Impact of Microfinance on Poverty Reduction: Evidence from Sri Lanka

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Abstract

The discourse on impact of microfinance (MF) has been divided between those who see it as an effective and powerful tool for poverty reduction and others who are flippant of its capabilities as a cure-all panacea for development. This paper seeks to investigate the empirical evidence on the impact of MF with respect to poverty reduction. To examine the impact of MF on income-poverty, two leading Microfinance Institutions (MFIs), SANASA-Thrift and Credit Co-operative Societies (TCCSs) and Sarvodaya Economic Enterprise Development Services (Guarantee) Limited (SEEDS) in Kandy District in Sri Lanka were used in the study. Income-poverty analysis revealed that 2/3 of households, who were 'below poverty line' category before micro financing were empowered financially after micro financing started. Econometrics analysis illustrated that the variables investigated in the study namely, household income level before MF, distance to MFI, number of years the credit has been used, credit amount, level of education, credit-plus services, ownership, and market availability were statistically significant in the first regression model. However, in the second model, credit-plus services and ownership were found not significant. Statistical test of income empowerment indicated that if cumulative credit with credit-plus services is available, then the probability of empowerment is significantly higher.

Keywords: Poverty; Income-poverty; Empowerment; Microfinance

1. Introduction

Microfinance (MF) provides a broad range of financial services such as deposits, credits and payment services to the poor and low income households via their microenterprises (ADB, 2000). Remenyi (1997) pointed out that MF is increasingly recognized as an effective instrument for poverty reduction. Recent studies in developing countries suggest that MF has the potential to reduce poverty significantly through strengthening crisis-coping mechanisms, diversifying income-earning opportunities, building financial and other assets and improving socio-economic condition of poor (Swain et al., 2008; Khandker and Pitt, 2005; Khandker, 1998; Husain, 1998; Hashemi et al., 1996; Montgomery et al., 1996). However, others argue that the impact of MF is negligible in poverty reduction (Banerjee et al., 2009; Altay, 2007; Morduch, 1998). Some researchers have also argued that the hardcore poor are excluded from the MF programs (Daley-Harris and Zimmerman, 2009; Ahmed et al., 2006; Hashemi, 2001). Moreover, a comparative study of Vanuatu and El Salvador, Daley-Harris and Zimmerman (2009) showed that when MF is used to meet day-to-day consumption it can lead to debt for the borrowers.

Over the past three decades, MF institutions (MFIs) have adopted innovative methods of providing MF services to poor households. Two main approaches on the role of MF intermediation in poverty reduction can be identified (Remenyi, 2002). The first approach is the Minimalist Approach in which the MFIs offer only financial services in the form of credit. These MFIs are unwilling to provide non-financial services due to multiple reasons, ranging from high administrative costs to high transaction costs. On the other hand, MFIs that follow the second approach namely, Credit-Plus Approach, provide other services in addition to financial services. These non-financial services may include skill development, training, educational activities, marketing assistance, supply of inputs and business development services[1]. According to this

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[1]   Business Development Services includes technical assistance and services such as training on business and financial management and, accounts/book keeping.

approach, the provision of credit alone will not guarantee that the receivers of credit use scarce capital in productive manner. Therefore the recovery of loans is not ensured. These services include, mainly the services that would assist entrepreneurs and the self-employed in developing their businesses, provided with, or prior to, the provision of credit facilities.

In this context, the main objective of this paper is to investigate the impact of MF on poverty alleviation under the two main MF approaches referred to above, minimalist and credit-plus. The rest of the paper is organized as follows: Section one presents an introduction to the study. The section that follows reviews relevant literature. Section three describes the research methodology. Section four presents results and discussion while the last section presents conclusions and policy implications.

2.   Literature Review

The discourse on causes to poverty of rural entities and effects of poverty have cyclical relationship with economic and social vulnerability of households characterized by lack of economic freedom, accessibility of markets and knowledge, and limitation of capital formation (Sen, 1999; Todaro and Smith, 2003). The economic, social and political capabilities of the poor do not come up under this situation in which capabilities are underutilized in this unfavorable scenario. According to the report of the UNDP (1996), the core concept of poverty is *lack of choices and opportunities.*This lack of choice is often due to isolation, high risks of losing one's few assets, and a lack of access to productive resources such as skills, information, land or credit.This may be due to marginalization and exclusion. Those factors compound to create a high level of vulnerability for the poor. The difficulty of access to resources brings low economic productivity.

An attentiveness on poverty as 'income-poverty' is usually associated with a conceptualization of poverty-reduction; i.e. moving low income groups from 'below poverty line' to a stable 'above poverty line' situation. This leads to a

focus on promotional strategies 'raising persistently low incomes' (Dreze and Sen, 1989) which, in terms of financial services, emphasize the provision of credit for income generation through self-employment. By contrast, a broader view of poverty that conceptualizes income levels as fluctuating and the dampening of dramatic reductions in income (and other entitlements) as a major means for poverty reduction, introduces quite diverse strategic emphases (Hulme and Mosley, 1996). Protectional strategies (basically financial) become significant: in terms of financial services this fosters a focus on voluntary savings mechanisms, emergency consumption loans and relatively low-risk income generation activities that are unlikely to create indebtedness. Effective promotional strategies that raise low income people's incomes and create additional assets may induce low income groups to undertake investments that they had previously regarded as being too risky (Hulme and Mosley, 1996).

MF allows the poor to get out of poverty through their own efforts, by providing them with the financial means to realize their entrepreneurial potential (Chang, 2010; Hulme and Mosley, 1996). In spite of lending to poor people who were traditionally considered to be high-risk cases, MFIs verified a very high repayment ratio, showing that the poor are bankable (Remenyi, 1997). Poor women are particularly empowered by microcredit, as it gives them ability to earn an income and thus improve their bargaining positions (Gunathilake and de Silva, 2010; Chang, 2010). Simanowitz (2001) points out that the impact of MF on poverty alleviation has recently gained a prominent position on the MF agenda. However, MF may not be a cure to eradicate poverty but a component of the fight against poverty and vulnerability (Hulme and Mosley, (1996). According to Morduch and Haley (2002), MF has proven to be an effective and powerful tool for poverty reduction. Robinson (2001) states that, among the economically active poor of the developing world, there is strong demand for small-scale commercial financial services - for both credit and savings. According to Hossain (1988), 'Grameen Bank members had income of 43 percent higher than the target group in the control villages. McCulloch and Bob (2000), Schuler et al., 1997; Holcombe, 1995; Otero and Rhyne, 1994; Remenyi, 1991 also confirmed

that MF brings about immense socioeconomic benefits including income generation ability and vulnerability reduction of clients. According to the Microcredit Summit Campaign Report (2006), by offering poor households access to formal or semi-formal financial services, MF has the potential to empower its clients in creating income–generating opportunities, and by group formation and management could link clients with networks beyond their neighborhood or community.

In contrast, Oommen (2008), Buckley (1997), Wood and Shariff (1997) and Adams and von Pischke (1992) stated that there are no considerable positive impacts by MF interventions but negative impacts. Between these two extremes, Fernandez (2005), Mosley and Hulme (1998), Hulme and Mosley (1996) pointed out that even though MF interventions have several beneficial effects on poverty they do not help the poor, as is so often claimed. Meanwhile, Bello (2006) stated that MF is a good tool as a survival strategy but it is not a key to development. Some studies revealed that the poorest households benefit less from access to credit than households that are located further up the poverty pyramid. The vulnerable poor should not be under-privileged in access to MF just because they have fewer investment opportunities than their rich neighbours (Mosley and Hulme, 1998). There is little evidence that clients with existing micro enterprises or employment (often defined as the economically active) are the only ones that can benefit from MF (Robinson, 2001; McCulloch and Bob, 2000; Hulme and Mosley, 1996).

Studies of MF in Sri Lanka show the same divergence of opinion as those above. Some have claimed that microfinance has had a significant positive impact on household income, as reported by Mithrarathna (2003) and Dias (2001). They have reviewed the progress of the Women's Development Federation, also known as Janashakthi Banks, in Hambantota district. Wickrama (1998) confirmed that client's socio-economic condition has improved with the intervention of MF. Colombage (2004) found that even though, MF has several positive impacts on client's livelihood development, factors such as lack of

entrepreneurial skills, small size of loans, investing in low value added activities, limited product diversification and poor physical infrastructure adversely affect the clients' socio-economic development. Thilakarathne et al., (2005) have also argued that microcredit has had a significant positive impact on household's socio-economic conditions.In a more recent study, Ministry of Finance and Planning- Sri Lanka and GTZ (2008) have concluded that despite MFIs having a rather extensive coverage, there is still a large unmet demand for credit and poorer income groups are less able to derive the benefits of utilizing financial services than richer income groups. Another recent study of Colombage et al., (2008) has claimed that MF has positive impact on client's socio-economic development at various levels such as at family, business, community and at individual levels. Premaratne (2009) investigated the accessibility and affordability of rural MF services in Sri Lanka describing the constraints and opportunities in MFIs in rural economy. De Mel et al., (2008) have found that returns to capital were zero among female-owned microenterprises but in excess of 9 percent per month for male-owned enterprises. Gunathilake and de Silva (2010) have found that loan increases a woman's control over the loan-assisted project and through that it has a significant and positive impact on her level of empowerment.

From the studies reviewed above it can be concluded that although many of them show that microfinance has had a positive impact on poverty reduction, there is debate about the level of impact on poverty and socioeconomic vulnerability and about whether microfinance helps the poorest of the poor. As Banerjee et al., (2009) pointed out 'microcredit has spread extremely rapidly since its beginning in the late 1970s but whether and how much it helps the poor is the subject of intense debate'.

Using two leading MFIs operating in Kandy District of Sri Lanka, this study attempts to contribute to this debate by *investigating the empirical evidence on the impact of MF on income-poverty and credit-plus services provided by these two MFIs. Accordingly, the present study will attempt to answer the following research questions, namely, does microfinance reach the poor group in the*

district? Has microfinance reduced the income-poverty of these households? and do credit-plus services contribute positively to reduce poverty of clients?

3. Methodology

Two leading MFIs, TCCSs and SEEDS, operating in Kandy District of Sri Lanka were used for this study. The TCCSs and SEEDS provide their services to the people through a well established branch network. However, in Kandy the initiatives for MF projects seeking poverty reduction outcomes have had mixed results. In some programs they have worked satisfactorily while in some other instances they have not. As a result, the impact on households' socio-economic conditions has been often mixed. Some recent studies revealed that Sri Lanka's financial market is essentially a MF market with over 80 percent of households having total borrowings below Rs. 100,000.00 (Ministry of Finance and Planning and GTZ 2008). In addition to the government, a wide range of semiformal institutions, non-governmental organizations (NGOs) and some social institutions are engaged in providing MF in the country. In this context, this paper investigates the impact of MF on poverty reduction with special emphasis on credit-plus and minimalist approaches.

The study assessed the effects of MF on household income, comparing the current household income[2] level with Official Household Poverty Line. Categorization of households according to poverty line was based on household income and expenditure survey 2001/2002, Department of Census and Statistics, Ministry of Finance and Planning, Sri Lanka[3]. The Kandy district Official

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[2] Households Income was calculated in the field survey as follows; Income from paid employment/s during last month, other cash receipt of the household members during last month, income from non-agricultural activities during last month, income from agricultural activities paddy, other seasonal crops and tobacco, income from other agricultural activities, income in kind during last month and monthly rental value of owner occupied house.

[3] Average households income level of each Divisional Secretary Division was calculated based on income and expenditure data from household income and expenditure survey 2001/2002, Department of Census and Statistics and the Ministry of Finance and Planning, Sri Lanka.

Poverty Line in 2008 was Rs. 2,915.00 per person per month[4]. Total household expenditure was obtained by multiplying this amount by the number of family members in a household,

This study uses primary data collected from MF clients using a structured questionnaire. The quantitative information was supplemented by a series of discussions with local officials, key informants and focus groups. According to the National MF Study of Sri Lanka conducted in 2002 there are sixteen MF actors operating in Sri Lanka. Among them, TCCSs and SEEDS were selected for the study because they have well-established branch network island-wide except the North and East. Their MF services to the Sri Lankan poor have a long history. Sarvodaya is the most prominent and the largest commercialized local NGO and SEEDS is its financial arm with 160 Units in Kandy and 2369 in Sri Lanka) and TCCSs is the leading institution among the semi-formal MFIs in Sri Lanka covering the highest number of clients with a wide outreach (number of units in Kandy District is 258 and in Sri Lanka 1922)

The sample includes 268 households, 25 Units selected from each MFI in Kandy district. Both TCCSs and SEEDS were further stratified into minimalist and credit-plus approaches. According to bank officers, all units/branches follow credit-plus approach in both institutions. However, the discussions with unit managers revealed that some of the units followed only minimalist approach. There were 6 units in TCCS which followed minimalist approach while 19 units followed credit-plus approach. Likewise, there were 4 units in SEEDS that followed minimalist approach while 21 units followed credit-plus approach. Out of the total number of clients we selected 5 percent (Table1).

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[4] Minimum expenditure per person per month to meet the basic needs CCPI based year 2002 = 100 (Department of Census & Statistics – Sri Lanka).

Table 1
The Sample

	Minimalist		Credit Plus	
	TCCSs	SEEDS	TCCSs	SEEDS
Total	656	380	2227	2094
Sample (5%)	33	19	111	105

Empirical Model

Three single equation regression models were estimated using cross sectional data to analyze the impact of MF on poverty reduction of households.

Model 1: This model aims at identifying the factors affecting income enhancement due to the MF interventions. Dependent variable is Y - household's total monthly income after microcredit. Income-poverty is usually associated with a conceptualization of poverty-reduction as moving low income groups from a stable 'below poverty line' situation to a stable 'above poverty line' situation. Thus, in the present study, household's income was considered as the main influential factor for poverty reduction. Household's total monthly income after micro financing was derived purposely as proxy for poverty reduction. Based on these circumstances, impact of MF intervention can be estimated using the following empirical specification:

$$Y = X\alpha + D\beta + U$$

where,
Y = n x 1 vector of household income level after micro financing
X = n x 8 matrix of eight **continuous** variables
D = n x 3 matrix of three qualitative variables (D_1, D_2 and D_3)
U = n x 1 vector of unmeasured household and credit related characteristics that determine income.

β = 3 x 1 vector of the parameters of three qualitative variables to be estimated

α = 8 x 1 vector of the parameters of eight **continuous** variables to be estimated

Model 2: The second empirical model examines the impact of MF on the households that were below the official poverty line before borrowing. Dependent variable in this model is household's total monthly income after microcredit. The estimated model is similar to model 1 except the number of households and the group of households.

Table 2
Variable Definitions for Regression Models

Variable	Definition
Y-after = Y	Household's total monthly income after microcredit taken (Rs.)
Y-before = X_1	Household's income level before microcredit (Rs.)
Distance = X_2	Distance to closest microfinance institution (meters)
Members = X_3	Number of family members in the household
Age = X_4	Age of the household head in years
Timeyrs = X_5	Number of years the credit has been in use
Intrestr = X_6	Rate of interest on credit (percentage)
Credit = X_7	Credit amount (Rs.)
Edu = X_8	Education level of the household head (No. of years of schooling)
Cpemp = D_1:	Cpemp = 1, if credit-plus services affected to income empowerment, = 0, otherwise
Ownership = D_2:	Ownership = 1, if the household head owned a micro enterprise when obtaining credit, = 0, otherwise
Mkts = D_3:	Markets = 1, if markets were available for produce by micro enterprise, = 0, otherwise

Model 3: This is a logit model which examines the probability of financial empowerment through MF. 175 households were used for this analysis. Accordingly, the model is constructed stating that if a household has been empowered financially by MF services (Y=1) or otherwise (Y=0).

Thus, the model: $y = f(X, D)$
where,
Y= n x 1 vector of dummy for the 'financial empowerment' of the household after micro financing.
X = n x 8 matrix of eight continuous variables
D = n x 3 matrix of three qualitative variables

A logit regression model was estimated as follows;

$$Li = \ln \left[\frac{Pi}{1 - Pi} \right] = \beta_1 + \beta_2 X_i$$

where,
Pi = the probability of financial empowerment, where Y = 1.
$1 - Pi$ = the probability of no financial empowerment, where Y = 0.

In the analysis, X_2, X_5, X_6, X_7, D_1 and D_3 are identified as credit-related independent variables while X_1, X_3, X_4, X_8 and D_2 are recognized as the household-related independent variables.
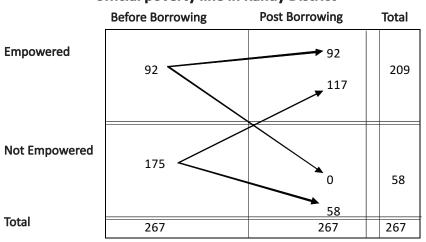
Table 3
Explanatory Variables and Their Expected Signs

Explanatory Variable	Expected Sign
X_1, X_5, X_7, X_8	+
X_2, X_6	-
X_3, X_4	+/-
D_1, D_2, D_3	+

4. Results and Discussion

A consideration on poverty as 'income-poverty' is usually associated with a conceptualization of poverty reduction. The Official Poverty Line of Kandy district in 2008 is Rs. 2,915.00 per person per month[5]. Multiplying this number by the number of family members in a household the total household expenditure for each household was calculated. Based on this, the study assessed the effects of MF on household income comparing the current household income level [6] with official household poverty line. Accordingly, there are 117 households above the poverty line after borrowing (Figure 1). This indicates that MF services affected directly to reduce their income-poverty meaning that these households are financially empowered by MF.

Figure 1
Clients' income-poverty status after the MF intervention: comparison with official poverty line in Kandy District

	Before Borrowing	Post Borrowing	Total
Empowered	92	92 / 117	209
Not Empowered	175	0 / 58	58
Total	267	267	267

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[5] Minimum expenditure per person per month to meet the basic needs. CCPI based year 2002 = 100 (Department of Census and Statistics – Sri Lanka)

[6] Households income was calculated as follows; income from paid employment/s during last month, other cash receipt of the household members during last month, income from non-agricultural activities during last month, income from agricultural activities paddy, other seasonal crops and tobacco, income from other agricultural activities, income in kind during last month and monthly rental value of owner occupied house.

However, the other sources of income that could have increased household's income were assumed unchanged[7]. Nevertheless, there are 58 households who were not empowered financially by the MF. This is 1/3 of households out of 175. Thus, the study found mixed results on reduction of income-poverty by MF services. Meanwhile, when compared with current household income level, 92 households were above poverty line when they borrowed. None of them had dropped below the poverty line.

The Regression Analysis

First single equation model estimates the income-poverty impact of MF service received by clients. It is assumed that as income increases overall living standards and ability to cope with risks will get enhanced. Results of the estimated model are presented in Table 4. The Durbin–Watson test was used to examine the autocorrelation problem. Since the Durbin-Watson values obtained for the models 1 and 2, were 1.93 and 1.92 respectively it could be concluded that there is no first-order autocorrelation in the models. Moreover, the re-estimating of the model without having Y before as an independent variable found the main results still valid[8]. Similarly, the robust standard errors also were used.

According to the estimated model 1, seven explanatory variables (X_1, X_2, D_1, X_5, X_7, X_8 and D_3) are statistically significant at 5 percent. Household head is an owner of a micro enterprise when taking credit is statistically significant at 10 percent level. The dummy variables that represented credit plus services, ownership of an enterprise and market availability for products are statistically significant at 5 percent level.

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[7] Except income from paid employment/s during last month, other cash receipt of the household members during last month, income from non-agricultural activities during last month, income from agricultural activities paddy, other seasonal crops and tobacco, income from other agricultural activities, income in kind during last month and monthly rental value of owner occupied house.

[8] Absence of autocorrelation is possible given the relatively long period between Y-before a n d Y-after.

It was revealed that households who benefitted from MF credit-plus services outperform the households who received credit without credit-plus services by Rs. 1,312.00 per month. Compared to households who do not have ownership of micro-enterprises, households who are owners of micro enterprises recorded an incremental income of Rs. 1,843.00 per month. Similarly, if markets are available the possibility of empowerment in income is greater than the non-availability of market facilities for the product. The possibility of income-empowerment between households who have market facilities is Rs. 1,327.00 per month compared to households who do not have market facilities.

Table 4

Summary results of the regression models of income-poverty impact of MF

(Dependent variable of the model 1 and 2 is Y after, and model 3 is afemp)

Variable	Model 1 Coefficients	Model 2 Coefficients		Model 3 Coefficients
X_1	1.186667** (.079421)	1.783299** (.6826534)		.0000952* (.00006)
X_2	-1.024951** (.2824595)	-.8190507** (.3450465)		-.000047 (.00004)
D_1	1312.5** (471.8633)	101.8166 (842.0027)		.0936556 (.0754)
X_3	278.2183 (366.3514)	-826.1932 (902.2525)		-.276272* (.14821)
X_4	16.18401 (42.39207)	-61.04525 (48.66072)		.0015119 (.00242)
X_5	879.8826** (228.5801)	771.631** (301.1869)		-.0057777 (.01559)
X_6	17.53306 (63.60685)	-60.97521 (88.68041)		.0040938 (.00548)
X_7	.035031** (.0144263)	.0434647** (.0183733)		2.27e-06 (.00000)
X_8	633.2757** (152.3292)	298.7313** (120.9442)		.0109971 (.01017)
D_2	1843.664* (779.0299)	304.9869 (757.6306)		.1848771* (.1031)
D_3	1326.785** (686.5967)	1862.77** (861.0525)		.332326* (.19075)
Intercept	-9560.225** 2985.581	-1003.089 2714.722		-1.027486 2.843039
No. of Obs.	267	175		175
R-squared	0.6871	0.6392		
Pseudo R^2				0.7325

Note: Robust standard errors are given in parenthesis
**denotes statistical significance at 5% level and * denotes statistical significance at 10% level

The second model examined the impact of MF on the income of households who were below the official poverty line before borrowing. Therefore, this group of households was separated from the households that were above official poverty line before borrowing. Accordingly, the main objective of the estimation is to analyze the income-poverty impact of MF services on households that were below poverty line before borrowing. The number of households is 175 and dependent variable in this model is Y-after - household's total monthly income after microcredit being taken. As described earlier, these 175 households are very critical in this analysis[9]. Result of the estimated model is presented in Table 4. According to the estimated regression model 2, there were 6 explanatory variables (X_1, X_2, X_5, X_7, X_8 and D_3) that were statistically significant at 5 percent level. Compared with model 1, D_1 and D_2 are not significant in this model. As mentioned earlier, this group of households was not in a financially satisfactory level before borrowing because they were below the official poverty line.

Since "cpemp" is not significant it can be stated that there is no income empowerment difference between the two groups namely, households which have received credit-plus services with credit and households that did not receive credit-plus services with credit. The reason would be the small credit amount with credit-plus services may not support to enhance income of poorest of the poor. This model captured the households that are below official poverty line when they borrowed. Generally, this group of people has received small loans from MFIs. Most of the borrowers have received less than the average cumulative credit amount of Rs. 40,824.00. To test the probability of empowerment ability between the two groups, i.e. the households who have received credit with credit-plus services as cpemp A and cpemp B. If credit Rs. 40,824.00: respondents who have received credit with credit-plus services but cumulative credit amount is less than or equal to average credit. This category

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[9] According to household income and expenditure survey 2001/2002, Department of Census and Statistics, Ministry of Finance and Planning, Sri Lanka these households are living below the official poverty line.

named as cpemp A. If credit >Rs. 40,824.00; respondents who have received credit with credit-plus services but cumulative credit amount is larger than the average. This group named as cpemp B. The results indicate that if cumulative credit with credit-plus services is greater than the average cumulative credit the probability of empowerment is significantly high than that of the group which has cumulative credit with credit-plus services less than the average cumulative credit. This implies that the amount of credit of MFIs lending with credit-plus services, should be large. The greater the credit amount with credit-plus services greater the income empowerment ability.

Regression results indicate that the difference of income increases between the households who own a micro enterprise when they were borrowing and households that do not have an ownership is not significant. The reason for this situation may be the capacity and strength of the enterprise and poor accessibility of markets and other related problems such as resource availability, appropriate technology and management skills etc. Though they are owners of an enterprise above mentioned, internal and external factors could be affected adversely to diminish the profitability of the project.

As shown by regression results of model 1, family members, age of household head and interest rate on credit are not significant in this model. However, if markets are available the possibility of empowerment in income is greater than the non-availability of market facilities for the product. It is about Rs. 1,863.00 per month compared to households who do not have market facilities. This indicates that availability and accessibility of markets are always significant factors for income and thus profit increases of any kind of enterprise.

The third is a logit model which examines the probability of getting financial empowerment through MF. The model uses 175 households which were below official poverty line. Accordingly, the logit model for the study constructed stating that a household has empowered financially by MF services (Y=1) or otherwise (Y=0).

As depicted in Table 4, Model one has satisfactory goodness-of fit. Regression results indicate that only the difference between after microcredit income level and before microcredit income level, members, ownership, and markets are significant variables to enhance income. These variables are statistically significant at 10 percent level. Distance, cpemp, age, timeyrs, interest, credit and level of education are not significant factors for income of the households. The results point out that if the difference between household's after income level and before income level is higher, the probability of income empowerment goes up. When the number of family members in household increases the probability of income empowerment goes down. Also if respondents have enough market facilities for their products the probability of income increases by 33 percent. Further, being an owner of an enterprise causes in income relative to non-owners. The policy implication here is that the small holders may get the benefits from the small enterprises if they have market facilities for their products.

5. Conclusion and Policy Implications

This study investigated the impact of MF on poverty and socioeconomic development and the importance of credit-plus services on income empowerment of households. An exploration of this nature has critical implications for MF policy and practice and also for policy related to usage of credit-plus services with micro credit.

According to income-poverty analysis it is revealed that there are 117 households that are above the poverty line after borrowing. These households belong to 'below poverty line' category before micro financing. This indicates that MF services reduced their income-poverty, and enhanced the financial empowerment. Nevertheless, 1/3 of households were not empowered by the MF. Thus, the study found mixed results on reduction of income-poverty. Meanwhile, MF intervention did not disempower any borrowers during the study period.

The results reveal that there is a significant difference between households who received credit with credit-plus services and those that received credit without credit-plus services on income increases. Credit-plus services benefited the households to improve their level of income by the investment projects.

The propensity to empowerment of households who are owners of micro enterprises is considerably greater than households who did not have an ownership. Similarly, if markets are available for products, the possibility of empowerment in income is greater than when market facilities are not available for the product. Thus, a support to find out a market for products will be an immense encouragement for the growth and sustainability of small enterprises.

According to model 2, there were six explanatory variables, X_1, distance to closest MFI, number of years for which credit has been taken, credit amount, level of education of household head, and availability of markets were found statistically significant. The variables D_1 and D_2 are not significant in this model. The group of households included in this model was not in a financially satisfactory level before borrowing. They were in below the official poverty line. Since D_1 is not significant it can be concluded that there is no income empowerment difference between the two groups of households who have received credit-plus services with credit and households did not receive credit-plus services with credit. Test of the probability of empowerment ability between two groups indicated that if cumulative credit with credit-plus services is greater than the average, probability of empowerment is significantly high. Therefore, the policy implication is that if MFIs lending with credit-plus services the amount of credit should be large.

According to the logistic regression results, X_1, number of family members, ownership of an enterprise and availability of markets were the significant variables. As in other models, when the number of family members in household is high the probability of income empowerment goes down. Likewise,

if the respondents have enough market facilities for their products, the probability of income empowerment is very high. Further, being an owner of an enterprise is significant relative to non-owners. In addition, the study found that factors such as unprofessional business practices, lack of economies of scale, clients' risk aversion and myopic behavior, inadequate technological and business guidance on new products, non-availability of input resources, lack of research and development initiatives and lack of innovation have restricted the growth of small enterprises. The adverse natural environment, poor infrastructure and lack of markets and weak market linkages have further worsened profitability and sustainability of these enterprises. These findings were mainly derived from focus group discussions, key informants discussions and secondary information. Therefore, to eliminate the poverty and socioeconomic vulnerability of poor households, social capital formation through group loans among the hardcore poor may be one good strategy. To estimate the changes this research can be extended to include the impact assessment of different MF models, inter-organizational comparisons of the effectiveness of diverse strategies and inter-linkages between different dimensions of programmes and policies.

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