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Impact of Microfinance on Income and Employment in Pakistan: A Primary Data Analysis

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ABSTRACT

Purpose: This paper investigates impact of microfinance on household income and employment. It is a primary data research conducted in the Bahawalpur division, Pakistan. The study employed the tool developed by Assessing the Impact of Microenterprise Services (AIMS) and Small Enterprise, Education and Promotion (SEEP). The tool has been modified in local context. The sample consists of 1524 respondents, out of which 773 are established clients (treatment group) and 751 are incoming ones (control group), belonging to different microfinance providers of Pakistan. Independent Sample T-Test and Multiple regressions have been used for analysis. The regression analysis shows that participation to microfinance program has strong positive impact on household income while very minute positive impact on employment. Other independent variables such as prior access to any other loan, micro saving, household assets, age of respondent, gender, education and household size have positive impact on household income but a mixed impact on income generating activities.

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1. Introduction

Microfinance is not a new development. Its origin can be traced back to 1976, when Muhammad Yunus set up the Grameen Bank, as experiment, on the outskirts of Chittagong University campus in the village of Jobra, Bangladesh. Since then several microfinance institutions came up and have succeeded in reaching the poorest of the poor, and have devised new ground-breaking strategies with time for the fulfilment of their vision. These included the provision of collateral free loans to poor people, especially in rural areas, at full-cost interest rates that are repayable in frequent instalments. Borrowers are organized into groups and peer pressure among them, which reduced the risk of default.

Microfinance is such a concept that gives the masses and underprivileged section of the society an access to business opportunities and the power to overcome ossified social structures. Apart from the benefit of creating social equality in business arena, finance (particularly microfinance) acts as an extraordinarily effective in eradicating poverty. Microfinance is defined as an entire range of financial and non-financial services including skill up gradation and entrepreneurial development, rendering to the poor for enabling them to overcome poverty. Financial assistance is provided in the form of small loans, acceptance of

small savings and provision of other financial products and services to the poor. It provides the financial services not accessible through the traditional financial system, needed by many people to increase and diversify their economic activities. It boosts self confidence among the poor.

Microfinance is now being considered as one of the most important and an effective mechanism for poverty alleviation. These are also effective mechanisms through which to disseminate precious information on ways to improve the health, education, legal rights, sanitation and other living standards, which are of relevant concerns for the poor. Above all, many micro-credit programs have targeted one of the most vulnerable groups in society – women, who live in households with little or almost no assets. By providing opportunities for self-employment, many studies have concluded that these programs have significantly improved women's security, autonomy, self-confidence and status within the household.

What do we mean by "impact of microfinance"? Impact is about understanding how financial services affect the lives of poor people. Impact indicators extend beyond enterprise measures (assets, employment, revenues) to include multiple dimensions of poverty, including overall household income, social improvements in health and education, and empowerment (in terms of increased self-esteem and control of household resources among women).

Participation in microfinance programme can reduce vulnerability: through three main pathways income-smoothing, building assets and empowering women. It is commonly suggested that micro loans are often used to increase household income not only by increasing the number and diversity of sources of income but also by including increased participation of household members in income-generating activities (IGAs).

It is often observed that borrowers utilize microloans for offering a greater variety of goods and services within the same enterprise or for starting a new enterprise that runs together with their existing IGAs by selling into different markets at different times of year. For example, farmers sell farm products after harvesting, while they trade non-farm products during the pre-harvesting periods. Sometimes the microfinance beneficiaries invest their microcredit, as a side business, in craft-making for a brief tourist season.

It is often observed that the poor, instead of growing one income generating activity into a highly profitable business, are much more likely to develop two or more small businesses. They take it as more risky to invest all eggs in one basket. This diversification strategy, in return, causes to smooth income generation and therefore consumption through the year.

Microfinance leads to increase participation in IGAs by more members of the household. The main contributing factor in this connection is the increased economic activity by women. Especially, when they avail loans and start some IGAs because majority of them had not been much engaged in such activities before having access to loans. The evidence indicates that women spend more time on income-generating work than before. However it is also observed in some other cases that they spend comparatively less time at work but bring in the same or more amount of money because their loan-supported IGAs or investment in labour and time saving technology use their time more productively. Self-employment also often allows women to combine IGAs with child and home care, unlike labour away from home. On the other hand, there has been concern that family-run IGAs are more likely to engage children in labour when they could be in school.

The hypothesized mechanisms, through which microfinance is considered to reduce poverty are diversification of income sources and increased engagement in IGAs. Microfinance is supposed to bring a change in the lives of poor borrowers though these two factors.
While describing different 'makers of change' Sebstad *et al* (1995) strongly recommend the household

income measured by two factors: changes in the amount of income earned by all household members from all IGAs(income generating activities) and changes in the amount of income earned by the household from the IGA in which microfinance has been invested . There is awe-inspiring evidence to validate that households that participate in microfinance programs enjoy an increase in household's income (Murdoch and Haley, 2002). They also benefit from consumption smoothing and the ability to sustain gains overtime (Khandker, 1998). The important contribution of microfinance is its ability to raise the living standard of low income people.

Studying the impact of microfinance on employment is very important as it provides the base for economic growth. All the studies dealing with theoretical issues of impact of microfinance strongly recommended the inclusion of employment (Nelson *et al* 2000; Sebstad *et al* 1995; Schafer, 2001).The earlier impact assessment studies present a very substantial evidence of this impact domain and demonstrate mix result about the impact

In this paper, we try to present evidence of the important contributions made by microfinance in the eradication of poverty by increasing the household income, per capita household income, the income generating activities and the persons involved in IGAs.

2. Literature Review

Saboor *et al* (2009) analyzed how micro-credit affect the farm income and agricultural production in Rawalpindi and drew some fruitful policy lessons. An important finding was that availing microcredit has significant positive impact on average farm income of farmers with credit from crops which was PKR 32708 as compared to PKR 30115 for without credit. Average farm income from livestock was recorded PKR 42000 for credit category and PKR 44385 for without credit category. To attract maximum farmers, he study recommended a fool proof system for acquiring credit and recovering it.

Waqas *et al* (2015) studied the role of the microfinance institutions in alleviating poverty. Primary data was collected through questionnaires from the clients of Tameer Microfinance Bank. Multiple linear regression and paired t-test were applied for analysing the data. It has been found that the income of the microcredit beneficiaries increases after availing microfinance. Beta coefficient of credit is 0.690 which indicates that 1 percent increase in credit will bring 69 percent increase in the income of the borrowers. Moreover Results show that microfinance has a strong positive impact on children education and enterprise financial performance. However, there is mixed evidence found on food security, household expenditures and household assets.

Abbas *et al* (2005) designed a study to explore the correlation not only between participation in microfinance programme and increase in income but also between increased income and consumption. The study conducted in Faisalabad district obtained the primary data from a sample of seventy microfinance borrowers of three branches of National Bank of Pakistan through questionnaire. The overall impact of micro financing on per capita income was highly significant and also positive with an increase of 33 percent, from PKR 1221 to PKR 1628. The results indicate that micro credit and change in income are positively and highly correlated with a value of correlation 0.859. The value of correlation (0.7024) between increased income and consumption implied that greater part of changed income is consumed by respondents. Regression analysis showed positive coefficient for change in income against availing microcredit (0.13) and change in consumption against change in income (0.14).

Akram and Hussain (2011) studied the contribution of microfinance in raising the living standard of low income people of district Okara Pakistan. It is a primary data research. The main concern is with the impact of microfinance on income level which is observed positive as 85.40% of respondent reported that their income level has increased after getting microfinance facilities. However as the limitations are concerned, the sample size is too short to generalized the result.

Waheed (2001) defines microcredit and studies the micro financing of PRSP (Punjab Rural Support Programme) in terms of impact of microfinance on income. The results of survey show that 43 percent

loans were taken for livestock with 118.7percent change in income.25percent loans for micro enterprises with 118percent change in income and 25percent loans for agriculture inputs with 27.7percent change in income

Naureen (2010) surveyed four microfinance institutions to study the role of microfinance in poverty alleviation. It was a primary data research. Impact of microfinance has been analyzed both on household and enterprise level by comparing new clients to establish ones, using chi sequence test. Results presented a mix picture of impact, showing significant impact on children education and financial performance of enterprise, mixed evidence on food security and assets and no impact on housing and income smoothing of enterprise.

Brannen (2010) tried to expand and improve upon the earlier studies and to re-examine the impact of Village Saving and Loan Association (VLSA). He presented a general profile of the Tanzania and also highlighted the historical, economic and social context of the study. The study had a rich discussion about selection bias. The study focused on social and economic impacts which are assessed at both the individual and household level. The study observed the positive impact of VLSA participation on income generation activities

Akhtar (2014) assessed the impact of microfinance on the welfare of microfinance bebeficiaries. The sample size for the study is sixty-two respondents and Danyore Union council is focus area. The results show improvement in health, education and income level after availing microfinance.It has been found that microfinance loan affects the household level of income as it increases by Rs 4165.34. The value of the coefficient of β1 is 0.056350; it shows a one unit of microfinance loan taken leads to increase in household income of clients by Rs 0.056350. It shows that a microfinance loan affects the income level of clients but in minor terms.

Barnes *et al* (2001) investigate the impact of three microfinance programs in Uganda i.e. FINCA, FOCCAS and PRIDE on profits of the enterprises of borrowers and non-borrowers. By comparing the both groups, the study found out strong positive impact of microfinance on profits. Almost 43 percent of the borrowers experienced increase in the profit from their enterprises as compared to only 31 percent of non-borrowers experienced the increased profit.

Arjmand (2004) investigates the impact of Kashf microfinance on eradicating poverty. It is a longitude study based on before after approach providing a comprehensive comparison between control and treatment groups. Initially their monthly incomes were approximately same (PKR 5158 for comparison group and PKR 5376 for treatment group).One year later, the members of Kashf Foundation reported a significant increase of 30.9 percent in their monthly average income; while the members of control group reported only 20.3 percent increase. The monthly average incomes of Kashf beneficiaries and comparison group have increased to PKR 7039 and PKR 6206 respectively.

3. Objectives of the Study

The objectives of the study are:

- To evaluate the impact of microfinance on household income
- To assess the impact of microfinance on employment

4. Data and Methodology

The present study has been conducted in the area of Bahawalpur Division which was princely state. It is situated along the southern bank of the Sutlej and Indus Rivers.

To study impact of microfinance on household income and employment level, the comparison between mature clients and incoming clients has been analysed. The use of incoming clients as a control group has two pluses. First, there is no need to identify and survey non- participating members to generate a control

group. Inclusion of such members causes selection bias and it becomes difficult to motivate them to participate in a time-consuming survey. Second, another advantage is that there is no need to follow clients over time, as in a longitudinal survey (Karlan, 2001). However the problem of experiencing the differences in the entrepreneurial spirit, decision power, health quality can be tackled by the cross-sectional approach, as both its control and treatment group consist of such members who have decided to participate in the microfinance programme The incoming clients are the control group, whereas the clients with a membership of microfinance programme for more years are the treatment group (Karlan, 2001)

The sample for the present study consists of 1524 respondents, out of which 773 are established clients (treatment group) and 751 are incoming ones (control group). They all are clients, either mature or incoming, of the following MFPs which are the leading supplier of microfinance services in the area of study: National Rural Support Programme(NRSP), Akhuwat (AKHU), The First Microfinance Bank Ltd.(FMFB), Kashf Foundation (KASHF), Khushhali Bank (KB), National Rural Support Programme Bank Ltd. (NRSP-B), Tameer Microfinance Bank Ltd. (TMFB). With respect to infra-structure, financing structure and outreach, these microfinance providers (MFPs) are the prominent institutions of Pakistan microfinance sector.

4.1 Formulation of Hypotheses and Operationalization of Variables

Based on the literature review presented above, we formulate the hypotheses and operationally define the variables. Purpose of operationalization is to translate the variables into measurable elements. To analyse the impact of microfinance on income and employment, we test the following hypotheses:

H1 a: Participation in microfinance programme leads to increase monthly household income
H1 b: Participation in microfinance programme leads to increase per capita monthly household income
H1 c: Participation in microfinance programme leads to increase income from IGAs where microcredit invested
Moreover to investigate the impact on employment, we formulate the following hypotheses:
H2 a: Participation in microfinance programme leads to increase the household income generating activities (IGAs).
H2 b: Participation in microfinance programme leads to increase the number of persons involved in IGAs.
The impact domain of income can be analysed in detail by three impact dimensions: (i) monthly household income (ii) per capita monthly household income (iii) monthly income from IGAs where microcredit invested. To investigate the impact dimension of household employment, two impact indicators have been designed: number of IGAs, persons involved in IGAs.

Table 1: Operationalization of Dependent Variables

Impact Dimension	Impact Indicators	Source
Income	INCM 1 = Monthly Household Income	Nelson et al. (2000), Sebstad et al. (1995) Waheed (2001)
	1NCM 2 = Per Capita Monthly Household Income	Hossain (1998), Abbas et al. (2005)
	INCM 3= Monthly Income from IGAs where microcredit invested	Sebstad et al. (1995)
Household Employment	EMPL1 =Number of IGAs	Nelson et al. (2000), Brannen (2010)
	EMPL 2= Persons involved in IGAs	Schafer (2001), Brannen (2010)

Model Specification for impact of microfinance on income and employment

In the present study, regression analysis measures the impact of program participation and some other important socio-economic variables on a specific set of dependent (outcome) variables, as the following

expression explicates;
Yi= f (MMFP, PAOL, MSAV, NOEP, IGAs, IMFI, HHAS, AGE, GNDR, EDU, HHSZ)
Where Yi= dependent/ outcome variables which are household income and employment

Independent Variables: As the independent variables are concerned, they are:

- 'Membership to microfinance programme'(MMFP) which is a binary variable. As all the members of treatment group with membership for more than three years take the value '1' while all the members of control group with membership for less than three months take the value '0'.
- Prior access to any other loan (PAOL)
- Micro saving (MSAV)
- Number of employed persons (NOEP)
- Number of income generating activities (IGAs)
- Household assets (HHAS)
- Age of respondent (AGE)
- Gender (GNDR)
- Education (EDU)
- Household size (HHSZ)

Age has been measured by number of years of age, while gender is a binary variable with value 1 for female and 0 for male.

4.2 Multiple Linear Regression Model for Monthly Income and Employment

To investigate the impact of microfinance on household income and employment, five models have been designed

$$INCM\ 1= \beta_0 +\beta_1\ MMFP + \beta_2 PAOL+\beta_3\ MSAV + \beta_4 NOEP + \beta_5\ HHAS + \beta_6\ AGE+ \beta_7\ GNDR+ \beta_8 EDU+ \beta_9\ HHSZ +Ui$$

$$INCM\ 2= \beta_0 +\beta_1\ MMFP + \beta_2 PAOL+\beta_3\ MSAV + \beta_4 NOEP+\beta_5\ HHAS + \beta_6\ AGE+\beta_7\ GNDR+ \beta_8 EDU+ \beta_9\ HHSZ +Ui$$

$$INCM\ 3= \beta_0 + \beta_1\ MMFP + \beta_2\ PAOL + \beta_3\ MSAV + \beta_4\ NOEP + \beta_5\ HHAS + \beta_6\ AGE+\beta_7\ GNDR+ \beta_8 EDU+ \beta_9\ HHSZ +Ui$$

$$EMPL\ 1= \beta_0 +\beta_1\ MMFP + \beta_2\ PAOL + \beta_3\ MSAV + \beta_4\ NOEP + \beta_5\ HHAS + \beta_6\ AGE + \beta_7\ GNDR+ \beta_8 EDU+ \beta_9\ HHSZ + Ui$$

$$EMPL\ 2= \beta_0 +\beta_1\ MMFP + \beta_2 PAOL+\beta_3\ MSAV + \beta_4 IGAs+\beta_5\ HHAS + \beta_6\ AGE+\beta_7\ GNDR+ \beta_8 EDU+ \beta_9\ HHSZ + Ui$$

5. Result and Discussion

The earlier evidence from literature presents a notable positive relation between household income and participation in microfinance programme (Murdoch and Haley, 2002; Khandker, 1998). The table 2 presents the central tendency, minimum and maximum values and standard deviation of each of five variables mentioned above for both groups: treatment and control group. The data analysis shows that the average monthly household income of treatment group is PKR 20061 which is greater than that of control group that is PKR 14387. So it can be concluded that participation in microfinance programmes contributes to increase in income but with a notable variations as the standard deviation is 7394.

Table 2: Descriptive analysis of Comparison between Treatment and Control Group with respect to Monthly Income (INCM) and Employment (EMPL)

Variable	Treatment Group				Control Group			
	Mean	Min	Max	S.D.	Mean	Min	Max	S.D.
INCM 1	20061	5000	50000	7394	14387	4000	45000	5443
INCM 2	4197	800	20000	2265	3090	444	24000	1937
INCM 3	11831	2000	30000	5551	6673	0	22000	4509
EMPL 1	1.94	1	5	0.68	1.87	1	4	0.64
EMPL 2	2.11	1	6	0.92	1.89	1	6	0.89

About the per capita monthly income (INCM 2) and income from IGAs where microcredit has been invested (INCM 3) it is found that the treatment group enjoyed a higher level of income as compared to control group. This indicates a better living standard on the part of treatment group. The per capita monthly income for treatment group is PKR 4197 as compared to only PKR 3090 for control group. The average income from IGAs where microcredit invested is PKR 11831 and PKR 6673 for treatment and control groups respectively.

As the number of income generating activities (EMPL 1) is concerned, no substantial difference has been found between the two groups. On average, among the treatment group the household members are involved in 1.94 IGAs as compared to 1.87 IGAs involved by household members of control group. About the number of persons involved in IGAs (EMPL 2), the treatment group appears to be marginally better with the average of 2.11 than control group with the average of 1.89.

Table-3: Independent Sample T-Test for Income and Employment

Variable	**Levene's Test for Equality Variances**		**t-test for Equality of Means**			
	F	**Sig**	**T**	**df**	**Sig. (2-tailed)**	**Mean Difference**
INCM 1	49.09	0.00	-17.02	1522	0.00	-5674.63
INCM 2	27.21	0.00	-10.24	1522	0.00	-1106.86
INCM 3	36.09	0.00	-19.22	1459	0.00	-5116.49
EMPL 1	0.07	0.79	-1.950	1522	0.27	-0.06
EMPL 2	0.06	0.81	-4.796	1522	0.00	-0.22

With respect to INCM 1, INCM 2 and INCM 3, the table 3 shows that the significance value of the Levene test statistic is lesser than 0.05, we do not accept the null hypothesis at 95 percent confidence interval and have no confirmation to claim that the variances are equal and the difference between the means of both samples, treatment and control groups is equal to 0 against the alternative hypotheses that the difference between the means of both samples are not equal to 0. The income more earned by treatment group is not due to chance alone. So we do not reject the alternative hypotheses (H_1 a, H_1 b, H_1 c) that participation in microfinance programme leads to increase household income.

The table 3 shows that the no significant difference has been found between treatment and control groups in terms of income generating activities and number of employed persons. (EMPL 1 and EMPL 2). The Levene's Test for equality variances for employment (EMPL) showed that the significance values for all the both variables is remarkably greater than 0.05, indicating that there is adequate evidence to claim that variances are equal. So, we do not reject the null hypothesis that the both groups are different with respect to sample means.

Regression analysis is used to explore further the impact of microfinance. In the present study, regression analysis measures the impact of program participation and some other important socio-economic variables on a specific set of dependent (outcome) variables. As we aim not only at assessing the relationship between dependent and independent variables but also at identifying the independent variables which

comparatively have a greater effect on the dependent variable, so the present study relies on both standardized and unstandardized coefficients for analysis.

Following table 4 provides summary of regression results for monthly household income (INCM 1)**,** per member household monthly income (INCM 2), monthly household income from IGAs where microcredit was invested (INCM 3). The level of significance is 95% for all data analysis in the present study as it is a rule of thumb for social science studies.

The results for INCM 1 show that all the independent variables except MSAV and GNDR effect monthly household income positively and significantly. The contribution of MSAV and GNDR is also positive but insignificant at 95 percent level of confidence. Membership of Microfinance programme (MMFP) leads to increase the monthly household income.

Table 4: Regression Analysis for Monthly Household Income (INCM 1), Per Member Household Monthly Income (INCM 2), Monthly Household Income from IGAs where microcredit invested (INCM 3)

a) Coefficients

Model	**INCM 1**		**INCM 2**		**INCM 3**	
Variables	Beta	Standardized Beta	Beta	Standardized Beta	Beta	Standardized Beta
Constant	3345.597		4086.698		6929.059	
MMFP	3086.140*	0.217	594.621*	0.14	4565.654*	0.401
PAOL	734.088*	0.061	87.271	0.023	-7.3680	0.000
MSAV	216.617	0.013	137.234	0.027	511.262	0.039
NOEP	1227.093*	0.157	16.012	0.007	1797.816*	0.288
HHAS	830.226*	0.407	160.324*	0.260	301.335*	0.182
AGE	37.9040*	0.050	8.3300*	0.035	5.0030	0.008
GNDR	265.639	0.018	38.874	0.005	-1209.330*	-0.104
EDU	359.355*	0.223	88.950*	0.180	82.233*	0.064
HHSZ	212.109*	0.070	-518.004*	-0.56	246.642*	0.100

b) Model Summary and ANOVA Results

	Model Summary			**ANOVA Results**	
Model	R	R Square	Adjusted R Square	F	Sig.
INCM 1	0.687	0.472	0.468	135.089	0.00
INCM 2	0.648	0.420	0.417	121.12	0.00
INCM 3	0.590	0.348	0.344	85.89	0.00

Although PAOL (prior access to any other loan) also has a significant positive impact on INCM1, yet it is lower in terms of both standardized and unstandardized coefficients which imply the supremacy of microfinance to any other loan. The table 4 shows that NOEP and HHAS affect INCM1 significantly and positively. Higher the number of employed persons in household, the higher would be monthly household income. The variable, HHAS, is a comprehensive index for household assets containing several livestock, transportation and electric appliances. Contribution of HHAS to the model is significant and positive one.The positive contribution to the model by NOEP and HHAS indicates the indirect positive impact of participation in microfinance programme on INCM1, as the both are directly affected by membership to microfinance programme.

The positive coefficient associated with AGE implies that more aged people earn more. Similarly the positive contribution of GNDR to the model suggests that female respondents have higher monthly household income as compared the male ones. The significant positive beta attached with EDU indicates that the educated people have higher potential to earn more. Moreover the results of table show that the

greater the household members, the higher the household income level as more members are available for income generating activities.

As the standardized coefficients are concerned, it has been found that the variable which has greater effect on dependent variable is HHAS with standardized beta equal to 0.40. The other more significant variables are EDU and MMFP with standardizes beta 0.223 and 0.217 respectively. The standardizes beta for MMFP shows that monthly household income would change 0.217standard deviation, due to per standard deviation change in membership to microfinance programme (MMFP).

The results for INCM 2 show that all the independent variables expect HHSZ effect per member monthly household income positively. Among these variables, MMFP, HHAS, EDU have significant impact while PAOL, MSAV, NOEP, AGE, GNDR have insignificant one at 95 percent level of confidence. However HHSZ affect the INCM 2 negatively and this effect is statistically significant. As the standardized coefficients are concerned,it has been concluded that the most influential and effect determining variable is HHSZ with a higher standardized beta that is 0.56. The other influential variables are HHAS,EDU and MMFP with high standardized betas that are 0.26, 0.18 and 0.14 respectively.

The regression analysis for monthly income from IGAs where microcredit invested has been presented in column 3. The independent variables such as MMFP, NOEP, HHAS, EDU, HHSZ have strong and significant effect on dependent variable, INCM 3. Simply participation to microfinance programme would lead to increase INCM 3. On the other hand, the MSAV, AGE have a positive but insignificant effect. PAOL and GNDR affect the dependent variable negatively; however the coefficient of PAOL is insignificant one.. PAOL has an insignificant negative effect on INCM 3, implying that access to any other loan instead of microloan, just creates a financial burden and does not lead to increase income. The proponents of micro saving take it as a substitute for microloan but the regression analysis in the present study depicts a lesser positive impact of micro saving on income as compared to microcredit. GNDR has been found to be negatively correlated with INCM 3, implying that male respondent have a higher level of monthly income from the project where microfinance has been invested than female ones.

With respect to the standardized coefficients, it has been found that the most influential and effect determining variable is MMFP with a higher standardized beta that is 0.401. The other influential variables are NOEP, HHAS with high standardized betas that are 0.288 and 0.182 respectively.

According to model summary, the multiple correlation coefficients, R, are 0.687, 0.648 and 0.59 for INCM 1, INCM 2, INCM 3 respectively showing high linear correlation between predicted and observed values of all the three variables. Values of R- Square, are 0.472, 0.420 and 0.348 for INCM 1, INCM 2, INCM 3 respectively indicating variations have been explained by the model. The significance value of the F statistic is less than 0.05 for all the three models, which means that the variation explained by the model is not due to chance.

Table 5: Regression Analysis for Number of IGAs (EMPL1) and Persons involved in IGAs (EMPL 2)

a) Coefficients

Model	EMPL1		EMPL2	
Variables	Beta	Standardized Beta	Beta	Standardized Beta
Constant	0.979		0.601*	
MMFP	0.090*	0.068	0.163*	0.090
PAOL	0.033	0.029	0.004	0.003
MSAV	0.055	0.037	-0.172*	-0.083
NOEP/IGAs	0.470*	0.649	0.689*	0.499
HHAS	0.007*	0.038	0.041*	0.156
AGE	0.002	0.025	0.009*	0.088
GNDR	-0.021	-0.015	0.364*	0.195
EDU	-0.003	-0.021	-0.019*	-0.090
HHSZ	0.017*	0.060	0.086**	0.221

b) Model Summary and ANOVA Results

	Model Summary			ANOVA Results		
Model	R	R Square	Adjusted R Square	Df	F	Sig.
EMPL1	0.642	0.412	0.408	1522	117.67	0.00
EMPL2	0.740	0.548	0.545	1522	203.51	0.00

The table 5 presents the regression analysis for number of IGAs (EMPL1) and persons involved in IGAs (EMPL 2). MMFP, NOEP, HHAS and HHSZ have positive and significant effect on the dependent variable (EMPL1). PAOL, MSAV and AGE have positive but insignificant effect on EMPL1.While the GNDR and EDU impose a negative but insignificant effect on EMPL1.With respect to unstandardized coefficients, it has been found that the small value of coefficient for MMFP indicates that participation to microfinance programme effect the number of income generating activities very minutely. The established clients have been expected to have only 0.09 more IGAs than incoming ones. The positive effect of NOEP on EMPL1 is a remarked one while that of HHAS and AGE are very minute. The negative coefficient for GNDR implies that male respondents have more IGAs as compared to female ones. Female respondents have to confine themselves to some specific economic activities due to some social constraints. The effect of EDU on EMPL1 is negative but insignificant one, implying no strong relation between the both variables.

With respect to the relative importance, explained by standardized coefficients, NOEP has been found the sole dominant and the most impactful variable with standardized beta 0.649 while a comparatively very small standardized beta for MMFP has been found.

The summary of regression results for persons involved in IGAs (EMPL 2) have been presented in column 2. All the predictors except MSAV and EDU have positive effect on dependent variable (EMPL 2). However the effect of MSAV and EDU is negative and significant one. The positive and significant coefficient for MMFP implies that due to one unit change in MMFP, the expected change in EMPL 2 would be 0.163. The effect is positive but minute one. The members of treatment group would be slightly better than those of control group with respect EMPL 2. The negative coefficient for MSAV demonstrates that higher microsaving provides financial stability against shocks and thus involves less participating members in IGAs. The significantly negative coefficient for EDU implies that an educated respondent prefers more to send his/her children to college /school than to involve in IGAs as compared to illiterate ones. The variable GNDR has a significant positive coefficient showing that all the households of female respondents have higher number of employed persons than those of male respondents because of the female participation in economic activities.

Using the standardized coefficients, to investigate the relative effectiveness of independent variables for the dependent one, EMPL2, it has been found the most impactful variable for EMPL2 is IGAs with standardized coefficients, 0.499, followed by HHSZ and GNDR with standardized coefficients, 0.221 and 0.195 respectively. MMFP has a comparatively very small effect with standardized coefficient, 0.09.

According to model summary, the multiple correlation coefficients, R, are 0.642 and 0.74 for EMPL1 and EMPL 2 respectively showing high linear correlation between predicted and observed values of both variables. Values of R- Square, are 0.412 and 0.548 for EMPL1 and EMPL 2 respectively indicating the variations explained by the model. The significance value of the F statistic is less than 0.05 for both models, which means that the variation explained by the model is not due to chance.

6. Conclusions

The present study measures the impact of program participation on a specific set of dependent (outcome) variables. The household monthly income has been found to be positively correlated with all the independent variables including Membership to Microfinance programme (MMFP). MMFP leads to increase the monthly household income.

However the most impactful variable is HHAS with standardized beta equal to 0.40 followed by EDU and MMFP with standardizes beta 0.223 and 0.217 respectively. Similarly all the variables effect the household monthly income from the IGAs where microfinance has been invested(INCM 3) positively except GNDR. The most influential and effect determining variable in this connection is MMFP with a higher standardized beta that is 0.401. The other influential variables are NOEP, HHAS with high standardized betas that are 0.288 and 0.182 respectively.

Participation to microfinance programme effect the number of income generating activities very minutely. The mature clients have been expected to have only 0.09 more IGAs than incoming ones. The positive effect of NOEP on EMPL1 is a remarked one while that of HHAS and AGE are very minute. The negative coefficient for GNDR implies that male respondents have more IGAs as compared to female ones. Female respondents have to confine themselves to some specific economic activities due to some social constraints. The effect of EDU on EMPL1 is negative but insignificant one, implying no strong relation between the both variables. All the predictors except MSAV and EDU have positive effect on the number of persons involved in IGAs. The negative coefficient for MSAV demonstrates that higher microsaving provides financial stability against shocks and thus involves less participating members in IGAs. The significantly negative coefficient for EDU implies that an educated respondent prefers more to send his/her children to college /school than to involve in IGAs as compared to illiterate ones.

6.1 Policy Implications

From the study, the following suggestions are devised to make micro-credit more effective as a tool for poverty alleviation.

- Microcredit schemes should have broader target group, including the ones in extreme poverty. The solution for providing microfinance services to the very poor is to design programs that suit the needs of destitute families.
- While designing an effective microfinance programme, MFIs should integrate microfinance scheme to the life style of an area by using knowledge of the specific culture and traditions of that area.
- For better utilization of microfinance, the provision of basic education and relevant business training should be coupled with the financial support provided by microcredit programme.
- Micro-credit programs should also focus on women. Focus on female entrepreneurs allows marginalized women to gain access to the economic opportunities that they need to empower themselves.

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