"Microfinance Intervention and Socio-economic Transformation: An Application of Propensity Score Matching and Difference-in-Difference Technique"

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Abstract

"Socio-economic" development is an important barometer for measuring and understanding transformation of individual, family, society and country as a whole. It has gained even more importance in the new economy with a special focus on its transformation aspect. The role of microfinance intervention on socio-economic transformation is an important area of discourse in recent times. Evidences from studies conducted across the globe have appropriately highlighted the potency of microfinance. Consistent with Impact Assessment the study aims at examining the association between microfinance intervention and socio-economic transformation by using a contemporary technique classified as Propensity Score Matching aptly supplemented by another, namely Difference-in-Difference. The linkage relationship between economic transformation and social transformation is examined and issues and evidences of socio-economic transformation are documented. To empirically assess the impact of microfinance on socio-economic transformation a comparative analysis between microfinance (experimental) and non-microfinance (control) groups is conducted by considering Meghalaya as a case by evaluating economic and social variables. PSM enabled perfect comparison between samples of the two groups and inferences were drawn. It was found that microfinance increased income, expenditure and savings of clients better than the control group, transformed individual wellbeing and as such has percolated into transformation of the family and society as a whole with significant changes in education decision making, health status, capacity building, access to social amenities and mobility, which are again less prominent in the control group. Overall, the study establishes that microfinance intervention leads to positive and meaningful socio-economic outcomes.

Key Words: Propensity Score Matching, Difference in Difference, Socio-economic

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I Introduction

Transformation is a process, spread over a period of time. It refers to a tangible and verifiable change in the wellbeing and standard of living. Socio-economic change, amongst others is a hallmark and a major indicator of transformation. Interventions, financial and non-financial are stimuli for transformation requiring consistent exposure over time. In recent years transformation of lives and livelihood of the underprivileged has gained highest prominence the world over, particularly in developing economies.

"Socio-economic transformation" defines a measurable, sustainable and significant growth in the economic and social spheres depicted through a change in economic capacity (income, expenditure and savings) and social development (education, health, capacity building, etc.). It is a gauge of the appreciation of an individual, family and society as a whole. In India, several interventions have been experimented at Center as well as state level to bring about the desired transformation and presently more emphasis is on inclusive growth. Inclusive growth is "growth inspired and contributed by all sections of the society through equal opportunities and equitable distribution of resources and the benefits thereof enjoyed by all" and an outcome of socio-economic transformation. Further, the concept of socio-economic transformation is closely related with availability of finance at grassroots level, thus the need of financial inclusion has become paramount.

One of such financial interventions in global scenario, which has earned much accolade, is micro finance. It is defined as financial and non-financial micro-services (loans, savings, insurance, transfer services, etc.) targeted at low income clients ***(Khandelwal, 2007)*** comprises a major intervention for financial inclusion and socio-economic transformation of the underprivileged. Large-scale and wide-scale microfinance intervention through SHGs can vividly transform and empower the underprivileged, particularly in rural areas. Moreover, consistent with the profile of microfinance, focus must be on women. Women are poorer and more disadvantaged than men. **UNDPs 1995 Human Development Report found that 70% of the 1.3 billion people living on less than $1 a day are women *(Word Bank, 2001).*** World over including India, women are the disadvantaged and neglected lot. They have a limited presence in economic activities and are hardly considered in the formulation and implementation of any developmental scheme/programme. **India has 37% of the world's population earning less than $1 a day, of which 60% are women *(HDR, 2003).*** Women produce on an average more than half of all the food that is grown: up to 80 per cent in Africa, 60 per cent in Asia, between 30 to 40 per cent in Latin America and Western countries, but unfortunately, own only 2 per cent of the land, receive only one per cent of all agricultural credit, only 5 per cent of all agricultural extension resources are directed to women, represent two third of all illiterate people and the number of rural women living in poverty has doubled since 1970 ***(Ghosh, 2007)***. Hence, there forms a demand for active participation of women.

Propensity Score Matching (PSM), a contemporary technique used for impact assessment, is applied in the study for gauging the potency of microfinance intervention on socio-economic transformation in comparison to other interventions. The propensity score is based on a logistic regression with a dichotomous dependent variable assuming the value of "1" if the individual is in the experimental group and "0" if the individual is in the control group. Logistic regression is used to determine the extent to which the covariates can predict whether an individual is in one group or the other, and provides an indication of the degree to which the groups are unbalanced on these covariates. It further provides a summary of the accuracy of the overall prediction based on the model. Hence, logistic regression is used to estimate the probability that individual would be in the experimental or control group. This estimated probability is called the propensity score for that individual which is the probability of receiving treatment given the covariates **(*Love, 2003; Deininger and Liu, 2009*)**. Individuals from the experimental and control group having the same propensity score are then compared in terms of their socio-economic outcomes (using difference-in-difference) for inference on the impact of an intervention, in this case microfinance intervention.

Purportedly, suggestions of a close knit relation between women focused microfinance intervention and socio-economic transformation is a primary area of concern in the study with emphasis and focus being laid on evidences from a case analysis.

Objectives, Methodology and Presentation:

As seen in many of the cases microfinance has been successful in bringing change in lives of the clients - most of the cases women. The objectives of the study are specifically related to impact assessment of women oriented microfinance intervention, namely (a) to examine the association between microfinance intervention and socio-economic transformation, and (b) to analyse the nature and degree of socio-economic transformation of microfinance intervention.

a) Study area:

Meghalaya is considered as a case analysis in the study for drawing specific inferences on *microfinance intervention and socio-economic transformation*. The SHG activity has started picking up in the state only after the year 2000 and as on 31st March, 2009 9419 SHGs were in existence under SGSY (Table 1). 57% of the SHGs are women SHGs and the rest are men and mixed SHGs and each SHG houses around 10 to 15 members. Women make up a sizeable number in total membership (65%) with the male folk making up the rest (35%). Most of the women SHGs (30.81%) are concentrated in West Garo Hills District and mixed SHGs are very popular particularly in East Khasi Hills, West Khasi Hills and Jaintia Hills and Ri-Bhoi District.

Table 1

District-wise Distribution of SHGs in Meghalaya as on 31st March, 2009.

Sl. no	District	SHGs	Women SHGs	Men and Mixed SHGs	Women SHGs (District) (%)	Women SHGs (Total) (%)
1	East Khasi Hills	883	391	492	44.28	4.15
2	West Garo Hills	4235	2902	1333	68.52	30.81
3	West Khasi Hills	1081	421	660	38.95	4.47
4	Jaintia Hills	728	173	555	23.76	1.84
5	East Garo Hills	1367	978	389	71.54	10.38
6	South Garo Hills	437	328	109	75.06	3.48
7	Ri Bhoi	688	178	510	25.87	1.89
8	**Grand Total**	**9419**	**5371**	**4048**	**-**	**57.02**

Source: Office of the State Coordinator for SHGs in Meghalaya, Govt. of Meghalaya

b) Data Source:

For this study primary data has been collected from 150 women micro finance clients (Experimental Group) and 75 women non-microfinance clients (Control Group) from all the seven districts of the state of Meghalaya. This forms the main data source for the empirical analysis. Two data sets are used as it would provide a comparative analysis and substantiate the potency of microfinance as a major tool for socio-economic transformation. Apart from this, secondary published sources like international and national journals, documents, reports, resources are referred to gather evidence about the relation between microfinance intervention and socio-economic transformation.

c) Sample Profile:

The experimental group sample size is drawn at random from SHGs of IFAD Project, Government Schemes, Churches and Non-Governmental Organisations (NGOs) and the control group sample is considered from microfinance sample villages to enable comparison. Table 2 presents a clients profile in terms of age, educational qualification and family type, the objective being to assess the homogeneity of the two samples for valid comparison. Variables are identified and captured through the primary survey of women with the help of a structured schedule. Particularly the focus is laid upon the economic variables namely, income, expenditure and savings and social variables namely, education decision making, health status, access to social amenities, mobility and capacity building. While the economic variables are measured through actual figures the social variables are measured through scoring, which ranges from 4 (four) to 1 (one) (4 being the highest and 1 lowest). Growth is measured as the difference in the magnitude of a given parameter between pre and post microfinance situations spread over a period of five years.

Table 2

Clients Profile

Variables	Classification	West Garo Hills District		East Garo Hills District		South Garo Hills District		West Khasi Hills District		East Khasi Hills District		Jaintia Hills District		Ri Bhoi District		Total	
		EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG	EG	CG
Age	**<26**	7	2	1	0	0	0	3	1	4	0	1	0	1	1	**17**	**4**
	26-35	21	14	4	2	6	3	5	2	8	3	2	3	5	2	**51**	**29**
	36-45	24	10	5	2	3	2	13	7	3	3	6	2	2	2	**56**	**28**
	46-55	10	7	0	1	1	0	3	1	0	2	4	2	2	0	**20**	**13**
	>55	3	0	0	0	0	0	1	1	0	0	2	0	0	0	**6**	**1**
	Total →	**65**	**33**	**10**	**5**	**10**	**5**	**25**	**12**	**15**	**8**	**15**	**7**	**10**	**5**	**150**	**75**
Educational Qualification	**Illiterate**	22	5	0	0	1	0	8	5	1	3	2	1	4	2	**38**	**16**
	Primary	15	8	2	1	4	2	4	3	4	2	4	2	3	1	**36**	**19**
	Upper Pri	6	8	2	0	1	2	4	1	1	2	2	0	3	2	**19**	**15**
	High School	20	11	6	2	4	1	7	3	8	1	5	4	0	0	**50**	**22**
	Graduation	2	1	0	2	0	0	2	0	1	0	2	0	0	0	**7**	**3**
	Total →	**65**	**33**	**10**	**5**	**10**	**5**	**25**	**12**	**15**	**8**	**15**	**7**	**10**	**5**	**150**	**75**
Family Type	**Nuclear**	42	17	4	2	4	2	20	11	11	7	8	5	8	3	**97**	**47**
	Extended	18	9	5	2	5	2	4	1	4	1	5	1	2	1	**43**	**17**
	Joint	5	7	1	1	1	1	1	0	0	0	2	1	0	1	**10**	**11**
	Total →	**65**	**33**	**10**	**5**	**10**	**5**	**25**	**12**	**15**	**8**	**15**	**7**	**10**	**5**	**150**	**75**

Source: Field Survey ***EG – Experimental Group, CG – Control Group***

d) Techniques:

Propensity Score (PS) Matching [i.e. the probability that a unit receives treatment, given the covariates, $PS = e^z/1+e^z$, $z = b_0+b_1x_1+b_2x_2+b_3x_3+b_4x_4$, $\ln(PS/1\text{-}PS) = z$, and Y (dichotomous variable) = 1 if treated and 0 otherwise, x_1 = age, x_2 = education level, x_3 = employment status and x_4 = wealth] ***(Mangala and Chengappa, 2008; Love, 2003; Deininger and Liu, 2009)*** is the main technique used for analysis. It propounds that outcomes of the experimental group, if not treated confers the control group outcomes and vice versa. It is computed as, PS = (Y = 1/0, Covariates). The covariates x_1, x_2, x_3 and x_4 form the basis for reliable and valid comparison between the experimental and control groups. Moreover, they define the beneficiaries of microfinance clients, as they are of a certain age, with a certain education level, were unemployed or self employed or employed and have some or no wealth in their hands. Difference-in-Difference (DinD) Method [i.e. the intra and inter variation between the experimental group (E) and control group (C), symbolically, $(E_1 - E_0) - (C_1 - C_0)$ where 1 = current year and 0 = base year] ***(Deininger and Liu, 2009)*** and Correlation Analysis are the main statistical techniques used for data analysis. Averages of the PS and DinD are considered, and this forms a valid and objective means of analyzing the socio-economic impact of microfinance intervention.

e) Presentation:

In addition to the introductory section, the study is classified under four additional sections. The following section presents a conceptual discussion on the linkages between social transformation and economic transformation. The third section portrays the socio-economic outcomes of microfinance intervention by highlighting key issues and evidences from International and National studies. The penultimate section deals with data analysis and results and the last section pens down the observations and conclusion from the study.

II Social Transformation: A Backward Linkage

Microfinance as an intervention produces transformations which can be construed in two major ways, economic and social. Moreover, these transformations are synonymously tallied with the concept of empowerment. Basically, economic aspect and social aspect may be considered as one set of transformation or separately. In the former, it is termed as development centered transformation and perceived as being empowered, while in the latter, economic transformation (empowerment) leads to social (development) transformation. Most of the literatures identify certain elements of transformation. They are- ***economic transformation* -** access to savings and credit gives them a greater economic role in decision-making through their decision about savings and credit, ***increased well-being* -** access to savings and credit facilities and decision about what is being done with savings and credit strengthens say in economic decisions of the household and ***social transformation* -** a combination of increased economic activity and control over income resulting from access to micro-finance with improved women's skills, mobility and access to knowledge and support networks. Hence, a distinction made between economic and social transformation.

Despite the conceptual distinction between economic transformation and social transformation, there exists a close interrelation. Both complement each other, although economic transformation seems to have a significant impact on social aspects. Social transformation can also expand the scope for economic means but seems to be not as potent. It is an outcome of multiple factors, but, the major input is economic transformation. Social transformation can also happen due to group cohesiveness, capacity building, social capital, presence in groups despite lacking economic initiative and activities, teamwork and peer support and encouragement. Nevertheless, on the whole they are considered as a set, as one is not complete without the other. Total and effective transformation requires the presence of both the aspects, economic and social. Accordingly, presented below is the Socio-economic Transformation Model along with Table 3, which shows the chain effect of socio-economic transformation through microfinance intervention by classifying pre and post intervention periods.

Socio-economic Transformation Model

Microfinance Intervention → Economic Transformation → Increased Well-being →

→ Social Transformation

Table 3

Transformation Levels: Pre and Post Intervention

Economic Transformation Indicators	**Pre Intervention**	**Post Intervention**
Employment	Most of them were unemployed and had no means of sustenance.	Employed in the form of self-employment and professional activity.
Income and savings	Low or no income and savings	Access to income and increase in income with generation of savings
Asset structure	Poor or no assets	Creation and holding of assets
Household Property	Low savings and family wealth	Accumulation and creation of wealth and savings
Economic decision making	Poor or no decision making ability	Discovery of voice and making decisions concerning most household issues
INCREASED WELL-BEING		
Social Transformation Indicators	**Pre Intervention**	**Post Intervention**
Satisfaction	Burdened and had no vision in life.	Satisfied with life and start shaping and planning the future.
Education decision making	Little say on education matters	Major say on plans for shaping future of children
Health and nutrition	Little access to means for healthy living	Better food and access to health centre at village and block levels
Family planning	Male dominated	Based upon consultancy and understanding
Travel and mobility	Limited mobility and presence of restriction	Increased mobility and freedom of travel with limited/no restriction
Recognition and acceptance	Lukewarm recognition and little notice of contributions	Increased acceptance and recognition in household and family
Capacity building	Limited sociability and networking	Major change in self-confidence and self-esteem through socialization

III Socio-economic Transformation and Microfinance Intervention: Issues and Evidences

Socio-economic transformation and microfinance intervention is one of the major areas of impact assessment studies. Any rural intervention programme not transforming livelihood can be marked as a failure, and this is true in case of microfinance also. Although "socio-economic transformation" is a popular phrase in rural economies, specific issues pertain, particularly in the case of microfinance. This is because microfinance is profiled not only in terms of contributing to economic gains but is also considered as a strategic weapon for gender mainstreaming, social transformation and capacity building of women, in particular.

Consequently, pertinent questions concerning the potency of microfinance in ushering about social and economic change remain. A major area of concern is the dimension of socio-economic transformation. What exactly is socio-economic transformation and how it is measured, poses as a major inquiry. Socio-economic transformation per se depends upon changes in measurable variables. Being subjective and dependent on perception and culture "socio-economic" variables may not be uniform across economies. Hence, variable(s) identification and definition is a major issue. Moreover, differences in the degree of change results in varying conclusion on the state of transformation. Reach and penetration of microfinance is another area of concern. Fewer than two per cent of poor people have access to financial services (credit or savings) from sources other than money lenders and there is a huge potential for microfinance in the near future ***(www.globalenvision.org).*** Questions remain on the potency and sustainability of microfinance for socio-economic transformation. In addition, there is increasing belief across the board that microfinance is not a panacea; rather it should be webbed with other rural development programmes for creating a tangible change. Finally, "gestation period" in microfinance is arguably the most disturbing phenomena, threatening its very existence. Measurable transformation in economic terms takes a certain time-frame, more so in the case of social transformation. On an average a period of four to five years of intervention is required for visible socio-economic transformation. Thus, a consistent and constant spell of intervention, feedback and control is a must. Nonetheless, despite the questions, microfinance can play as a major tool for financial inclusion and inclusive growth through full realization of its potential.

The world over microfinance oriented financial inclusion provides a special focus on women. They pose as a major clientele. There are good reasons to target women. Gender equality turns out to be good for everybody. The World Bank reports that societies that discriminate on the basis of gender have greater poverty, slower economic growth, weaker governance, and a lower standard of living ***(World Bank, 2001)***. Disproportionately represented amongst the poorest in society, discrimination in the formal labour market, more vulnerability of women headed households and the higher repayment rates on loans and contributions to family well-being are some of the rationales put forward for providing loan to women ***(Mayoux 1999a).*** Studies in Latin America, and elsewhere, show that men typically contribute 50 to 68% of their salaries to the collective household fund, whereas women "tend to keep nothing back for themselves ***(Chant, 1997)*** because "women contribute decisively to the well-being of their families". Women with economic power – defined as control of income and other key economic resources (e.g., land, animals) gain more equality and control over their own lives while also contributing directly to their children's human capital (nutrition, health and education) and thereby indirectly to their nation's income growth, improving the wealth and well-being of their nations and indirectly appreciating their country's national income growth through their own and their educated daughters' lower fertility. Also, more female economic power might help reduce corruption, conflict and violence in their nations ***(Blumberg, 2005).***

Access to credit can contribute to a long-lasting increase in income by means of a rise in investments in income generating activities and to a possible diversification of sources of income; it can contribute to an accumulation of assets; it can reduce the vulnerability due to illness, drought and crop failures, and it can contribute to a better education, health and housing of the borrower. In addition, microfinance can contribute to an improvement of the social and economic situation of women ***(Hermes and Lensink, 2007).*** Microfinance has an economically significant impact on female social capital, economic empowerment and political participation, frequent attendance in village meetings, intake of protein and consumption **(*Deininger and Liu, 2009*).** SHGs helped reduce vulnerability to drought, encouraged entrepreneurial behavior and livelihood diversification and improved social capital ***(Garikipati 2008)***. Increased access to microfinance contributed to poverty reduction and financial sustainability, economic empowerment, increased well-being and social and political empowerment thereby addressing goals of gender equality and empowerment ***(Mayoux and Hartl, 2009)***

Successful microfinance interventions in India by NGOs provide further impetus. Microfinance is making head way in its efforts for reducing poverty and empowering women in particular ***(BLCDRA, 2005).*** Microfinance organizations attempt to address the dual phenomenon of institutional exclusion and adverse exploitation by reaching out to the needs of the core poor (***Kabeer, 2005).*** In a study conducted in Lakhipur village of Assam it was found that the women members of the SHGs were empowered and this enabled them to purchase and own assets like cows, goats and buffaloes ***(Srivastava, 2005).*** When loans are channeled through women's groups and are combined with more investment in social intermediation, substantial shifts in decision-making patterns are observed. This involves a remarkable shift in norm-following and male decision making to more bargaining and sole female decision-making. The effects are even more striking when women have been members of a group for a longer period and especially when greater emphasis has been laid on genuine social intermediation. Social group intermediation had further gradually transformed groups into actors of local institutional change ***(Holvoet, 2005)***. The underprivileged when provided with access to finance, put it into effective use, and resulted in positive outcomes. Micro-finance as an intervention transforms the socio-economic levels of the clients, particularly women.

However, all is not well in the field of micro-finance. The measure as a whole is still at its infancy and further progress will enormously depend upon the policy measures of the appropriate authority. As has been the conclusion of most of the impact studies concerning micro-finance that it suffers from the problem of poor outreach, accessibility and implementation. Studies show that micro-finance does not reach the underprivileged; its use is diverted to uneconomic activity and contributions being negligible or negative in some cases ***(Sinha, 2005).*** In most programmes, there were serious limitations to the degree to which women benefited as significant numbers of women did not control loan use, microfinance was sometimes increasing domestic tension as men withdrew their own incomes once women were earning or women struggled to retain control of their earnings - this had in some cases led to divorce; abandonment; and domestic violence, group repayment pressures were sometimes increasing tensions between women and many women's main concern was to increase their incomes and welfare of their families rather than wider social and political activity ***(Mayoux, 1999b).***

IV Data Analysis and Results

The contributions of microfinance towards socio-economic transformation is analysed by considering Meghalaya as a case. F-Test conducted on the baseline data (five years ago data) of income and expenditure (Table 4) of the experimental and control group suggests that the samples are drawn from the same population, having similar economic background and thereby confirming the validity and comparability of the data involved. Income and expenditure based economic background forms as a basis as economic transformation is a determinant of increased well-being and this further leads to social transformation.

Table 4

F Test of Baseline Data

Variable	Income	Expenditure
Experimental Group/Control Group	0.4897	0.4543
F Critical Value (df = 149, 74 at 0.05)	0.7248	0.7248

Analysis of correlation (Table 5) amongst and between the economic variables and social variables suggests interesting results. There is a highly significant correlation between the economic variables. This shows that microfinance significantly impacts and transforms the economic status of the clients. It has increased the income earning capacity of the clients, better than the control group through establishment and practice of microenterprise. The increase in income has significantly increased the expenditure and consumption capacity of the clients and also instilled a habit of savings. This is a result of proportional increase in income being greater than the proportional increase in expenditure in the case of the clients. In addition, a highly significant correlation is found between health status and access to social amenities. Similarly, there is a significant correlation between health status and savings, access to social amenities and mobility and capacity building and mobility. This shows a close association between microfinance intervention and socio-economic transformation in a significant number of variables. However, income did not impact education decision making and all economic variables did not have any dent on mobility and capacity building of the clients. Also, correlations between social variables also did not show any key relationship, with a majority being small and some negligible.

Table 5

Correlation Matrix of Difference in Difference

Variable	Income	Expenditure	Savings	Education Decision Making	Health Status	Access to Social Amenities	Mobility	Capacity Building
Income	1	0.995** (3.9178)	0.665** (2.5316)	-0.209 (2.7714)	0.281 (2.7728)	0.155 (2.7727)	-0.175 (2.7729)	-0.135 (2.7692)
Expenditure	0.995** (3.9178)	1	0.597** (2.1842)	-0.209 (2.4905)	0.263 (2.4919)	0.152 (2.4918)	-0.157 (2.4920)	-0.113 (2.4881)
Savings	0.665** (2.5316)	0.597** (2.1842)	1	0.003 (3.6856)	0.360* (3.6962)	0.112 (3.6932)	-0.238 (3.6928)	-0.286 (3.6600)
Education Decision Making	-0.209 (2.7714)	-0.209 (2.4905)	0.003 (3.6856)	1	0.215 (.9768)	-0.006 (.6389)	0.058 (1.7361)	0.026 (-2.9137)
Health Status	0.281 (2.7728)	0.263 (2.4919)	0.360* (3.6962)	0.215 (.9768)	1	0.554** (-.0784)	0.188 (1.0438)	0.074 (-4.2581)
Access to Social Amenities	0.155 (2.7727)	0.152 (2.4918)	0.112 (3.6932)	-0.006 (.6389)	0.554** (-.0784)	1	0.398* (.9431)	-0.018 (-3.1739)
Mobility	-0.175 (2.7729)	-0.157 (2.4920)	-0.238 (3.6928)	0.058 (1.7361)	0.188 (1.0438)	0.398* (.9431)	1	0.405* (-6.3523)
Capacity Building	-0.135 (2.7692)	-0.113 (2.4881)	-0.286 (3.6600)	0.026 (-2.9137)	0.074 (-4.2581)	-0.018 (-3.1739)	0.405* (-6.3523)	1

Significant at 5% level of significance **Significance at 1% level of significance

T-value in parentheses

Source: Annexure

Table 6 shows strata-based socio-economic transformation of clients, namely, top eight strata, middle eight strata and bottom nine strata propensity scores respectively. The middle strata experienced overall better economic transformation followed by the bottom strata and top strata. However, the top strata experienced better savings when compared with the bottom strata. Moreover, the middle strata also showed better social transformation except in the case of education decision making and mobility with the bottom strata showing the least degree of transformation. The phenomenon clearly underlines the fact that higher propensity score may not always result in better outcomes and that the degree of socio-economic transformation is not always positively correlated to the covariates (i.e. age, better education, better employment status and higher wealth may not result in better and higher socio-economic change)

The overall contribution of microfinance to the socio-economic transformation of the clients through comparisons between the experimental group and control group on the basis of propensity scores show that microfinance has a major impact in transforming the economic status of the clients exemplified through an increase in income, expenditure and savings. The economic transformation in the experimental group is better than the control group. Similarly, a transformation is seen in case of social variables, especially in the case of education decision making and capacity building of the clients. Health status, access to social amenities and mobility also fared better in case of the experimental group as compared to the control group. The results suggest that microfinance intervention has had a major impact in the socio-economic transformation of the clients and should be implemented further on a larger scale for even better development of the rural masses.

Table 6

Strata-based Socio-economic Transformation

Variables (Average values/score)	Top Eight Strata	Middle Eight Strata	Bottom Nine Strata	Average
Propensity Scores	.688	.678	.601	.656
Income (Rs)	570.24	988.21	658.33	738.93
Expenditure (Rs)	429.51	815.21	598.15	614.29
Savings (Rs)	140.73	144.26	60.19	115.06
Education Decision Making	.72	.66	.07	.48
Health Status	.34	.34	.24	.31
Access to Social Amenities	.21	.72	.04	.32
Mobility	.24	.10	.10	.15
Capacity Building	1.03	1.22	1.03	1.09

Source: Annexure

Table 7 highlights the difference in the means of the experimental and control group by computation on current levels of income, expenditure, savings and social variables respectively. Results show that the variables are statistically significant in all economic fronts. Similar results are produced by the social variables except in the case of access to social amenities and mobility. This is symbolic of the impact of microfinance intervention on socio-economic transformation. Exposure to microfinance is a boon for the clients, but a caution is required as the results suggest that despite its efficacy, it is not a panacea.

Table 7

Difference between Two Mean Tests

Variables	Experimental/Control Group T-value	
Income	2.7735*	***Significant at 5% level of Significance**
Expenditure	2.4928*	
Savings	3.7009*	
Education Decision Making	3.0513*	
Health Status	2.5316*	
Access to Social Amenities	1.6496	
Mobility	1.2468	
Capacity Building	7.1872*	

V Observations and Conclusions

Socio-economic transformation is significantly evident in case of the experimental group in comparison to the control group. Overall, the study shows that microfinance intervention is a major stimulus for socio-economic change. In a nutshell it can be stated that microfinance is a blessing to the underprivileged and can usher a new era in rural transformation. It contributes significantly to financial inclusion and inclusive growth. Hence, a better planning and implementation of the intervention with regular nurturing and support to the SHGs can result in even better socio-economic change. Increase in income has contributed to a proportional increase in expenditure and savings and expanded the avenues of growth. This has transformed individual wellbeing and as such has percolated into transformation of the family and society as a whole. The clients exhibit significant changes in education decision making, health status, capacity building, have better access to social amenities and become more mobile, similar features which are less prominent in control group. Overall, the study relates an important association between microfinance intervention and socio-economic outcomes. The socio-economic outcomes are significant and they transform the livelihood and standard of living of the clients to a large extend.

Microfinance may be considered as a major tool for socio-economic transformation as its profile presents a better case as compared to other rural financial and non-financial intervention measures. However, the issues concerning microfinancing and its impact need to be addressed, and innovations in delivery systems are required. Proper strategizing, planning, control and implementation at all processes right from group formation can ensure emergence of microfinance as a pivotal and critical intervention for poverty alleviation and socio-economic transformation.

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Annexure

Propensity Score Matching vis-à-vis Difference in Difference

PS	Income	Expenditure	Savings	Education Decision Making	Health Status	Access to Social Amenities	Mobility	Capacity Building
.694	1700	1300	400	0	-.25	-.67	-.67	-.25
.691	12.13	-51.51	63.64	1.38	.5	-.29	-.46	1.34
.690	216.67	133.33	83.33	1.25	.56	-.17	.17	.63
.689	400	233.33	166.67	.5	.86	2	1.5	1.88
.687	616.67	533.33	83.33	.83	.41	.16	.06	1.5
.686	1350	1225	125	.75	.06	.5	.42	1.06
.685	294.23	165.38	128.85	.57	-.16	.24	.22	.89
.684	-27.78	-102.78	75	.49	.70	-.1	.67	1.16
.682	858.33	825	33.33	.13	1.13	1.59	.09	.75
.681	400	340	80	1.5	.5	1.51	-.66	1.75
.680	1920	1640	280	.2	-.2	1.27	0	.6
.679	1933.33	1783.33	150	.96	.75	1.33	.73	1.08
.678	419.04	233.33	185.71	.33	-.30	0	.27	.88

.677	675	387.5	37.5	-.94	.03	.54	0	1.34
.673	350	262.5	87.5	1.12	.15	.54	.40	1.2
.672	1350	1050	300	2	.63	-1	0	2.13
.670	2000	1700	300	.25	.5	0	-1.33	-1.25
.600	425	325	100	-.5	-.25	-1.33	-.66	1.25
.599	-3850	-3750	-100	.38	-.13	.34	.67	1
.598	0	0	0	0	.5	-.67	0	2.5
.594	-1150	-775	-375	.75	-.75	0	.34	.75
.593	2000	2000	0	-.5	-1	-1.33	.33	1.75
.592	1333.33	1166.67	166.67	1.5	1	.34	.67	.5
.587	2666.67	2366.67	300	-.25	1.5	2	.51	1
.579	2500	2350	150	-1	.75	1	.33	1.75
.654*	**735.71***	**613.65***	**112.86***	**.47***	**.30***	**.31***	**.14***	**1.09***

PS = Propensity Score   *Average