

IMPACT OF CREDIT-PLUS APPROACH OF MICROFINANCE ON INCOME GENERATION OF HOUSEHOLDS

Sri Lanka Journal of
Economic Research
Volume 1(1)
December 2013:57-75
Sri Lanka Forum of
University Economists

H M W A Herath

L H P Gunaratne

Nimal Sanderatne



Abstract

This paper examines the impact of the credit-plus approach of microfinance on household income-poverty. A multistage random sampling method was used to select a cross – institutional sample of 268 households from the Kandy District of Sri Lanka. Two leading microfinance institutions in Sri Lanka, namely, Thrift and Credit Co-operative Societies (TCCSs) and Sarvodaya Economic Enterprise Development Services (Guarantee) Limited (SEEDS), were selected for the purpose. To understand the impact of microfinance on income generation of households and to examine the effect credit-plus services have on the amount of cumulative credit received by households, three regression models were estimated. The study revealed a positive impact of microfinance in increasing income, thereby reducing poverty in households. Credit-plus services were found to have made a higher positive impact on the households that had taken more credit than the average household indicating that greater the credit provided by credit-plus services, the higher the potential for households to generate income.

Key Words : *Microfinance, Households, Credit-plus Services, Poverty, Minimalist Approach, Income*

JEL Codes : G20, G21, and G23

A M W A Herath

Department of Economics and Statistics, University of Peradeniya, Sri Lanka
Telephone: +94 812392622, email: ariyarathneherath@gmail.com

L H P Gunaratne

Department of Agricultural Economics and Business Management, University of Peradeniya, Sri Lanka
Telephone: +94 812395500, email: lhpguna2010@gmail.com

Nimal Sanderatne

Former Senior Visiting Fellow, PGIA, University of Peradeniya, Sri Lanka
Telephone: +94812388937, email: nimalsand@yahoo.com

INTRODUCTION

Access to financial services has long been recognised as an important means of improving income generation opportunities and overall living conditions among poor households. As an approach, microfinance appeared as a strategy to address the institutionalised exclusion of the poor from formal financial systems. Microfinance can be defined as the provision of a broad range of financial services such as deposits, credits, and payment services to the poor and to low income households and their microenterprises (ADB 2000). As a tool of poverty reduction, microfinance is based on the premise that improved access to credit by the poor is crucial in improving the returns to economic activities; it not only expands self-employment and promotes business and entrepreneurial activities, but also allows incomes to grow and provides a 'safety net' for the poor who are vulnerable to income fluctuations.

Over the past three decades, Microfinance Institutions (MFIs) have adopted innovative modes of providing services to the entrepreneurs in low income groups, especially in developing countries. Remenyi (2002) says that it is possible to identify two main approaches in relation to the role of microfinance intermediation in poverty reduction. In terms of the first approach that is portrayed as the *Minimalist Approach*, 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. In that sense, the primary focus of these MFIs is institutional profit, disregarding the social and poverty alleviation dimensions of microfinance. On the other hand, MFIs that follow the *Credit-plus Approach* provide other services in addition to financial services. These non-financial services include skills development, training, educational activities, marketing assistance, supply of inputs and business development¹. These include the services that would assist entrepreneurs and the self-employed in developing their businesses, which are provided prior to the provision of key financial services, namely, credit facilities. According to advocates of this approach, the provision of credit alone cannot guarantee that recipients of credit would use scarce capital in productive manner, and therefore, the recovery of loans cannot be ensured under the *Minimalist Approach*. It is interesting to note that such non financial services are increasingly being recognised as an important component of microfinance intermediation as they are associated with the viability and sustainability of enterprises. Moreover, it is believed that the viability and sustainability of enterprises will in turn ensure financial viability and sustainability of the relevant MFIs. Even though the provision of the above services is not a direct financial service, it is part of the financial package offered by a financial institution and should be kept in mind when the outreach of financial intermediation is investigated.

¹ Business development services include technical assistance and services such as training on business and financial management, and accounting/book keeping.

This study attempts to investigate the impact of the above mentioned microfinance intermediation approaches on income generation by households. In addition, the study also examines the impact of credit-plus services with reference to the cumulative credit amount received by households. To understand the impact on clients' economic position through income generation, two leading MFIs called TCCSs and SEEDS operating in Kandy District, Sri Lanka, were studied. The district was selected because of its relatively high poverty rate (30.9% in 1990 and 25% in 2002)². The World Health Organisation (WHO) in its Nutrition Country Profile for Sri Lanka (2000) indicated that 52% of the people in Kandy district were undernourished. This high level of poverty has led to the government's implementation of a number of poverty alleviation programmes including several microfinance schemes in the district; itself reflective of the significance given to microfinance as a strategy for poverty alleviation in Sri Lanka³.

MICROFINANCE AND POVERTY REDUCTION: A LITERATURE REVIEW

Attention to 'income poverty' is usually associated with the conceptualisation of poverty reduction as moving of low income groups from a stagnating 'below poverty line' situation to a stable 'above poverty line' situation. This leads to focus on promotional strategies 'raising persistently low incomes', in terms of financial services, emphasising (often exclusively) the provision of credit for income generation through self-employment (Dreze and Sen 1989). However, the current substantiation of the impact of microfinance on poverty reduction is vague. Some research findings have suggested that access to microfinance has the potential to diminish poverty considerably through establishing crisis-coping mechanisms, diversifying income-earning opportunities, and improving the socio-economic condition of the poor (Hashemi et al.:1996, Montgomery et al: 1996, Khandker: 1998, Husain: 1998). Other studies have found that Microfinance has a minimal impact on poverty reduction (Adams and von Pischke: 1992, Rogaly: 1996, Buckley: 1997, Wood and Shariff: 1997, and Morduch: 1998,). Kabeer (2001) has shown that small-scale credits lead to negative empowerment and lead to a debt trap for women.

In the recent years, poor women have been particularly empowered by microcredit, as it gives them ability to earn an income and thus improve their bargaining positions *vis-a-vis* their male counterparts (Gunathilake and de Silva: 2010, Chang 2010). Morduch and Haley (2002) argue that microfinance has proven to be an effective and powerful tool

² A widely used and important index on poverty in Sri Lanka is Headcount Index. It is defined as the percentage of population below the poverty line (Department of Census and Statistics – Sri Lanka, 2002).

³ In Kandy district, microfinance initiatives seeking poverty reduction generate conflicting results. While they have worked satisfactorily in some programmes, they have not shown such progress in many others. The impact of MFI on households' socioeconomic conditions has therefore been diverse.

for poverty reduction. Further, the evidence shows positive impact of microfinance on poverty reduction as it relates to the first six out of the eight Millennium Development Goals. Robinson (2001) stated that there is strong demand for small-scale commercial financial services from the economically active poor. According to Hossain (1988), the earnings of Grameen Bank members in Bangladesh were 43 per cent higher than the target group in the control villages, and about 28 per cent higher than the target group of non-participants in the project village. Otero and Rhyne (1994), Holcombe (1995), Schuler, et al. (1996), and Remenyi (1997) also confirmed that microfinance would bring about immense socioeconomic benefits including the ability to generate income and to reduce vulnerability of clients. Cuong et al. (2007) in Vietnam has confirmed the positive and statistically significant impact of participating in microfinance programmes on per capita consumption expenditure and per capita income. Parallel confirmations were reported by Khandker (2005) and Chowdhury (2007) in Bangladesh. Positive effects of microfinance on clients' income empowerment in Pakistan have also been reported by Abbas et al. (2005) and Javed et al. (2006).

As microfinance is recognised as a valuable strategy for increasing the livelihoods and reducing vulnerability, many development practitioners and project planners have been eager to include microfinance with credit-plus components in social funds and other multi-sectoral projects (Alexandra and Silva 2002). Remenyi (1997) points out that microfinance is increasingly recognised as an effective instrument for poverty reduction.

Studies on microfinance in Sri Lanka also have shown similar results. As reported by Wickrama (1998), Dias (2001), and Mithrarathna (2003), clients' socio-economic conditions have improved with the intervention of microfinance. Colombage (2004) and Thilakarathne et al. (2005) have also argued that microcredit has had a significant positive impact on households' socio-economic condition. Ministry of Finance and Planning of Sri Lanka and GTZ (2008) have concluded that there was still a large unmet demand for credit, and that poorer income groups were less able to derive the benefits of utilising financial services than richer income groups. Colombage et al. (2008) have claimed that Microfinance would have a positive impact on clients' socio-economic development at family, business, community and individual levels. Premaratne (2009) investigated the accessibility and affordability of rural Microfinance services in Sri Lanka and described the constraints and opportunities in MFIs in the rural economy. Gunathilake and de Silva (2010) have found that owning a loan (if woman as the head of a household has the right to use the loan) increases a woman's control over a loan-assisted project, which that has a significant positive impact on her level of empowerment.

Even though the above studies have investigated the impact of microfinance on poverty, the impact and significance of the *Credit-plus approach* of microfinance intervention on poverty reduction among rural households has not yet been adequately examined. This research is an attempt to fill this lacuna by studying the impact of microfinance on poverty reduction and impact of credit-plus services by the selected two leading MFIs, SEEDS and TCCSs in the Kandy District of Sri Lanka.

Following the income-poverty approach of microfinance intervention, this study assessed the effects of microfinance on household income, comparing the current household income⁴ level with the official household poverty line. Categorisation of households according to poverty line was based on household income and expenditure survey 2001/2002 conducted by the Department of Census and Statistics of Sri Lanka⁵, according to which, the official poverty line of Kandy District was Rs. 2915 per person per month⁶ in 2008. The total household expenditure for each household was estimated multiplying this number by the number of family members in a household, which was considered as the official poverty line for a household. Accordingly, it was revealed that there were 117 households above the poverty line after borrowing. However, there were 58 households (one-third of the total of 175 households) who were not empowered financially by the microfinance services received.

In the backdrop of these initial estimations, three regression models were estimated to analyse the impact of microfinance on income-poverty and impact of credit-plus services and also to assess the income empowerment capability of microfinance intervention by TCCSs and SEEDS.

METHODOLOGY

This study was conducted mainly based on primary data that were collected from microfinance clients, using a structured questionnaire. According to the National Microfinance Study of Sri Lanka 2002, there were sixteen microfinance actors operating in Sri Lanka. Among them, TCCSs and SEEDS were selected purposely for the present study because they have been having well established branch network all

⁴ Household 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.

⁵ Average households income level of each Divisional Secretary Division was calculated basing the income and expenditure data from household income and expenditure survey 2001/2002, Department of Census and Statistics Department, Ministry Finance and Planning, Sri Lanka.

⁶ Minimum expenditure per person per month to fulfil the basic needs. CCPI based year 2002 = 100. Department of Census & Statistics – Sri Lanka.

over the island, except in several areas in the Northern and Eastern provinces. Sarvodaya was the most prominent and largest commercialised local NGO, and SEEDS was its financial arm. SANASA was the dominant MFI having the highest number of clients and outreach among the semi-formal MFIs in Sri Lanka. SEEDS had 108 units and SANASA had 125 units in the Kandy District by 2007, though the numbers were higher in 2002.⁷ These two MFIs, unlike many other similar suppliers of microcredit, appeared unaffected by politics in the country.

The Table 1 presents a summary of the Microfinance units belonging to each institution and their respective membership in the Kandy District by 2007.

Table 1: Composition of TCCSs and SEEDS in Kandy as of December 2007

Institution	Units	No. of clients
SEEDS	108	23,209
TCCSs	125	1,442
Total	233	24,651

Source: Annual Reports of TCCSs and SEEDS.

The survey covered 268 households in 50 selected Microfinance units of TCCSs and SEEDS in the Kandy district. The multistage random sampling approach was adopted in selecting the sample. Accordingly, microfinance units/branches of TCCSs and SEEDS were categorised into *minimalist* and *credit-plus* approaches. Since there was not much of a difference in the number of units between the two institutions by 2007, twenty-five units were selected from each institution, totalling the number of units surveyed to 50, which was 21% out of the total number of units existed in 2007. Accordingly, household's data on services rendered by the selected 50 units belonging to TCCS and SEEDS were collected for the years 2005, 2006 and 2007.

According to the discussions conducted with officers in the Head Offices of the two institutions, all units/branches would follow *credit-plus approach*. However, it was revealed later, from discussions conducted with unit managers/officers, that some of the microfinance units of these two institutions followed only the *minimalist approach*. Among the reasons that have led to this practice, the management/operational costs, the inadequacy of staff and the lack of participation by the clients appeared relatively more

⁷ In 2002, SEEDS had 160 units in Kandy and 2369 in Sri Lanka, while SANASA had 258 units in Kandy District and 1922 in Sri Lanka.

important. Thus, for the purposes of the present survey, the interventions by both institutions were categorised into *minimalist* and *credit-plus* approaches (Table 2).

Table 2: Approach of MFIs

MFI	Approach Category	Number	%
TCCSs	Minimalist Approach	6	24
	Credit-Plus Approach	19	76
SEEDS	Minimalist Approach	4	16
	Credit-Plus Approach	21	84

Note : Percentages calculated out of the total number in each type and approach of MFIs

The Number of households selected from each unit was proportional to the approach which was followed by the units. Therefore, 5% of the total number of clients falling into each of the two approaches adopted by the two institutions was selected, enabling altogether 268 clients being surveyed.

Table 3: The Sample

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

ANALYTICAL PROCEDURE

To study the impact of microfinance on income generation of households and to examine the impact of credit-plus services with reference to cumulative credit amount received by households, three regression models were estimated.

Model 1: The primary objective of this model was to examine the impact of determinants on income of households after microfinance facilities were received. Dependent variable Y is household's total monthly income after intervention through microcredit. Number of observations in the model is 267 households. Regression model was estimated using the following empirical specifications.

$$Y = X \alpha + D \beta + U \quad (1)$$

Where,

Y = $n \times 1$ vector of household income level after micro financing

X = $n \times 8$ matrix of eight continuous variables

D = $n \times 3$ matrix of three qualitative variables (D_1 , D_2 and D_3)

U = $n \times 1$ vector of unmeasured household and credit related characteristics that determine income.

β = 3×1 vector of the parameters of eight continuous variables to be estimated

α = 8×1 vector of the parameters of three qualitative variables to be estimated

Table 4: Definition of Variables for Regression Analysis

Variable	Definition
Yafter = Y	Household's total monthly income after receiving microcredit (Rs.)
Ybefore = 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 head of household 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 head of household (Number of years of schooling)
Cpemp = D_1	Cpemp = 1, if credit plus services affected income and empowerment, = 0, otherwise
Ownership = D_2	Ownership = 1, if household head owned a micro enterprise when obtaining credit = 0, otherwise
Mkts = D_3	Markets = 1, if markets were available for produce of micro enterprise, = 0, otherwise
Cpempsmall = D_4	Credit $\leq$ 40824: respondents who received credit with credit plus services but cumulative credit amount was less than or equal to average credit. They were empowered by the services.
Cpempbig = D_5	Credit $>$ 40824: respondents who received credit with credit plus services but cumulative credit amount was larger than the average. They were empowered by the services.
Cpemp0small = D_6	Credit $\leq$ 40824*: respondents who obtained credit with credit plus services but were not empowered. Their cumulative credit amount was less than or equal to the average

Detailed definition of variables used in the regression analysis is given in Table 4 above. Households' total monthly income after micro financing was used as the dependent variable. It was derived purposely because its change is a good proxy for measuring income poverty of households. Distance, Cpemp⁸, timeyrs, interest, credit and mkts were used as credit related independent variables in the analysis, while Ybefore, members, age, education and ownership were introduced as the household-related independent variables.

Credit Related Independent Variables

Distance to the nearest MFI is a factor affecting accessibility to Microfinance services. Shorter the distance to MFI, greater the accessibility to microfinance, and further away the MFI from residence, the more difficult the access to microfinance. The accessibility and availability of MFI would enhance transactions (credit, savings, and investment) of households, which would lead to income empowerment and mobility. The credit-plus services⁹ would facilitate the economic empowerment and diminish the vulnerability of households. Duration of credit that has been taken was also considered as an independent variable, represented by Timeyrs, where the longer the time elapsed since obtaining the credit, greater would be the beneficiary's experience on enterprise development. Thus, the anticipation is that experience and mobilisation in the field would increase earnings and minimise poverty. Also, the cumulative loan amount may increase with time, and might affect positively to enhance earnings from the occupation.

Although the interest rates on lending by TCCS units and SEEDS units did not vary among the branches and groups of the same institution, there was a difference between the two institutions. The expectation would be that greater benefits to borrowers with credit offered at lower interest rates would enhance access to microfinance and also increase incomes through favourable changes effected on profitability of micro enterprises. It is also expected that the borrowers would be benefited if the if the total credit received was greater. This was because greater credit would enable starting or renovating a micro enterprise, which would be capital/working capital intensive within the prevailing economic context, and the borrower might engage in a relatively larger scale of entrepreneurial activity given the possibility of obtaining higher amounts of credit. It might also help the enterprise by increasing earnings and trimming down vulnerability of clients. Also, the larger the loan amount, the stronger would be the ability to make decisions.

⁸ Cpemp = credit-plus services impact on the income empowerment of household. To generate this independent variable we used the total sampled households. If a household was empowered by micro credit with credit-plus services, Cpemp = 1, otherwise Cpemp = 0.

⁹ Credit-plus services refer to non-financial services such as vocational training, marketing assistance, other business development services, social welfare and consultancy services, which are provided prior to the provision of credit facilities.

Market facilities are vital for the development of micro enterprises. Availability of markets would make profit making easier, motivate the clients to invest more, provide them with greater mobility and also would help minimise business risks. Consequently, it is believed that market availability for the products would have a positive influence on income earning capacity of microfinance clients.

Household Related Independent Variables

Households' income level before receiving microcredit is crucial for income generation because their ability to cope with risk may be greater than those in the low income category in the beginning. For instance, borrowers spending more than the minimum expenditure per family per month to fulfil the basic needs (official poverty line) applicable to the Kandy district would be having relatively greater incomes, and thus would belong to more advantaged and capable group of borrowers compared to those households below the official poverty line. It is expected that such high income borrowers would have a greater ability to enhance their incomes, as those who were in a strong position even before obtaining the loan could better organise the capital formation as well as the operational and maintenance activities intended to be financed through micro credit.

The impact of the number of family members in the household on income is ambiguous. If the number of dependents is higher than the number of income earners in a family, the impact might be lower, and vice-versa even for a given number of total family members. Further, the families having active supporters for credit related project activities might secure greater income/benefits. A healthier family with more members able and willing to work, especially in agriculture related projects, would have a greater chance of reducing vulnerability in relevant projects and thereby increasing earnings than a family without such capabilities but lesser number of members.

The age of the household head is another ambiguous explanatory variable. Greater the age could be associated with greater experiences on various fields such as monetary management, social relations and networks, project management, self confidence, or market experience, but this is not always the case. Many younger entrepreneurs could better possess such qualities, and therefore, it would be difficult to hypothesise the expected direction of the impact the age of the household chief might bear. The education level of the household head, on the contrary, would be hypothesised as having a positively impact on income generation and on coping up with project related risks. Therefore, it is expected that education level of the household chief would have a positive impact on income increases and reduced vulnerability.

Household head as owner of a micro enterprise when obtaining credit is used as a dummy variable in the model. This variable is also associated with experience, social

relations, confidence on the project and market networks, and therefore it is expected that the variable would have a positive correlation with income enhancement and risk mitigation.

Relationship between Credit-plus Services and Credit Amount when Determining Empowerment

Econometric models were estimated to examine the effectiveness of the Cpemp (Cpemp = 1 if credit-plus services empowered, and Cpemp = 0 otherwise) across different credit amounts (i.e. small and large). Small and larger credit amounts were identified in this study based on the average credit amount. According to the survey findings, average credit amount is Rs. 40824 per month.

Model 2: Variable Cpemp Removed as an Explanatory, Included some Dummy Variables

Three explanatory variables, namely, Cpempsmall, Cpempbig and Cpemp0small were included into the model. If Credit $\leq$ 40824, and the respondents have received credit with credit-plus services, and also are empowered by the services, that category is named as *Cpempsmall*. If Credit $>$ 40824, and the respondents have received credit with credit-plus services and are empowered by the services, the category is named as *Cpempbig*. If Credit $\leq$ 40824* and the respondents are not empowered even though they have taken credit with credit-plus services, then the category is named as *Cpemp0small*. Omitted group was *Cpemp0big* which represents the case where Credit $>$ 40824* and respondents taken credit with credit-plus services but not empowered. Their cumulative credit amount is greater than the average. This was to distinguish between the ability of financial empowerment of different amount of credit recipients with credit-plus services. Regression model was done with 267 observations.

Regression models 2 and 3 were estimated using the following empirical specifications.

$$Y = X\alpha + D\beta + U \quad (2)$$

where, $Y = n \times 1$ vector of household income level after micro financing

$X = n \times 8$ matrix of eight continuous variables

$D = n \times 5$ matrix of five qualitative (D_2 , D_3 , Cpempsmall, Cpempbig, Cpemp0small) variables

$U = n \times 1$ vector of unmeasured household and credit related characteristics that determine income.

$\beta = 5 \times 1$ vector of parameters of eight continuous variables to be estimated

$\alpha = 8 \times 1$ vector of parameters of five qualitative variables to be estimated.

Model 3: All are the same as Model 2 without the Explanatory Variable ‘Credit’.

This model was constructed purposely to investigate the significant level of explanatory variables without cumulative credit amount. Since some dummy variables created using the credit amount received by household’s cumulative credit amount was removed from the original model.

RESULTS AND DISCUSSION

As mentioned earlier, this paper attempts to analyse the impact of microfinance on income empowerment of households, and impact of credit-plus services on income poverty reduction quantitatively. Three regression models were used for the analysis.

The Durbin-Watson test was used to examine and thereby avoid autocorrelation problem which is highly likely in models specified with lagged dependent variable as an explanatory variable. Since the *DW* values obtained for the models 1, 2 and 3, were 1.94, 1.91 and 1.89 respectively, it could be concluded that there is no first-order autocorrelation in the models. Moreover, we re-estimated the model without having *Ybefore* as an explanatory variable, and found our main results still holding ground.¹⁰ Similarly, the Robust standard errors were used to avoid the heteroscedasticity problem.

Model 1 estimated the income-poverty impact of microfinance service received by clients. Number of observations in this model was 267 and the dependent variable was *Yafter*: Household’s total monthly income after microcredit was taken. The summarised results of the estimated models are presented in Table 5.

According to regression model 1, seven explanatory variables (*Ybefore*, *Distance*, *Cpemp*, *Timeyrs*, *Credit*, *Edu* and *Mkts*) are statistically significant at 5% level. The head of household being an owner of a micro enterprise when taking credit indicated statistical significant at 10% level. Only three variables (*Members*, *Age* and *Intrestr*) were not significant. All the dummy variables used in this model *Cpemp*, *Ownership* and *Mkts* were statistically significant.

Regression results reveal that there is a significant difference in income generation between households that received credit with credit-plus services and households that received credit without credit-plus services. Therefore, it clearly indicates that credit-plus services benefited the households to enhance their income by the micro projects. Households that borrowed with credit-plus services have increased their income by Rs. 1312 per month compared to households that did not benefit from credit-plus services. As mentioned earlier credit-plus services refer to non-financial services such as

¹⁰ Absence of autocorrelation is possible given the relatively long period between *Ybefore* and *Yafter*

vocational training¹¹, social welfare services, and consultancy services, marketing assistance,¹² and other business development services, which are provided prior to the provision of key financial services (mainly credit facilities), and are mainly intended to assist entrepreneurs and the self employed in developing their businesses.

Table 5: Summary Results of the Regression Models

Dependent variable of the models is Yafter

Variable	Model 1	Model 2	Model 3
	Coefficients	Coefficients	Coefficients
Ybefore	1.186** (.0794)	1.179** (.074)	1.196** (.074)
Distance	-1.024** (.282)	-.814** (.260)	-.858** (.266)
Cpemp	1312.5** (471.863)		
Members	278.2183 (366.351)	232.307 (355.154)	257.343 (363.252)
Age	16.184 (42.392)	13.544 (40.539)	12.603 (40.330)
Timeyrs	879.882** (228.580)	828.872** (214.309)	836.600** (217.431)
Intrestr	17.533 (63.606)	4.920 (63.775)	1.376 (64.666)
Credit	.0350** (.0144)	.0181 (.0121)	
Edu	633.275** (152.329)	486.416** (144.782)	440.591** (138.568)
Ownership	1843.664* (779.029)	1745.884** (738.233)	1648.868** (735.655)
Kkts	1326.785** (686.596)	1214.925* (732.387)	1416.562* (744.604)
Cpempsmall		-267.710 (811.490)	-835.187 (742.578)
Cpempbig		4610.082** (1274.32)	5094.723** (1244.637)
Cpemp0small		-391.954 (772.272)	-962.375 (664.056)
Intercept	-9560.225** (2985.581)	-7016.606 (3055.35)	-5846.244 (3019.804)
No. of observations	267	267	267
Prob>F	0.000	0.000	0.000
R-squared	0.687	0.708	0.708

Note: Robust standard errors are in parenthesis

** Significant at 5% level

* Significant at 10% level

¹¹ Also includes self employment training – i.e. training on how to start your own business.

¹² Marketing assistance includes such help as informing borrowers about new markets for products that are produced i.e. conducting exhibitions of handicrafts and garments for super market buyers of curd and vegetables.

The variables used in the model are dichotomous: whether the head of household is an owner of a micro enterprise when receiving credit and whether markets are available for products by micro enterprises. Results indicate that the difference of income increases between households that owned a micro enterprise when taking credit and those that did not have ownership of an enterprise is statistically significant. When the income of the two groups of households is compared, the difference of income increase between households that own of micro-enterprises and the households that do not is greater than Rs. 1843. Similarly, if markets are available, the possibility of empowerment is greater than in instances of non-availability of market facilities. Households with access to marketing receive approximately Rs. 1327 per month more.

The Relationship between Credit-plus Services and Credit Amount in Determining Empowerment

Two regression models (Model 2 and 3) were estimated to analyse the linkage between credit-plus services and credit amount on empowerment.

Model 2: without CPEMP as an Explanatory but Including some Dummy Variables

Three explanatory variables, namely Cpempsmall, Cpempbig and Cpemp0small, were included into the model. Cpemp0big was omitted. The purpose of this model was to distinguish between the ability of financial empowerment of different amount of credit receivers with credit-plus services. Regression model was estimated with 267 observations.

According to the results (Table 5), the model was statistically significant (prob > F 0.0000 and R squared 0.7083). Results regarding explanatory variables indicate that seven independent variables, Ybefore, Distance, Cpempbig, Timeyrs, Edu, Ownership and Mkts were statistically significant (Mkts at 10% level and other variables at 5% level) in affecting income empowerment. However, Cpempsmall, Cpemp0small, Members, Age, Interest, and Credit were not significant factors regarding income empowerment of households. Credit-plus services showed a significant impact on households who have taken credit above the average credit amount. The message to policy makers here would be that greater the credit amount with credit-plus services, the higher the income empowerment ability of households.

Testing the Probability of Empowerment between Cpempsmall and Cpempbig Groups

The results indicated that, if cumulative credit with credit-plus services was greater than the average cumulative credit, the probability of empowerment would be significantly higher in that group than in the group having cumulative credit with credit-plus services less than the average cumulative credit. Therefore, if MFIs lend with credit-plus

services, the amount of credit should be larger than the average cumulative credit. If not, these services may not be worthwhile tools for empowerment of the poor. Colombage, et al. (2008) have also confirmed that loans taken by microfinance clients are very small and that by investing such small loans, the clients are not in a position to start an enterprise of substantial size. As a result, they are compelled to continue with their very small cottage industries. Hulme and Mosley (1996) have shown that increases in income of microcredit borrowers are directly proportionate to their initial levels of income – the poorer they are, the lesser the impact of the loan. A vast majority of those who are starting below the poverty line actually end up with less incremental income after getting the micro loan. Nawaz, (2010) showed that credit-plus services such as technical and business skills training could improve productivity of traditional rural economic activities, which generally have low returns, or enable borrowers to start non-traditional enterprises which may produce higher income.

Model 3: Identical to the Model 2, but without the explanatory variable 'credit'

This model was constructed with the purpose of investigating the significant level of explanatory variables without cumulative credit amount. Dependent variable and all independent variables except credit were as same as with model 2. The results of this model also are included in Table 5 (above). When compared with model 2 there is no significant difference in the level of significance of explanatory variables. Again in this model Cpempbig is highly statistically significant in determining income empowerment.

CONCLUSION

The study conducted in the Kandy district of Sri Lanka with two purposely selected MFIs, namely SEEDS and TCCS, suggests through its findings that there is a positive impact on income generation and poverty reduction resulting from microfinance with credit-plus services. Three regression models were applied to investigate the impact of microfinance on income of borrowers. Accordingly, the first model demonstrated that eight explanatory variables, Ybefore, Distance, Cpemp, Timeyrs, Credit, Edu, Mkts, and Ownership are statistically significant. Only three variables, Members, Age and Intrestr were not significant.

Regression results clearly indicate that credit-plus services benefited households in enhancing their income from the micro projects. Households that borrowed with credit-plus services have increased monthly income compared to households that have not received the services. Further, the results of the first model explain that the difference of income increases between the households that owned a micro enterprise when receiving credit and households that do not is significant. When the two groups of households,

namely those that are owners of micro enterprises and those that are not, are compared, the difference of income between the two groups is greater than Rs. 1843. Similarly, if markets are available, the possibility of generation of income is greater than under conditions of non-availability of market facilities for the final product.

According to the results of the two regression models estimated to distinguish between the probabilities for recipients of different amounts of credit with credit-plus services achieving financial empowerment, seven independent variables, Ybefore, Distance, Cpempbig, Timeyrs, Edu, Ownership and Mkts were statistically significant in affecting income empowerment. Cpempsmall, Cpemp0small, Members, Age, Interestr, and Credit were not significant determinants of income empowerment of households. Credit-plus services have a greater positive impact on households that take credit above the average of Rs. 40824.

Therefore, it could be concluded that the greater the credit amount with credit-plus services, the greater the income generation ability of households. If MFIs engage in lending with credit-plus services, the amount of credit should be greater than average. If not, credit-plus services may not be a meaningful tool for empowering the poor and reducing poverty.

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