

Chapter 10

Impacts of Microfinance Program on Rural Households in Myanmar: An Application of Logistic Regression Model



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1 Introduction

About three billion people, half of the world's population, are living on the income of less than two dollars a day. Poverty remains a matter of growing concern in many developing countries of the world. One study in 2006 showed that the ratio of the income between the 5% richest and 5% poorest of the population was 74 and 1, as compared to the ratio in 1960, which was 30 and 1. To enhance international development, the United Nations Organization (UNO) has introduced eight millennium development goals which aimed to eradicate poverty by half by 2015 (United Nations, 2006).

According to the report of FAO and Vulnerability Information and Mapping System (FIVIMS) program (Shwe & Hlaing, 2011) indicated that out of the national total of 324 townships, 52 townships were classified as being very highly vulnerable, 49 highly vulnerable, 62 moderately vulnerable, and the remaining 122 having a relatively low level of vulnerability. Among the 52 very highly vulnerable townships, 29 were located in Shan State. All townships in Chin State and two-third of townships in Kachin State were also reported to be highly vulnerable and mostly located in remote areas. Townships in Bago Division, Mon State and Yangon Division were reported to be the least vulnerable.

In this regards, PACT, Microfinance (MF) Program in the form of financial development that has its primary aim to alleviate the poverty and also which is significant source of finance for poor, lower income people in Myanmar. Governments, donors and NGOS, around the world responded enthusiastically with plans and

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promised to work together towards the realization of these goals. In the recognition of MF, the UNO celebrated the year 2005 as a year of micro-credit, as a result this financing instrument is perceived worldwide as a very effective mean against hunger and poverty, mainly in developing countries.

Therefore, the objectives of this chapter are: firstly to compare the demographic and socio-economic characteristics of the client and non-clients. Secondly, descriptive analysis will deal on the impact of MF program on changes in earned income, household assets, technology, education, saving, food intake, clothing, housing improvement and health aspects of the clients. Finally, Logistic Regression Analysis is used in order to examine the determinants or influencing factors on taking loans. The analysis used data on 102 clients who are participating in the program and 60 who are not participating. To do a case study, PACT Myanmar MF Program which is operating in Dry Zone Area of central Myanmar was chosen.

2 Methodology

In October 2008, a survey was conducted of 162 households in six villages of Kyaukpadaung Township which have saving groups by PACT MF program. Two strata are identified taking loans (Clients 102) and not taking loans (Non-Clients 60) prior to collecting data. Descriptive analysis is largely used to determine the comparison between two groups of socio-economic characteristics and after participating in the program what changes are occurred on clients. In this chapter, the empirical analysis of the determinants or influencing factors on taking microfinance program in the study area is carried out by using Logistic Regression Model. Logistic Regression Model is a form of regression which is used when the dependent variable is dichotomy, and the independents are of any types (categorical and continuous variables). In a Logit Model, the endogenous variable is a dummy or categorical variable with 1 representing household is taking loan and 0 if the household is not taking loan. In this model, 11 independent variables were tested to examine the determinants or influencing factors on taking loans such as family size, marital status, gender, age, education, land holding size, number of crops, income, technology adoption, participating in social activity, and establishing new business.

3 Results and Discussion

3.1 *Demographic and Socioeconomic Characteristics*

Table 1 provides the information about the demographic and socioeconomic characteristics for both respondents. In terms of gender distribution of the respondents, 77.45% of the clients are female while 22.55% are male. The main shares of the

Table 1 Descriptive analysis of demographic and socioeconomic characteristics of the clients and non-clients

Variables	Measuring group	Clients (<i>n</i> = 102)		Non-clients (<i>n</i> = 60)	
		Frequency	Percentage	Frequency	Percentage
Gender	Male	23	22.5	43	71.7
	Female	79	77.5	17	28.3
Age (years)	<35	23	22.5	6	10.0
	36–50	51	50.0	13	21.7
	>51	28	27.5	41	68.3
Marital status	Married	66	64.7	59	98.3
	Single	36	35.3	1	1.7
Educational	Not at all	18	17.6	13	21.7
	Primary	29	28.2	31	51.7
	Middle	43	42.4	13	21.7
	High	12	11.8	3	4.9
No. of family member	<5	58	57.0	18	30.0
	>5	44	43.0	42	70.0
Established new microenterprise	Yes	48	47.1	14	23.3
	No	54	52.9	46	76.7

respondents are women that testify to the fact that most of the beneficiaries of microfinance are female. In some microfinance institutions like the Grameen Bank which is the biggest microfinance institution in terms of outreach, 96% of their clients are women.

In terms of age, although 50% of the clients are in the age group of 36 to 50 years, non-clients are 21.6%, and above 51 years for Clients and Non-Clients are 27.7%, 68.4% respectively. Here it can be concluded that the younger the age of the respondents the more they want to participate in microfinance program. From this survey, many of the Clients (42.2%) had at least middle education, however for non-clients about 22%. According to the result of marital status, 1.7% of non-clients still single when in clients 35.3%, which indicates that respondents who unmarried are more likely to join in microfinance program. In my study, the average family size of the clients (5.5ppl) is lower than non-clients (7.2ppl). It is because as mentioned before 35.3% of clients still unmarried.

The analysis also reveals that 47.1% of clients have owned small micro-enterprise after joining the program and on the other hand for non-clients only 23.3% (last 3 years). It indicates that PACT MF program is contributing a lot to start new small-scale businesses as well as in the expansion of old businesses. Therefore, we can see that more clients have owned small micro-enterprise (SME) and also can expand their business however higher proportion of non-clients did not have owned SME. So indirectly, PACT program can support the clients to earn income from SME.

Table 2 The reasons for participating in the programs

Items	Units	Clients (<i>n</i> = 102)
Lower interest rate	%	95.5
No collateral	%	85.0
Need loan	%	77.6
Group work	%	46.5

Note Multiple responses possible

Table 3 The reasons for not participating in the program

Items	Units	Non-Clients (<i>n</i> = 60)
Procedure too complicated	%	76.7
Fear of legal action	%	63.3
Not interesting	%	60.0
No need loan	%	53.3
Lack of information	%	43.0
Unfavorable loan	%	30.0

Note Multiple responses possible

Table 2 indicated that regarding to the reasons for participating in the microfinance program, most of the clients (95.5%) are likely to participated in the microfinance program because of the lower interest rate which is the major reason and then followed by 85% of the clients are because of no collateral and 77.6%, 46.5% are the clients' need loan and they enjoyed group work in the program.

Table 3 shows the reasons for why non-clients did not participate in the program. The most finding reasons are such procedures too complicated (77%), fear of legal action when default (63%), not interesting the program (60%), because they don't need loan (53%). These findings are important to the program to provide suggestion as it will help them to remove those obstacles in order to make MF assistance program more attractive to people.

3.2 Use Loan Funds

The program emphasizes the use of loan funds in the respective enterprise. Clients may use part or all of the loan funds in their agriculture fields, small micro-enterprises, however, and set aside a portion to enable them to make their first loan repayments. The loan funds tend to be used on agriculture and enterprise. Some funds also are used for household needs, and the use of the funds varied across a range of needs such as school expenditures, and food.

3.3 *The Impact of Microfinance on Client Households' Livelihoods*

According to the Table 4, client respondents are also empowered through the program participation increasing in using the among of income on accumulation of durable household assets such as TV, VCD, furniture, etc. Acquisition of assets not only indicates a higher standard of living, but also a store of wealth that can be rented out of sold in case of an extreme financial crisis. Program participation is strongly associated with specific types of diversification of income sources such as establishing new enterprises and increasing the number of crops cultivated.

Regarding to the results of household income, the clients (53%) have reported that increase in their income is the main reason effectiveness of participating in the program. This program can help them to solve main problem like poverty, isolated from community, physical illness. Among the clients, about 63% can improve good diet with increasing rate and able to save money. In addition, they also able to send their children to school and to pay for their health care.

It is also true that household saving enables clients (39%) to deal with severe crises and to cope up with the shocks and reduce vulnerability and bought property can be sold also to deal with the crises. Saving is critical as it can be used for the expansion of economic and agricultural activities. The findings also reported that clients (53%) had increased incomes which enable them to save and to buy property.

Moreover, the other positive impacts of the program are in the education sector and health care sector. Education is a human right and an important ingredient for any progress in any society. It contributes to the accumulation of human capital. Education is one of the important components to fight poverty, disease and ignorance. And also the health care for the wellbeing of the clients is more productive in society and resources that go to health care if a client is not sick can be saved or invested in

Table 4 Overall changes on the livelihoods of the clients

Category	Units	Increased	Not changed	Decreased	Rank
Family income	%	52.9	33.4	13.7	5
Expenditure on housing	%	65.7	–	34.3	1
Expenditure on furniture	%	59.8	–	40.1	3
Household saving	%	39.2	37.3	23.5	8
Food intake expenses	%	62.8	28.4	8.8	2
Health facilities	%	57.8	42.2	–	4
Education expenses	%	46.1	25.5	28.4	6
Clothing expenses	%	21.5	52	26.5	9
Household assets	%	45.2	31	23.8	7
Technology adoption rate	%	57.8	42.2	–	4

Note Multiple responses possible; Technology includes changed cropping pattern, processed farm produce, planted improved varieties, and used chemical fertilizers

income generating activities, hence progress in society and out of the poverty trap. In addition, the positive impact is viewed in improved food intake and accommodation which became better because of the microfinance program.

Therefore, microfinance program positively improved the living conditions of rural households who participated in the program as evidence by changes in their income, savings, housing improvement, education expenses, food intake, health care and clothing expenses. If the clients adopted new technology, they can improve their agricultural production. If the yields increase, their incomes also increase. Therefore, there is a positive relationship between them.

3.4 The Influencing Factors on Taking Loan by Using Logistic Regression Model

This chapter is also attempted to analyze influencing factors or determinants of taking loan on PACT microfinance program in Dry Zone Area of Myanmar by using Logistic Regression Model. Analysis of the survey data revealed that nine out of the eleven variables included in the model (Table 5) are significant (at 1 percent to 10 percent) in explaining the variation in taking loans status of household in the study area. These variables are family size, marital status, gender, age, educational level, land holding size, number of crops, technology adoption, and establishing new business and have signs in accordance with my hypotheses except family size and land holding size. The coefficients of Income and participating in social activities are insignificant variables.

The age of the respondents has a negative coefficient with significant at 1% level. This probably indicated that the older the respondents, the lower the probability that household would be taking loan. The younger respondents tend to be directly participated by increasing rate of taking loan than older respondents. In terms of the household size, it is highly significant at 1% level and having negative impact on the probability of taking loan. It suggests that higher household size has a decreasing rate on taking loan. It is because in my survey most of the clients have one or two members in their family, which indicated that respondents are either unmarried, or have no children. On the other hand, 98% of non-clients are married and almost their family members interested in working farms, which indicates that they don't want to participate in the microfinance program.

The results also show that the income variable is insignificant which means that there is no relationship and not affecting between whether the income higher or lower and taking loan. Apart from income, the other significant variables in the model are the educational level, gender of the respondents, marital status, number of crops did they grow, awareness of technology adoption, and establishing new business. This implies that the probability of taking loan is higher with educated, female, increased number of crops, higher adopted technology, and established new business. Regarding to the land holding size which is significant at 5% level, however, affect on taking loan is

Table 5 The results of logistic regression analysis

Independent variables	Coefficients (β)	Std. error	Wald statistics	Significance	Exp (β) or odds ratio
FSize	-0.77	0.23	11.17	***	0.46
MStatus	2.83	1.22	5.42	**	16.92
Gender	2.10	0.89	5.61	**	8.18
Age	-0.15	0.05	7.75	***	0.86
Edu:level	0.45	0.18	6.40	**	1.57
LHSize	-0.34	0.14	6.32	**	0.71
NCrops	1.36	0.54	6.28	**	3.90
Income	0.00	0.00	0.13	n.s	1.00
TechAdop	1.82	0.97	3.53	*	6.16
SocAct	0.76	0.85	0.80	n.s	2.14
Estbus:	2.56	0.95	7.21	**	12.93
Constant	3.21	2.31	1.12	n.s	11.54

Note $n = 162$, Nageikerke R square = 0.85, Correctly predicted = 93.2%, ***, **, and * indicate significance level at 1%, 5% and 10%, respectively

negatively. For variable of participating in social activity it is insignificant and no matter this variable increase or decrease had no affect on taking loan.

4 Conclusion

The main problems of MF program are: (1) the procedures are very complicated, it means that not to become a membership easily, (2) their rules (eg. Difficult to pay back once in two weeks), (3) for the older people, some training made bring to them, (4) need widely to distribute the information to all villages. In conclusion, the results in this research imply that the respondents who are male, older, primary educational level, lower assets and lower total income are higher percentage in non-clients than clients. In MF program those who are female, single, younger, middle educational level, small family size and small scale land holding size more willingly want to join. The increasing number of crops, established new business and higher adoption of technology are also influenced on the probability of being taken loan. More than half of the clients can improve on their livelihoods such as housing condition, food intake, furniture, and health facilities with increasing rate. Household income and education expenses are also increasing however the percentage is still lower than the other categories. Therefore, PACT MF program should introduce income generating activities and effective education program which open up more income-earning opportunities for the clients especially in the non-farm sector. Regarding to the reasons for not participating, PACT MF is suggested to collaborate with extension

services to develop information program in order to disseminate the information to as many people as possible and also the program should be made easier in terms of loan procedures, legal action. More information on the advantage of taking loans should be made in order to attract peoples to join the program.

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