

Impact of Micro Credit on Household Income of Women in Madurai District, Tamil Nadu-A Study

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Abstract

Micro-credit now means providing small scale financial services to people, who operate very small or micro-enterprises who work in agriculture, fishing and herding, who provide services and other individuals or groups at the local levels of developing countries both rural and urban. For assessing the impact of micro credit, a comparison of pre-credit and post-credit situations is undertaken in this study. The impact was measured as the difference in the magnitude of a given parameter between pre and post-credit situations. An attempt has been made to examine the variation in annual income of the respondents among various sectors, such as agricultural, manufacturing, service and trading sectors. For this one way ANOVA is applied. The household income represents the total income of the family members through all sources before availing micro credit. When the family members earn, it is a supporting source of income for the respondent. The higher family income indicates a better standard of living, and a better family environment. The annual income of the household before availing credit has been classified into four groups.

Keywords: Micro-credit; Income; Agricultural; Manufacturing and trading

Introduction

Micro-credit is a critical antipoverty tool, a wise investment in human capital. When the poorest especially women receive credit, they become economic actors with power to improve not only their own lives, but in a widening circle of impact, the lives of their families, their communities and their relations.

Micro-credit now means providing small scale financial services to people, who operate very small or micro-enterprises who work in agriculture, fishing and herding, who provide services and other individuals or groups at the local levels of developing countries both rural and urban [1,2].

The term ‘micro-credit’ is perceived to be a Paradigm shift in the quality of delivery of finance to micro-entrepreneurs. The old paradigm of micro-finance envisaged providing credit to poor people basically residing in rural and semi urban areas at subsidized rates of interest through public or government financial institutions [3,4]. The new micro-finance continues to target the rural and urban poor household with emphasis on women borrowers, provision of finance for asset creation and on the principle of ‘Borrower knows best’.

For assessing the impact of micro credit, a comparison of pre-credit and post-credit situations is undertaken in this study. The impact was measured as the difference in the magnitude of a given parameter between pre and post-credit situations. Data on various economic aspects such as income are collected and analyzed to assess the impact [5].

Objectives of the Study

To evaluate the impact of micro-credit on household income of women and to offer suitable suggestions based on the findings.

Period of Study

The present study is based on the primary. The primary data have been collected from the respondents directly for the period of study is impounded to one year (i.e., 2014-2015).

Tools of Analysis

In order to examine the association, chi-square test was used. It is calculated by adopting the following formula;

$$\text{Chi - square } (\chi^2) = \sum \frac{(O-E)^2}{E}$$

With (r-1). (c-1) degrees of freedom

Where

O - Observed Frequency

E - Expected Frequency

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grand Total}}$$

C - Number of rows in a contingency table

R - Number of column in a contingency table

An attempt has been made to examine the variation in annual income of the respondents among various sectors, such as agricultural, manufacturing, service and trading sectors. For this one way ANOVA is applied.

In this paper an attempt has been made to analyze the impact of

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Received May 25, 2015; **Accepted** August 20, 2015; **Published** August 28, 2015

Citation: Selvaraj N, Alagukanna AS, Suganya M (2015) Impact of Micro Credit on Household Income of Women in Madurai District, Tamil Nadu-A Study. Arabian J Bus Manag Review 5: 160. doi:10.4172/2223-5833.1000160

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micro credit on income, their family income.

Annual income of the respondents' household (Pre-credit)

The household income represents the total income of the family members through all sources before availing micro credit. When the family members earn, it is a supporting source of income for the respondent [1,6,7]. The higher family income indicates a better standard of living, and a better family environment. The annual income of the household before availing credit has been classified into four groups (below Rs.25000, Rs. 25001-Rs.35000, Rs 35001-Rs.45000, and above Rs.45001) and it has been shown in Table 1.

Distribution of the household annual income before availing credit in various sectors is discussed in Table 1.

It is concluded from the table about the annual income of the respondents family in the study area is that, 39.00 per cent of the respondent's family income come under the category of below Rs.25000, 33.00 per cent of the respondents family income belong to the category of Rs.25001 to Rs.35000, 21.67 per cent of the respondent's family income belong to the category of Rs.35001 to Rs.45000, and 6.33 per cent of the respondents family income belong to the category of above Rs.45001.

Annual income of the respondents' household (Post-credit)

Distribution of the respondents' household annual income after availing the credit in various sectors is discussed in Table 2.

Table 2 clearly shows that, out of 81 respondents in manufacturing sector, 12 (14.81 per cent) of them belong to below Rs.25000 level of income, 28 (34.57 per cent) of them belong the range of Rs.25001 to Rs.35000 level of family income, 31 (38.27 per cent) of them belong

Annual Income of the Household (Pre Credit)	Manufacturing Sector	Service Sector	Trading Sector	Total
Below 25000	41 [50.62]	35 [34.31]	41 [35.04]	117 [39.00]
Rs.25001- Rs.35000	26 [32.10]	46 [45.10]	27 [23.08]	99 [33.00]
Rs.35001- Rs.45000	12 [14.81]	15 [14.71]	38 [32.48]	65 [21.67]
Above Rs.45001	2 [2.47]	6 [5.88]	11 [9.40]	19 [6.33]
Total	81 [100.0]	102 [100.0]	117 [100.0]	300 [100.0]

Source: Survey data

Note: Figures in brackets are percentage to the total.

Table 1: Household income of the respondents before availing the credit.

Annual Income of the Household (Post Credit)	Manufacturing Sector	Service Sector	Trading Sector	Total
Below 25000	12 [14.81]	13 [12.75]	13 [11.11]	38 [12.67]
Rs.25001- Rs.35000	28 [34.57]	23 [22.55]	31 [26.50]	82 [27.33]
Rs.35001- Rs.45000	31 [38.27]	46 [45.10]	32 [27.35]	109 [36.33]
Above Rs.45001	10 [12.35]	20 [19.60]	41 [35.04]	71 [23.67]
Total	81 [100.0]	102 [100.0]	117 [100.0]	300 [100.0]

Source: Survey data.

Note: Figures in brackets are percentage to the total.

Table 2: Household income of the respondents after availing credit.

Test	Value	d.f	Asymp.Sig. (2-Sided)	Table Value	Result
Pearson Chi-square	31.611	9	0.000	16.9	Rejected

Table 3: Result of Chi-square test: after availing credit.

Sectors	Mean Income	Total	Std. Deviation
Manufacturing Sector	33411.25	81	8899.21
Service Sector	34151.22	102	9949.25
Trading Sector	35161.49	117	7349.65
Overall Average Total	33053.66	300	8761.25

Table 4: Mean income of the respondents.

to the range of Rs.35001 to Rs.45000, and 10 (12.35 per cent) of them belong to Rs.45001 and above level of family income.

Out of 102 respondents in service sector, 13 (12.75 per cent) of the respondents' family fall under below Rs.25000 level of annual income, 23 (22.55 per cent) of the respondent's family come under the range of Rs.25001 to Rs.35000 level of annual income, 46 (45.10 per cent) of the respondent's family come under the range of Rs.35001 to Rs.45000 level of annual income, and 20 (19.60 per cent) of the respondents family belong to Rs.45001 and above.

It is further inferred from the Table 3, out of 117 respondents, in trading sector, 13 (11.11 per cent) of them come under the family annual income below Rs.25000, 31 (26.50 per cent) of them belong to Rs.25001 to 35000, 32 (27.35 per cent) of them belong to the category of Rs.35001 to Rs.45000, and 41 (35.04 per cent) of them belong to above Rs.45001.

Thus, it could be concluded from the table regarding the annual income of the respondent's family in the study area is that 12.67 per cent of the respondents' come under the category of below Rs.25000, 27.33 per cent of the respondents family belong to the category of Rs.25001 to Rs.35000, 36.33 per cent of the respondents' family belong to the category of Rs.35001 to Rs.45000, and 23.67 per cent of the respondents family belong to the category of above Rs.45001.

A null-hypothesis is framed and tested in this study:

Null Hypothesis

H_0 : There is no relationship between annual income of the respondents and their family annual income.

Alternative Hypothesis

H_1 : There is a relationship between annual income of the respondents and their family annual income.

As the calculated value of χ^2 is greater than the table value at 5 per cent level of significance, the investigator rejects the null-hypothesis (H_0). Therefore, there exists certainly a relationship between the annual income of the respondents and their family annual income in the study area.

Annual mean income of the respondents in various sectors

The primary objective of micro-credit program is to raise the income of the beneficiaries Annual Mean income of the respondents sector wise analysis is shown in Table 4.

Table 4 reveals that, there is not much difference in the mean income of the different sectors. The table shows that the mean income is high in the trading sector which amounts to Rs.35161.49. The service sector occupied the next place, recording an amount of Rs.34151.22, next comes the manufacturing sector with Rs.33411.25.

Analysis of the respondent’s contribution towards family income after the credit

In order to assess the contribution of the respondents to family income, the following form of multiple log-linear regression model was used:

$$\text{Log } Y = \beta_0 + \beta_1 \text{Log } X_1 + \beta_2 \text{Log } X_2 + U$$

Where,

Y = Total family income in Rupees

X₁ = Income of the respondents in rupees

X₂ = Income of the Spouses/Family Members in Rupees

U = Error term

β₀, β₁, and β₂, are the parameters to be estimated.

The above model was estimated separately for women beneficiaries of the various sectors by the method of least squares. The estimated results are presented in Table 5.

It could be observed from Table 5 in manufacturing sector, R² can be interpreted as the proportion of the total variation in the dependent variable (Annual income of the respondents) which is associated with independent variables X₁ and X₂ (Annual income of the respondents and Spouses/Family Members income). The value of R² (0.885) is closer to 1 (One), so the variables were statistically significant at 5 per cent level. It means that an additional unit of these variables could increase the total family income by 0.705 per cent and 0.472 per cent respectively. The F- value (165.657) indicates that estimated regression model is statistically significant at 5 per cent level. Thus, it may be concluded that the total annual income of the family is based on the annual income of the respondents and the annual income of their spouses/Family members in manufacturing sector.

Table 6 shows the estimated values of regression equations for the respondents in service sector.

Variable	Manufacturing Sector
Intercept	-0.207
X ₁	0.705* (13.341)
X ₂	0.472* (7.619)
R ²	0.885
F- Value	165.141
No of observation	81

Figures in brackets represent t- Values

* Indicates that the coefficients are statistically significant at 5 per cent level.

Table 5: Estimated regression results for the respondents in manufacturing sector.

Variable	Service Sector
Intercept	1.0366
X ₁	0.706* (14.265)
X ₂	0.299* (6.741)
R ²	0.926
F- Value	415.862
No of observation	102

Figures in brackets represent t- Values

* Indicates that the coefficients are statistically significant at 5 per cent level.

Table 6: Estimated regression results for the respondents in service sector.

Variable	Trading Sector
Intercept	0.378
X ₁	0.488* (6.058)
X ₂	0.465* (6.718)
R ²	0.906
F- Value	175.793
No of observation	117

Figures in brackets represent t-Values

* Indicates that the coefficients are statistically significant at 5 per cent level.

Table 7: Estimated regression results for the respondents in trading sector.

Income Variation	Sum of Squares	Df	Mean Square	F-ratio	Sig.	Table F _{0.05}
Between Groups	22341651	2	11170825.16	23.889*	0.000	
Within groups	1.68E + 09	297	476211.25			
Total	1.89E + 09	299				

*Significant at 5 per cent level

Table 8: One-way ANOVA test results of annual income of the respondents and their family size in various sectors.

It could be observed from Table 6 in service sector, R² can be interpreted as the proportion of the total variation in the dependent variable (Annual family income of the respondents) which is associated with independent variables X₁ and X₂ (Annual income of the respondents and annual Spouses/Family Members income). The value of R² (0.926) is closer to 1 (One), so the variables were statistically significant at 5 per cent level. It means that an additional unit of these variables could increase the total family income by 0.706 per cent and 0.299 per cent respectively. The F- value (415.862) indicates that estimated regression model is statistically significant at 5 per cent level. Thus, it may be concluded that the total annual income of the family is based on the annual income of the respondents and the annual income of their spouses/Family members in service sector.

Table 7 shows the estimated values of regression equations for the respondents in trading sector.

It could be observed from Table 7 in trading sector, R² can be interpreted as the proportion of the total variation in the dependent variable (Monthly family income of the respondents) which is associated with independent variables X₁ and X₂ (Annual income of the respondents and annual Spouses/Family members income). The value of R² (0.906) is closer to 1 (One), so the variables were statistically significant at 5 per cent level. It means that an additional unit of these variables could increase the total family income by 0.488 per cent and 0.465 per cent respectively. The F- value (175.793) indicates that estimated regression model is statistically significant at 5 per cent level. Thus, it may be concluded that the total annual income of the family is based on the annual income of the respondents and the annual income of their spouses in trading sector.

Variation in annual income of the respondents and their family Size among the various sectors

In this section, an attempt has been made to examine the variation in annual income of the respondents among various sectors, such as manufacturing, service and trading sectors. For this one way ANOVA is applied separately and the results are presented in Table 8.

The results of Table 8 revealed that there was a significant variation in the annual income of the respondents among the various sectors

and their family size at 5 per cent level of significance. Hence, it may be concluded that the annual income of the respondents and their family size varied significantly among the various sectors such as manufacturing sector, service sector and trading sector.

Variation in annual income of the respondents before and after availing the credit in the various sectors

Null Hypothesis

H_0 : There is no any difference in the income of the respondents before and after joining as a member of the Self-Help Group.

Alternative Hypothesis

H_1 : There exists difference in the income of the respondents before and after joining as a member of the Self-Help Group.

Tables 9 and 10 shows that the 2-tailed significance of the test is 0.000, from the last column of table. This is the 'p' value, and it is less than the level of significance at 0.01. Therefore, the null-hypothesis has been rejected at a significance level of 1 per cent, and concludes that there is a significant difference in the annual income of the respondents pre and post credit periods. The mean income of the respondent after availing credit is Rs.33151.21 and before availing the credit is Rs.21624.25, and difference Rs.11525.96 is statistically significant.

Suggestions

In the light of the above discussion and findings, the following suggestions are made:

- SHG women are more concerned with poverty and its effect on society. Since they themselves fight against poverty by being members of SHG and move upwards from below poverty line, in future, the poverty alleviation programs can be implemented through SHGs, They can monitor themselves effectively, with all enthusiasm and involvement.
- Overlapping and dual memberships should be avoided and mobility should not be encouraged among the SHG members between the groups.
- The training system should link up with some kind of credit delivery mechanism whether formal or informal. It is suggested that more number of groups should be linked with the banks so that their credit support would be strengthened.
- Annual plans for SHG activities should be done by the group consulting the NGOs. Group leaders from different villages can meet monthly once and present the progress of their groups.

e. Income generating activity should be based on available local resources and a reasonably assured market with profits.

f. Among all the sectors, agricultural sector lacks behind in earning income. This sector can engage them in contract farming and cultivate profitable crops.

g. All service for women in rural areas should be integrated and offered as a package program. All services and programs related to agriculture, education, health care, nutrition, family planning and vocational training must be directed towards improving women's earning, increasing their productivity and making economic activity.

h. It is need of the hour that the government should form a Regulatory Authority to oversee the functioning of the Self-Help Groups and find out the members who are not participating in the income generation activities, but lend the money at exorbitant rate of interest. Suitable action may be taken against them.

Conclusion

Out of 81 respondents in manufacturing sector, 12 (14.81 per cent) of them belong to below Rs.25000 level of income, 28 (34.57 per cent) of them belong the range of Rs.25001 to Rs.35000 level of family income, 31 (38.27 per cent) of them belong to the range of Rs.35001 to Rs.45000, and 10 (12.35 per cent) of them belong to Rs.45001 and above level of family income. out of 117 respondents, in trading sector, 13 (11.11 per cent) of them come under the family annual income below Rs.25000, 31 (26.50 per cent) of them belong to Rs.25001 to 35000, 32 (27.35 per cent) of them belong to the category of Rs.35001 to Rs.45000, and 41 (35.04 per cent) of them belong to above Rs.45001. chi-square test after availing credit regarding the annual income of the respondent's family in the study area is that 12.67 per cent of the respondents' come under the category of below Rs.25000, 27.33 per cent of the respondents family belong to the category of Rs.25001 to Rs.35000, 36.33 per cent of the respondents' family belong to the category of Rs.35001 to Rs.45000, and 23.67 per cent of the respondents family belong to the category of above Rs.45001. Mean income of the respondents, there is not much difference in the mean income of the different sectors. The mean income is high in the trading sector which amounts to Rs.35161.49. The service sector occupied the next place, recording an amount of Rs.34151.22, next comes the manufacturing sector with Rs.33411.25. there was a significant variation in the annual income of the respondents among the various sectors and their family size at 5 per cent level of significance. Hence, it may be concluded that the annual income of the respondents and their family size varied significantly among the various sectors such as manufacturing sector, service sector and trading sector.

Paired Income	Mean	N	Std.Deviation	Std. Error
Annual Income (Pre-Credit)	33151.21	300	8761.3516	458.2514
Annual Income (Post-Credit)	21624.25	300	12314.9216	607.2211

Table 9: Results of the paired samples statistics (annual income).

Paired Annual Income	Mean	Std. Deviation	Std. Error Mean	99% confidence interval of the difference		T	Df	Sig (2 tailed)
				Lower	Upper			
Pre-Post Credit	12633.15	6623.6510	345.1121	12613.55	13411.21	35.714	299	0.000

Table 10: Results of the paired differences (annual income).

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Citation: Selvaraj N, Alagukanna AS, Suganya M (2015) Impact of Micro Credit on Household Income of Women in Madurai District, Tamil Nadu-A Study. *Arabian J Bus Manag Review* 5: 160. doi:[10.4172/2223-5833.1000160](https://doi.org/10.4172/2223-5833.1000160)