default rate is almost similar to that noted by Magali (2014) which was 22% for the MFIs clients who had no special characteristics such as very poor, having disabilities or street children.

Recommendations and direction for future studies
Based on the results obtained in this study, it is recommended that BCC microcredit program BCC should reduce the interest rate from 8%, probably up to 4% to 0%, increase the flexibility on loan amounts, increase the repayment period of loan from 2 to 5 years, and continue training to borrowers so as to prevent the loan default which is 20%. Further, the BCC should facilitate her clients to benefit from some of the public services offered to semi-formal and informal MFIs such as insurance services. This study proves that lending through 0 interest rates also can lead outcomes to poorer households in Tanzania and other countries in the world. Hence, some MFIs may adopt this type of schemes to enable even poorer of the poor to enjoy the credit access. Indeed, if modified GB model is adopted by many financial institutions, it may enhance more impacts to the poor households. However, more studies are recommended to ascertain the extent how the length of borrowing and amount of interest rates charged for clients BCC influence a client to realize impacts from BCC. Also other studies may be conducted to assess whether BCC clients impacts is influenced by background factors or any other factors such as culture.

REFERENCES

http://www.ijmsbr.com


**APPENDICES**

**Table 1: Descriptive Statistics of Quantitative Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of the loan borrowed last 1 year (Tsh)</td>
<td>20,000</td>
<td>1,500,000</td>
<td>414,210.5</td>
<td>260,042.6</td>
</tr>
<tr>
<td>Loan defaulted after time was over(Tsh)</td>
<td>25,000</td>
<td>730,000</td>
<td>249,488.9</td>
<td>174,971.5</td>
</tr>
<tr>
<td>Family annual income before taking loan(Tsh)</td>
<td>2,000</td>
<td>500,000</td>
<td>39,277.78</td>
<td>116,646.7</td>
</tr>
<tr>
<td>Family annual income after taking loan(Tsh)</td>
<td>4,000</td>
<td>1,500,000</td>
<td>122,935.5</td>
<td>207,431.4</td>
</tr>
<tr>
<td>Amount of business capital before loan(Tsh)</td>
<td>5,000</td>
<td>1,000,000</td>
<td>231,935.5</td>
<td>352,832.8</td>
</tr>
<tr>
<td>Amount of business capital after loan(Tsh)</td>
<td>50,000</td>
<td>2,000,000</td>
<td>502,358.5</td>
<td></td>
</tr>
<tr>
<td>Amount of meals per day taken before loan</td>
<td>1</td>
<td>3</td>
<td>2.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Amount of meals per day taken after loan</td>
<td>2</td>
<td>5</td>
<td>2.9</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Table 2: Paired T-test Coefficients**

<table>
<thead>
<tr>
<th>Paired variable</th>
<th>Paired Differences</th>
<th>T- value</th>
<th>Df</th>
<th>Sig. level (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference in mean</td>
<td>Std. Dev.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Upper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>--------------------</td>
<td>----------</td>
<td>----</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Family annual income before- After taking loan</td>
<td>-115667</td>
<td>251634.2</td>
<td>-9468.071</td>
<td>-1.9502</td>
</tr>
<tr>
<td>Amount of business value before- After taking loan</td>
<td>-410000</td>
<td>269550.4</td>
<td>-305479.3</td>
<td>-8.0486</td>
</tr>
<tr>
<td>Amount of meals per day taken before- After taking loan</td>
<td>-0.8481</td>
<td>0.579315</td>
<td>-0.718342</td>
<td>-13.0121</td>
</tr>
</tbody>
</table>

**Table 3: Logistic Regression analysis for the impact of loan on borrowers**

<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>1.29</td>
<td>0.970</td>
<td>0.001</td>
<td>28.0</td>
</tr>
<tr>
<td>Buying new assets</td>
<td>4.13</td>
<td>0.860</td>
<td>0.036</td>
<td>17.1</td>
</tr>
<tr>
<td>Improved income</td>
<td>3.06</td>
<td>0.194</td>
<td>0.002</td>
<td>4.30</td>
</tr>
<tr>
<td>Improved business capital</td>
<td>2.50</td>
<td>0.153</td>
<td>0.002</td>
<td>2.50</td>
</tr>
<tr>
<td>Improved meal per day</td>
<td>1.23</td>
<td>0.179</td>
<td>0.001</td>
<td>20.0</td>
</tr>
<tr>
<td>Likelihood ratio</td>
<td>32.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox and Snell R²</td>
<td>0.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ne格尔kerke R²</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The figure 1: The relationship between the independent, control and dependent variables

Source: Modified from Magali (2014) and Asmare et al (2017)

Figure 2: The relationship between the Independent and dependent variables

Source: Magali (2014)