Impact of Microfinance on Household Welfare in Northern Chin State of Myanmar[1]

Soe Nandar Linn[2]
Voravidh Charoenloet[3]

Abstract

This study undertakes an assessment of the impact of Myanmar microfinance programs on household welfare in terms of the household income from, expenditure on and consumption of rice by using data from a quasi-experimental survey conducted in the Northern Chin State of Myanmar. The single impact equation used for the econometric analysis is derived from the household utility function and conditional demand equation. The results prove that the microfinance loan did not contribute to the borrowers' welfare through their income generation activities, because of the insufficient loan available. However, it did solve short term daily survival issues especially in terms of food. The lack of market opportunities is a major constraint on the agricultural households when trying to generate income. This study found that the welfare of the households as well as the social and economic goals of the microfinance institutions set up by the NGOs, failed, in a country which does not create sufficient market opportunities.

Keywords: **Microfinance, Welfare, Quasi-experiment, Impact, Myanmar.**

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[1]This article is a partial fulfillment of Thesis in Master of Economics, Faculty of Economics, Chiang Mai University

[2] Graduate student, Faculty of Economics, Chiang Mai University.

[3] Associate Professor, Faculty of Economics, Chiang Mai University

1. Introduction

In developing countries, microfinance is one of the development tools used to reduce poverty. Dr. Mohammad Yunus[4] said that unlike charity donations, microfinance can help even beggars to become entrepreneurs. A lack of capital is the major constraint on the poor throughout the world therefore the provision of credit can be an effective tool as part of a poverty reduction strategy. It is expected that people's consumption patterns will smooth-out if they can access saving services. Furthermore, they should be able to manage their risk better if they can gain access to insurance facilities. These savings can then be used, not only for future consumption, but also for emergencies, future investments, education for their children and social activities. The main objectives of this article is to examine the use of microfinance loans on income generation activities and whether this income generation has had a significant impact on the household welfare of the poor who have access to microfinance loans in the northern Chin State of Myanmar[5].

Chin-Microfinance Institution (Chin-MFI) has been one of the projects implemented under the umbrella of the United Nations Development Program (UNDP) projects in northern Chin State. From 1995 to 1997, a pilot phase was implemented, in order to test the financial services in the Chin context. Twenty village credit schemes were initiated, in Hakha and Tedim townships in 1997. Furthermore, during 1998 to 2000, the microfinance program was extended to Falam township, in order to increase the coverage of the households, as well as to build a self- reliant financial institution for the community. By the end of 2000, Chin-MFI had evolved from dealing with 20 to 84 village credit schemes, and had significantly increased its portfolio and its operational self-sufficiency. The loan system used is based on the mutual guarantees of a group of five members. Most of the members invest in breeding and agricultural activities. Moreover, Chin-MFI provides training, technical support and financial assistance to the network of village credit schemes.

The aim of this study is to test the hypothesis that participation in microfinance loans to help income generation activities, contributes to the household welfare of the microfinance participants. This study applied the quasi-experimental impact methodology that Coleman (1999) developed which stated that both of member and nonmember households in both old

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[4] Mohammad Yunus is a Bangladeshi banker and economist who developed the concept of microcredit. He is the founder of the Grameen Bank, which provides loans to entrepreneurs too poor to qualify for traditional bank loans. He and the bank were jointly awarded the Nobel Peace Prize in 2006.

[5] Chin State in Myanmar borders Inida and Bangladesh to the west.

and new saving groups were taken into account for the impact estimates.

The survey of this study was conducted in twelve villages, with 246 households, in Hakha, Falam and Tedim villages. There were two kinds of groups set up: a treatment group and a control group. The treatment group included the members who had at least two loan cycles. Since it was difficult to find non-members in the program's villages, new members of the new village credit schemes were used as the control group.

This study focuses on the economic development activities linked to the loans, especially income, expenditure and self-employment. This study uses the deductive approach by using primary data to produce the empirical results. The paper is organized into five sections. The first section presents the introduction of the study. The section 2 describes the theoretical framework and section 3 presents the research design and the methodology used for the data analysis. Section 4 presents the empirical results and section 5 summarizes the conclusion and provides recommendations for future research.

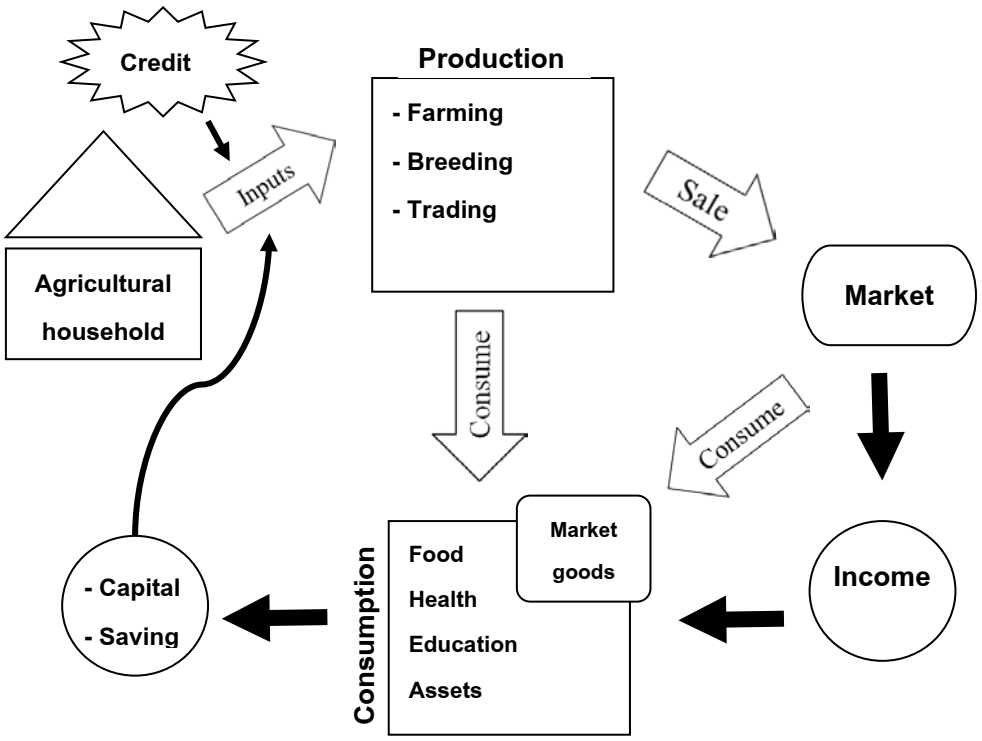
2. The Analytical Framework

The relationship between microfinance loans and household welfare is illustrated by applying the model which is developed by Pitt and Khandker (1996); the utility function at the household level and the conditional demand equation.

2.1. Household Utility Function

The agricultural household plays the role of both consumer and producer at the same time. According to consumer theory, households maximize the utility of their consumption, subject to budgetary constraint. Agricultural households not only produce agricultural goods to sell in the market to generate income, but also produce for their daily consumption.

Figure 1 Conceptual Framework of the Behavior of Agricultural Household



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The production of goods (H) depends on the time devoted to the production by male and female, market goods used as inputs in the production such as fertilizer for the agricultural household and food for piglet and production technology.

$U_t = U(n, Q_i, H_i, l_i)$ (1)

U_t = utility of a household

n = number of household members

Q_i = a set of market goods consumed by household member i

H_i = a set of non-market household-produced goods allocated to member i (Non-market household-produced goods (H) include household care activities such as preparation of food, childcare and the gathering fuel)

l_i = leisure time consumed by household member i

Suppose that there are two workable aged adult household members; male head (m) and his wife (f). The household-produced goods (H) can be formed as:

$H = H(L_{mh}, L_{fh}, G; F)$ (2)

L_{mh}, L_{fh} = time devoted to the production of H by male and female

G = a vector of market goods used as inputs of the production of H

F = a vector of technology parameters that affect efficiency in H good production

It is assumed that the minimum level of capital is necessary to produce positive household-produced goods. Production function of the market goods (Z) is:

$$Z = Z(K, L_{mz}, L_{fz}, A; J) \quad (3)$$

Capital K, labor time of household head and wife L_{mz} and L_{fz} devoted to the production of Z, a vector of variable inputs A and technology J are the functions of the production of Z goods.

A budget represents the constraint on the utility maximization of the household. The present-discounted value of expenditure on goods and leisure is equal to the present value of all the wealth of the household's assets, and the discounted value of the time endowments and the production function. The household's ability to borrow has a significant influence on the time path of household consumption.

Without the minimum capital available, a household cannot generate the production activity required to produce market goods (Z). It is assumed that the household which has a very low level of initial assets as collateral may not be able to receive a loan. Consequently, households with very low levels of income and consumption, who reduce their current consumption in order to build up assets for this purpose, may seriously threaten their health, production efficiency and life expectancy. The labor activity of a woman required to produce goods (Z) activity, is zero where she is assigned to produce non-market goods (H) and to carry out leisure activities.

The credit program participation is determined by these following characteristics:

- The prices of market time,
- The price of the purchased market goods Q,
- The prices of the market inputs into H-goods production including the cost of birth control and other inputs into goods (Z) production,
- The price of capital goods, age and education levels of the borrowers and spouse,
- Access to transfers from non-resident relatives and
- Village level characteristics

The loan use on consumption and inefficient business may be a risk for the borrowers.

2.2. Conditional Demand Equation

The impact of microfinance loans on household outcomes, such as household income and consumption, is the main focus of this study. The quantity of credits borrowed is estimated using the conditional demand equation. After that, the household participation level in the savings group is estimated based on the result of the outcomes. This methodology is developed by Pitt and Khandker (1996).

The level of credit participation will be estimated by the following equation:

$$C_{ij} = \alpha_{1c}X_{ij} + \alpha_{2c}V_j + \alpha_{3c}Z_{ij} + \varepsilon^c_{ij} \quad (4)$$

where C_{ij} is the level of household participation in credit program by household (i) in village (j).

C_{ij} = the quantity of credits borrowed

X_{ij} = a vector of household characteristics (e.g., age, education, sex),

V_j = a vector of village characteristics (e.g., prices and infrastructure)

Z_{ij} = a set of household or village characteristics distinct from the X's and V's in that they affect C_{ij} but not other household behaviors condition on C_{ij},

α_{1c} , α_{2c} and α_{3c} = unknown parameters,

ε^c_{ij} = a random error

2.3. The Outcome Variables

The outcome of the household (Y) can be estimated according to the vector of household and village characteristics, and the credit demand of the household.

$$Y_{ij} = \alpha_{1y} X_{ij} + \alpha_{2y} V_j + \alpha_{3y} LC_{ij} + \mu_{ij} \quad (5)$$

Y_{ij} = outcome variables

X_{ij} = household characteristics

V_j = village characteristics

LC_{ij} = number of loan cycles in months

μ_{ij} = error representing unmeasured household and village characteristics

α_{1y} , α_{2y} and α_{3y} = unknown parameters

Econometric estimation that does not take this correlation into account will yield biased estimates of the parameters due to the endogeneity of credit program participation C_{ij} (Sengsourivong, 2006). Y_{ij} represents the household welfare indicators such as household annual income, monthly expenditure and consumption on rice which are the continuous dependent variables. LC_{ij} represents the loan cycle of member; the number of months participants have gained benefit from participation of the saving groups. LC_{ij} is zero for all non-

members in both old and new Village Credit Scheme (VCS). If the independent variable is correlated with the error term in the regression model, the Ordinary Least Squares (OLS) regression is biased.

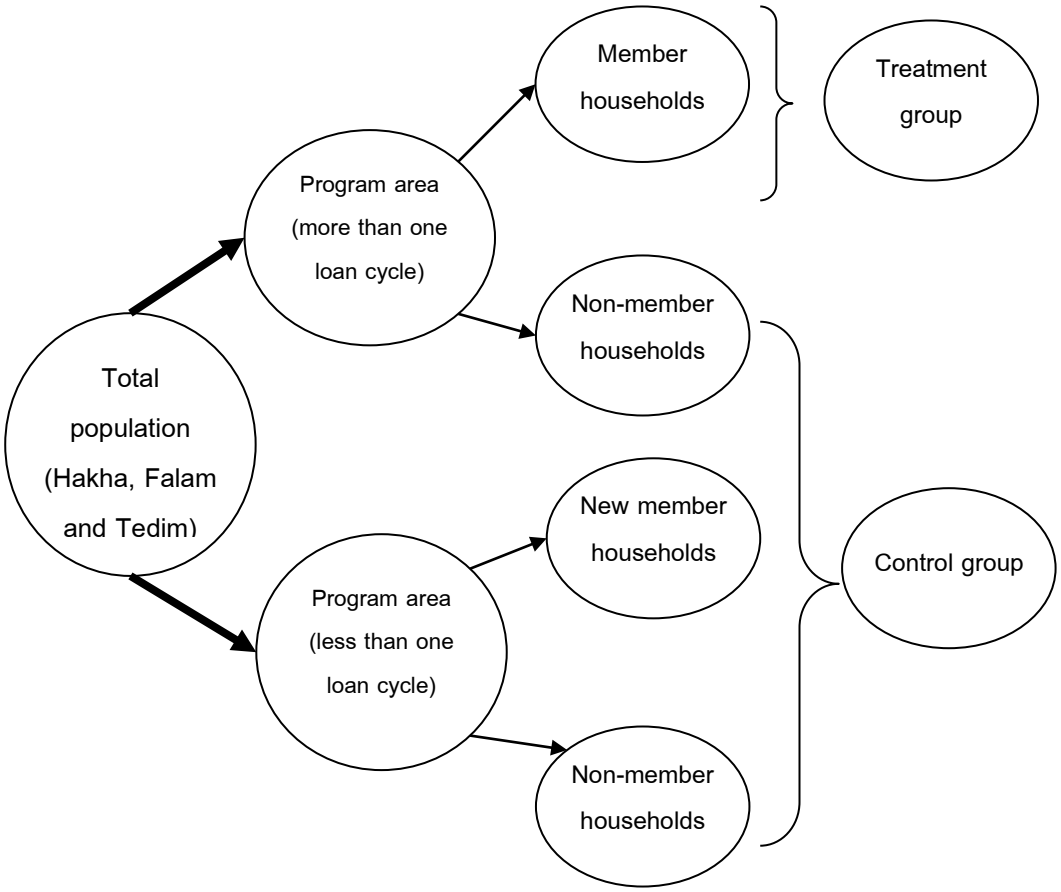
Since the villages were selected according to their different stages of program implementation (the number of loan cycles in months), the non-random program placement problem is thus controlled. The number of loan cycles of the members is able to prove the benefit that the household gained from the program. It is assumed that the larger the loan cycle, the more benefits that the household gained.

3. Research Design and Data

The research design of this study was constructed according to the methods used by Coleman (1999). The quasi-experimental survey design was applied to control the self-selection bias and endogenous program placement issues. This method was used by Sengsourivong (2006), for an impact study in Laos. According to the data from Chin-MFI, there were 7,750 households in the program villages, with 4,100 members. Since the length of the program implementation is more than twelve years, it was difficult to identify the non-members group[6]. Thus, non-members from the old village credit schemes, as well as new members and non-members from the new village credit schemes were identified as the control group. The control group can be classified by using the number of loan cycles because the old village credit schemes having more than one loan cycle, and the new village credit schemes having less than one loan cycle. Afterward, members and non-members in both of the groups were identified. Out of them, sample households were randomly selected. In total, 246 households were selected as the overall sample size. Among them, 133 were member households, whereas 113 were new and non-member households. Secondary data, such as general information about Chin-MFI and profiles of the villages, village credit systems and number of group members, were collected from Chin-MFI reports.

[6] According to the household list from Chin-MFI, the household density is very low: less than 20 households as a minimum and 400 households as a maximum in the villages.

Figure 2 Sampling Design



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Regarding the primary data collection, both member and non-member households were interviewed using a household survey questionnaire, which included questions on household characteristics, detailed income and expenditure, the credit patterns used for the income generating activities, and saving patterns. The data on village characteristics, such as availability of schooling, the prices of goods and access to market place, were collected through in-depth interviews with the village authorities and villagers.

The basic household welfare indicators used for this study are household annual income, household monthly expenditure and monthly consumption on rice. The expenditure on rice consumption will be highlighted in this study, since the price of rice in Chin State is significantly higher than in the other States and Divisions in Myanmar.

The effect of participating in the microfinance program on household welfare indicators can be proved by the following equation, which was constructed by Coleman (1999).

In the first stage, the descriptive statistics for the variables are constructed for the whole sample, as well as for the treatment group and control group respectively. Secondly, the

effect of independent variables on the outcome variables is proved by using the Ordinary Least Squares regression method. In this case, since the dependent variables are the amount of money, the data may be highly skewed. Thus, the equation of the regression analysis is transformed into the following semi-log form.

$$\ln Y_{ij} = \alpha_0 + \alpha_1 X_{ij} + \alpha_2 V_{ij} + \alpha_3 LC_{ij} + \mu_{ij} \quad (6)$$

$\ln Y_{ij}$ = the log of household welfare indicators

One of the indicators on housing condition, availability of electricity, is excluded, since the whole country except for the new capital Nay Pyi Daw, cannot access electricity on a regular basis.

The perception of the members on the benefits that they gained from the program, is completed by using the participatory approach. The key variables used for the qualitative study are the progress on educational expenditure for the children, health expenditure and housing conditions, after participating in the microfinance program.

Chin, the study population is one of the ethnic minority groups in Myanmar. The mutual trust among villagers is strong, so that a microfinance program based on the group-lending method, as well as mutual-guarantees among the community, is not difficult to implement. Due to lower development levels and communication constraints within Myanmar, young people have migrated to other countries. Most of the people left in the villages are the elderly and children. Chin families value housing and clothing more than food consumption. Most people depend on fire wood for cooking, because of the lack of electricity. The wood consumption is relatively high in Chin State.

3.1. The Description of Variables

3.1.1. Dependent Variables

Household income is taken on an annual basis, since the agricultural households receive income on a variable frequency basis in a year, and it is easy to calculate. There are eight sources of income: agricultural income, breeding, trading, labor in India[7], home business, government staff or skillful staff, and remittances. For the data analysis, the total annual income is used.

Household expenditure is divided into four main categories: rice consumption, health care, education and social activities, and on a monthly basis. Among them, expenditure on rice is expected to be significant because the price of rice in Chin State is the highest compared to

[7] Most of the villagers work as temporary labors on Indian-Myanmar border.

any other regions in Myanmar. On the other hand, total monthly expenditure is also used for the data analysis.

3.1.2. Independent Variables

The number of loan cycles in months, is used as a proxy of the membership variable instead of using dummy variables 0 and 1.

Household characteristics variables are the age of the household head, the gender of the household head (1 = female, 0 = otherwise), the number of students, the number of children aged under five, the number of local workers, the number of overseas workers, and the number of dependents.

The variables on village characteristics, such as availability of electricity, secondary school, type of road, distance to town, wage rates and prices of piglet and chicken, are also collected. However, only distance to the town proves to be different, whilst the others are almost the same, to all samples according to the survey data. Thus, only the variable on distance to town can be applied.

4. Empirical Results

This section presents the results of the impact assessment analysis on the single impact equation (6) shown in section 3. The impact assessment is applied by using the regression approach. It is separated into three groups: impacts on the household's annual income, impacts on the household's monthly expenditure, and impact on the household's consumption of rice. The dependent variables are changed into logarithm by using a Weighted Least Squares (WLS) method to avoid the heteroskedasticity problem[8]. It is interpreted that the unit change in independent variables affects the percentage change in dependent variables. Hence, household outcomes are uncensored, that is, the household annual income and household monthly expenditure are non-zero variables; Ordinary Least Squares (OLS) is applied for an estimation of the impact of microfinance membership.

[8] One of the limitations of this model is that there may be correlation among independent variables.

4.1. Impact of Microfinance on Household Total Annual Income

The result shows that the overall model is significant at a 99 percent level, and with a positive effect (R-squared = 0.289; p-value = 0.000) with the intercept of 12.5030.

The type of household head, which is the dummy independent variable (Female = 1; Male = 0) is highly and negatively significant at 99 percent level of confidence interval (-0.6430; p-value = 0.0020) with the annual income. It implies that the female household head has to struggle more when compared to her male counterpart. The household annual income is likely decreased by 6.4 percent.

The distance to marketplace, which is an important variable for the analysis, shows that there is a negative relationship with income, with a large significance level (-0.0310, p=0.0030). In Chin State, it cannot be assumed that the village which is closest to town might have more income compared to one that is far away, because the longer the distance from the main townships of Hakha, Falam and Tedim, the closer to the India border the village is, where people have seasonal job opportunities. It can also be linked with the qualitative analysis. The majority of the Chin-MFI borrowers also use the loan for their labor work on the India border. Before they go there, they buy food on the way. The minimum duration the worker stays there are about three months and a maximum of around six months. The labor work in India makes a lot of money when compared to agricultural work in the village. Some people use the loans not only for their labor work, but also for trading. The loan provided by the microfinance program is also enough for some poor families to buy food rations to work in India, as mentioned above.

Out of the dummy variables, the different sources of income include income from agriculture (0.6640; p-value = 0.0000), which has positive relationship with the annual income of 99 percent confidence, and income from home businesses and remittances, which have a 95 percent and 99 percent level of (0.4640; p-value = 0.0120) and (0.9480; p-value = 0.0000) respectively. Additionally, the monthly base income from working in government service is also significant, at 95 percent (0.4300; p-value = 0.0260).

It is not a surprise that income is highly reliant on remittances, since the emigration rate is very high in Chin State. In the survey area, almost all of the household have a member who works in other countries, mostly in Mizoram in India.

Income from home businesses has also a strong positive relationship with household income. In Chin State, the majority of young women have a weaving business at home, especially in the villages near the capital, Hakha Township. Chin fabric is very expensive and popular. On average, one suit for a man costs about 150,000 Kyat, which is around 1000 US

Dollars. Chin people also value their traditional fabric.

The number of loan cycles in months, which is also described as the membership variable, is insignificant. The coefficient also tells that there is no relationship between loan cycles and improvement of income. This implies that the borrowers do not benefit significantly from the Chin-MFI. One possible reason for this is the small size of the loan amounts provided by the Chin-MFI.

The size of loan provided to a household is only just enough to buy a pig, for a household in the animal husbandry business. The life span of the loan is twelve months and when it is due, it is expected to be repaid according to the repayment schedule. In order to repay the loan, it is likely that this same household would have to sell the pig and obviously that would leave little profit for them, and sometimes even cause a loss.

Moreover, and worst of all, the pig might die due to some disease, a lack of food, poor husbandry techniques, or due to sudden and extreme changes in the weather. In this case, the household would have to borrow loans from other private sources or from individuals, in order for to repay the loan.

It can be concluded that Chin-MFI membership is not statistically significant according to the quantitative data analysis. However, it can be said that it has contributed to the borrowers lives for some aspects of their expenses, such as for household repairs, food security and education, because the loan use is flexible. It is also found that in some villages, the households that obtain loans are nearly all successful in their businesses, especially those who invest in a home based business, an orchard business, or those who perform businesses in India. The loans are most useful and meaningful to those households that have already invested in a business. Only a few of these kinds of household exist in the survey.

Table 1 Effect of Chin-MFI Membership on Household Total Annual Income

	Coefficient		Std. Error
(Constant)	12.5030	***	0.3730
Distance to the nearest market place (town)	-0.0310	***	0.0100
Age of household head	-0.0030		0.0070
Education of household head	0.1060		0.0650
Female household head	-0.6430	***	0.2070
Number of members working in other countries	-0.0400		0.0930
Number of household members working in village	0.0420		0.0480
Number of students	-0.0020		0.0380
Number of children aged under five	-0.0830		0.0610
Number of dependents	-0.0450		0.0610
Source of income (Agriculture)	0.6640	***	0.1490
Source of income (Breeding)	0.0360		0.1320
Source of income (Trading)	-0.3630		0.2910
Source of income (Home business)	0.4640	**	0.1840
Source of income (Government service)	0.4300	**	0.1920
Source of income (Labor in India)	0.1310		0.1770
Source of income (Remittance)	0.9480	***	0.1940
Number of loan cycle in months	0.0000		0.0020
R-squared = 0.290			

Note: ***, **, * describe the rejection of null hypothesis at the significant level of 99 percent, 95 percent and 90 percent respectively.

Source: Author's survey data.

4.2. Impact of Microfinance on Household Total Monthly Expenditure

The overall data is significant to 99 percent, with R-squared of 0.258. It can be seen that the representing variable of the Chin-MFI membership is highly significant at 99 percent, with 0.003; p-value = 0.0070. Therefore, it can be implied that if one month of a loan cycle is increased, household monthly expenditure is likely to increase by 0.03 percent.

To be more precise, the following figure shows the perception of borrowers regarding the changes in expenditure after participating in the Chin-MFI program. It can be seen that 34 percent of members agreed that they could spend more on the household business sector,

especially for agriculture and pig breeding. According to the survey, the majority of members themselves identified that they could buy farm equipment such as fertilizer, pipe and seeds in good time, because of the Chin-MFI loan. However, twenty percent of the members perceived that their expenditure was unchanged. Eighteen percent of members were able to spend more on food, whereas twelve percent agreed that their housing condition has improved.

Chin people tend to value their houses more than other ethnic groups in Myanmar. Thus, the expenditure on house repairs seems relatively high. Regarding expenditure on food, a significant number of borrowers used their loan to borrow rice from the grocery shops in the villages. Thus, the poor households were convinced that they could spend more on food. The other main expenditures were on education for the children, and health.

The total expenditure is positively correlated with the number of students and the number of dependents in the households, at a 99 percent significance level with 0.135; p-value = 0.0000 and 0.119; p-value = 0.0010, respectively. It can be implied that expenditure is increased by the number of dependency groups in the families.

There is a negative relationship with distance to town and monthly expenditure, at 95 percent level significance, with -0.012; p-value = 0.0420. The closer to the town, the less expenditure is likely to be. Since the transportation is poor in Chin State, it is possible that by being one kilometer closer to town, expenditure will decrease by 0.1 percent.

Households which have an income from breeding and from remittances, spend a lot more. These two variables are statistically significant with 0.166; p = 0.0310 and 0.231; p = 0.0410, at a 95 percent significance level, whereas the source of income from the laboring business in India is significant at a 90 percent level, with 0.187; p = 0.0680.

Table 2 Effect of Chin-MFI on Household Total Monthly Expenditure

	Coefficient	Std. Error
(Constant)	9.941 ***	0.216
Distance to the nearest market place (town)	-0.012 **	0.006
Age of household head	0.002	0.004
Education of household head	-0.026	0.038
Female household head	0.039	0.12
Number of members working in other countries	0.042	0.054
Number of household members working in village	0.032	0.028
Number of students	0.135 ***	0.022
Number of children aged under five	0.048	0.035
Number of dependents	0.119 ***	0.035
Source of income (Agriculture)	0.011	0.086
Source of income (Breeding)	0.166 **	0.076
Source of income (Trading)	-0.033	0.168
Source of income (Home business)	0.083	0.106
Source of income (Government service)	0.173 *	0.111
Source of income (Labor in India)	0.187	0.102
Source of income (Remittance)	0.231 **	0.112
Number of loan cycle in months	0.003 ***	0.001
R-squared = 0.258		

Note: ***, **, * describe the rejection of null hypothesis at the significant level of 99 percent, 95 percent and 90 percent respectively.

Source: Author's survey data.

4.3. Impact of Microfinance on Household Per Capita Consumption of Rice

The dependent variable which can indicate food security, household monthly consumption on rice, is statistically significant at 99 percent (R-squared 0.252), with other explanatory variables.

Membership of Chin-MFI has a strong positive relationship with per capita rice consumption as expected, at a 99 percent significance level. It can be explained that a one month loan cycle can increase household expenditure on rice by 0.2 percent (0.0020; p-value = 0.0050). According to the survey records, the majority of the poor households depend on their village grocery store, where they buy rice on credit terms. The debts are repaid when

they have money available, or by taking out loans from other private sources, such as from friends and relatives. Moreover, right after clearing their debts, the debt cycle starts again, with another purchase of rice on credit terms. This is very burdensome for the families, and the situation might exist throughout their life time.

Nevertheless, as an antidote to this issue, the Chin-MFI provides short term small loans to these poor households and the burden is immediately lifted and the problem solved for a short while. Thus, the Chin-MFI mainly solves the daily problems and issues of the poor households, with respect to their struggles to obtain food.

The negative relationship between the number of children under five and the number of dependents in the household (-0.1150; p-value = 0.0000, and -0.0850; p-value = 0.0050) shows that the more dependency groups there are in the family, the more that per capita consumption is likely to decrease.

The age of the household head (0.0070; p-value = 0.0370), and those households which have laborers working in India (0.1820; p-value = 0.0380), are statistically significant at the 95 percent level.

The variables on the number of household members working in other countries (-0.0860; p-value = 0.0620) and households receiving remittances (-0.1740; p-value = 0.0710), have a significant relationship with the per capita consumption of rice, at a 90 percent level.

Table 3 Effect on Chin-MFI Membership on Household Per Capita Consumption of Rice

	Coefficient		Std. Error
(Constant)	8.4390	***	0.1840
Distance to the nearest market place (town)	-0.0080		0.0050
Age of household head	0.0070	**	0.0030
Education of household head	-0.0100		0.0320
Female household head	0.0890		0.1020
Number of members working in other countries	-0.0860	*	0.0460
Number of household members working in village	-0.0850		0.0240
Number of students	-0.0270		0.0190
Number of children aged under five	-0.1150	***	0.0300
Number of dependents	-0.0850	***	0.0300
Source of income (Agriculture)	-0.0570		0.0730
Source of income (Breeding)	-0.0300		0.0650
Source of income (Trading)	-0.1020		0.1430
Source of income (Home business)	0.0990		0.0900
Source of income (Government service)	0.0420		0.0940
Source of income (Labor in India)	0.1820	**	0.0870
Source of income (Remittance)	-0.1740	*	0.0960
Number of loan cycle in months	0.0020	***	0.0010
R-squared = 0.252			

Note: ***, **, * describe the rejection of null hypothesis at the significant level of 99 percent, 95 percent and 90 percent respectively.

Source: Author's survey data.

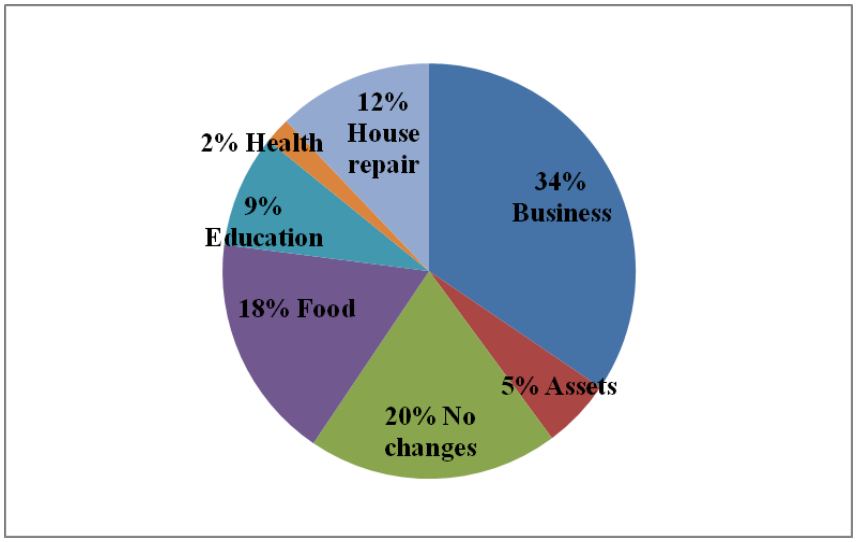
4.4. Perception of Chin-Microfinance Loan Users on the Progress of the Households

The qualitative analysis on the perception of members regarding the progress of their households by participating in the Chin-MFI program has been interpreted. Since data on the value of land and the value of household assets is omitted in this study, the perception of the microfinance loan users is important, to prove whether borrowers benefit from the microfinance loan. In the analysis, the real name of the interviewees is not mentioned.

Although the return that the borrower gained from the loan was insignificant, since the loan amount was small, it can be said that he received the initial capital needed to set up a

new business for his family, by applying for a Chin-MFI loan. It is found that onion, garlic and tomato provide lots of profit in a drop-out village. Thus, the amount of investment in agriculture is high when compared to the other villages. The villagers are not interested in the Chin-MFI program, because the loan amounts are unattractive for them. The demand for the Chin-MFI program is not equal with the supply. Both the borrowers and the MFI have to deal with the barrier of inflation, which is a major constraint. For the sustainability of the institution, if it encourages saving in the borrowers, it cannot reach operational sufficiency, because of market inflation. The external and uncontrolled inflation causes the MFI. It is also noted that the procedure required to form a group to apply for a loan, is also one of the barriers for the borrowers, since it takes time to form a group.

Figure 3 Perception of Chin-MFI Members on the Improvement after Joining the MFI Program



Source: Author's survey data

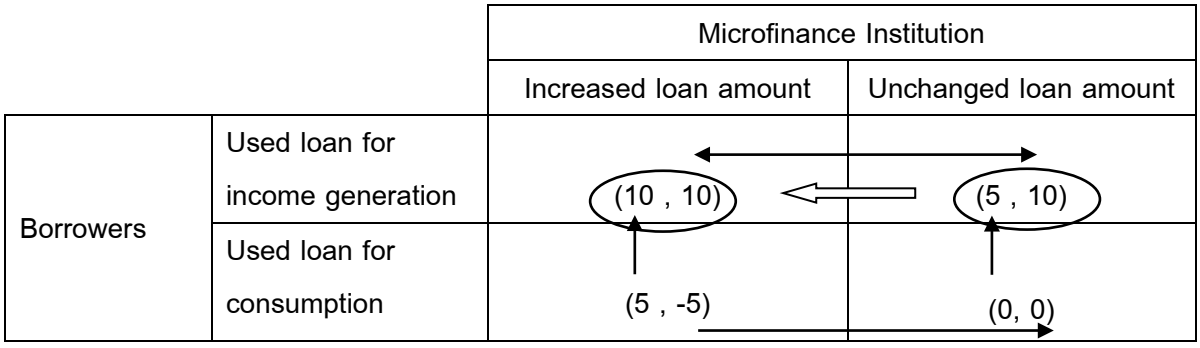
4.5. The Strategic Situations of Microfinance Institutions and their Borrowers

The behaviors found within the strategic situations of microfinance institutions and their lenders, can be placed into a mathematical format in accordance with game theory.

The main objective of the microfinance institution is to provide credit to the poor, in order to allow them to develop income generating activities, and thus to improve the welfare of their households. The current situation in northern Chin State is that the loan amounts provided by the institution are insufficient, though most of the borrowers have used the loans for their own consumption. Evidence from the qualitative analysis carried out as part of this study, shows that borrowers would like to have a loan sufficient to do business. In light of this

finding, the institution could implement two strategies, these being 1) to increase the loan amount, or 2) to leave the loan amount unchanged whilst the borrowers either 1) use the loan for income generating activities, or 2) use the loan for their own consumption. If the institution increased the loan amount and the poor used it for income generating activities, then since the borrowers gain the profits and benefits, the social and economical goals of the institution would be achieved. At the same time, the borrowers' welfare would be improved. It is possible to indentify the above situation in a mathematical way, as both of the players will get a ten score[9], since each will gain mutual benefits (a 10,10 score). If the borrowers use it for their own consumption, they will receive a score of five, while the institution will receive minus-five (a 5,-5 score). Even though the borrowers' welfare is not improved through income generating activities, they will fulfill their daily consumption, whereas the institution will have failed to achieve its goal. If the amount that the microfinance institution provide remains unchanged, that is, an insufficient loan amount, then even though the borrowers may use the loan for income generating activities, the return they receive will be not enough to improve their welfare. However, the institution will still be able to reach its goal by means of a number of income generating activities. In this case, a five score will be attained for the borrowers and a ten score for the institution (a score of 5, 10). If the borrowers use the loans for their own consumption, both of them will receive no benefits, and so a zero score for each will be attained (0,0).

Figure 4 **Strategic Situations of Microfinance Institution and its Borrowers (loan size and utilization of loans)[10]**



Source: Created by author

[9] Score represents the utility of microfinance institution and borrowers.

[10] The first numbers of each cell from the table represent the score of the borrowers whereas the second numbers are for the microfinance institution.

It can be seen clearly that the strategy that the microfinance institution unchanged the loan amount and borrowers used loans for the income generation activities dominated to increased loan amount with income generation activities.

5. Summary and Conclusion

The empirical results of this study proved that the Chin-MFI membership in Myanmar has no significant relationship with household income, although there is a positive, significant impact on household expenditure and per capita rice consumption. However, an impact assessment using quantitative data alone cannot provide a detailed picture of the overall effect on household welfare. According to the results from the qualitative research of this study, although it has not been a significant success story, it can be said that Chin-MFI loans have partly supported household's basic needs, such as rice consumption, education for their children and house repairs. Overall, the empirical results prove that the benefits the borrowers gain from the microfinance program only occur in the short term. Since the majority of borrowers use their loans directly for their own consumption, the result is not consistent the theories and concepts of microfinance, which say that microfinance improves the welfare of borrowers by allowing them to create their income generation activities. Furthermore, the program design that is the insufficient loan amount provided by Chin-MFI does not allow it to achieve its own goals and objectives. In summary, this study found that the welfare of the households as well as the social and economic goals of the microfinance institutions set up by the NGOs, failed, in a country which does not create sufficient market opportunities.

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