Relation between Financial Inclusion and Poverty Reduction:
A Study in Hooghly District of West Bengal

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Introduction

Financial inclusion appears to have become the principal development concerns of our times. This has been particularly evident during the past decade or so. The term 'financial inclusion' has acquired universal acceptance as both a mere access to financial services as well as deeper processes. The appropriateness of financial services, especially for poorer segments of the population has become a critical concern too. Introduction of the concept of financial inclusion has ushered a new phase of greater financialisation of economic life through a more generic expansion of financial markets. The microcredit revolution of the 1990s was a worthy precursor to this phase. The microfinance experience itself has undergone scrutiny for its contribution to the goals of development and empowerment. Making financial services available to the poor is no longer considered an altruistic proposition as financial inclusion. Engagement with the poor is now posed as a 'win-win' game.

The term 'financial inclusion' is said to have been first coined in 1993 by geographers in Britain. Aynsley (2010) identifies three key aspects of definitions of financial inclusion –

1. Access to financial services and products
2. Financial capability
3. Financial literacy

Poverty is an acceptable human condition which must lie at the center of the financial inclusion center. Lack of financial capability is clearly linked to poverty and financial literacy is a means to bring about greater financial capability towards financial inclusion. Financial inclusion is not a binary condition with people either included or excluded from the financial sector but is a continuum represented by the extent to which needs are covered by mainstream

service providers with the financially excluded having limited or no access to or ability to use financial services.

Financial inclusion can be brought about by SHGs, primarily of women, wherein the decision-making power and profits are retained in the hands of the members themselves. Microfinance services in India are provided mainly by two different models viz. SHG- bank linkage model and MFI– bank model. The self-help group (SHG) – bank linkage model has emerged as the more dominant model due to its adoption by state-owned formal financial institutions, namely, commercial banks, regional rural banks and cooperative banks. Though the Agriculture Credit Review Committee under the chairmanship of Dr. A.K.Khusro in its historic report of 1989 propagated the concept of micro credit delivery through the self-help groups as a part of business development programme of the Primary Agricultural Credit Societies (PACS), the SHG concept did not gain much ground in the cooperative sector in India. Many research studies conducted by NABARD during the early 1980s revealed that a large number of the poorest of the poor continued to remain outside the fold of the formal banking system despite having a wide network of rural bank branches. These rural bank branches implemented a variety of poverty alleviation programmes through bank credit but such programmes were not effective. A search for alternative system began in which the focus was on improving the access of the poor to microfinance rather than microcredit. The National Bank for Agriculture and Rural Development (NABARD) focused not on creating alternative organizations but on finding ways and means to improve the access of the poor to the existing banking network. This led to the development of SHG–bank linkage model. The strategy involved forming small participative groups of the poor, encouraging them to pool their savings regularly and use the pooled resources to make small interest-bearing loans to the members of the group. But the National Bank for Agriculture and Rural Development model initiated in 1992 did not envisage implementation of SHG in the cooperative sector through PACS. In 1995 the State Government permitted the PACS of West Bengal to enrol the self-help groups as members of PACS. The Hooghly District Central Cooperative Bank Ltd. one of the leading District Central Cooperative Banks in West Bengal started motivating the poorest of the poor people and established six groups in the month of January 1996. Since then the Bank has enormously increased the number of self-help groups and credit linkage thereof. The SHGs formed under PACS have two important features- (i) the size of the group

is small; and (ii) the rate of interest charged against credit is comparatively low. Larger size of groups can lead to management problems and sometimes lengthens the time for which the members have to wait to get their first credit. But these groups are free from these hindrances because the average number of members in each group is six. Besides, the rate of interest charged against credit is comparatively low if compared with other microfinance system like the government supported SGSY scheme.

Overview of Literature

The findings by Hulme and Mosley (1996) stated that poor households do not benefit from microfinance; it is only non-poor borrowers (with income above poverty lines) who can do well with microfinance and enjoy sizeable positive impacts. Morduch (1998) in his study established that the households served by the microfinance programmes do substantially better than control households. At the same time, no evidence was found to support claims that the programmes increase consumption levels or increase educational enrolments for children relative to levels in control villages. He concluded that membership does little to reduce poverty, it may however reduce vulnerability. Coleman (1999) found no significant impact of access to microcredit on improving household wealth. Khandker (2001) in his study confirmed that programmes make a difference to poor participants by raising per capita income and consumption as well as household net worth, thereby increasing the probability that the programme participants lift themselves out of poverty. Goldberg (2005) with an overview of different studies and literature has confirmed that microfinance programmes can increase incomes and lift families out of poverty. Access to microfinance can improve children's nutrition and increase their school enrolment rates among other outcomes. Coleman (2006) found that the insignificance was limited to general beneficiaries and that a positive impact was found among committee members who received access to financing. Sarangi (2007) clearly proved that there is positive and significant effect of programme participation on increase in the income of the household. His findings suggest that on the one hand, many of the very poor households are excluded from the programme and on the other hand, the gains from participation of the programme are mostly observed for the better off section of households. Asian Development Bank (2007) in their study of three countries indicated that the microfinance projects had positive effects on the status of women particularly in the

household like greater role in household generation of cash, greater involvement in making major expenditure decisions and generating cash savings, ability to generate more income on their own and greater role in business decision making, acquisition of more skills and expanding their network of friends and support system and increased acquisition of assets. Bebezuk and Haimovich (2007) found that credit increased labour income in a statistically and economically significant manner. The impact was sensitive to the size of the loan. Duquet (2008) stated that if at an individual level the impact of microfinance activities is obvious, the impact at an economic level of microcredit has not been established by the study. Roodman and Morduch (2009) established that microcredit is effective in reducing poverty generally and the extremely poor benefit. Kondo, Orbeta, Dingiong and Infantado (2008) found out that the impact of microfinance programme on per capita income, total expenditures and food expenditure is only slightly significant but with regressive features. They argued that a majority of the existing clients, new clients and non-participating households deemed qualified for the programme are not poor according to the official definition. This is in sharp contrast to the other studies which indicated that the majority of microfinance programme clients are poor. Rafiq, Rahman and Momen (2009) in their findings suggest that microcredit programmes are effective in generating higher income and assets for borrowers. They argue that micro credit is more effective for relatively wealthier borrowers compared to non-wealthy borrowers. The reasons for ineffectiveness of microfinance programme through joint liability loan contract system to reduce poverty have been identified by many researchers through their findings. The MIT study by Banerjee, Duflo, Glennerster and Kinnan (2009) found no impact on measures of health, education, or women's decision-making among the slum dwellers in the city of Hyderabad, India. Similarly, the study by Dean and Zinman (2009), which measured the probability of being below the poverty line and quality of food that people ate, found no discernible effects. Mahajan (2005) stated that microcredit is a necessary but not a sufficient condition for micro-enterprise promotion. Pollin (2007) stated that micro enterprises run by poor people cannot be broadly successful simply because they have increased opportunities to borrow money. For large number of micro enterprises to be successful, they also need access to decent roads and affordable means of moving their products to markets. They need marketing support to reach customers. Sometimes poor rural people do not have the skills, vision, creativity and persistence to be entrepreneurial

Bickel and Mehwald (2014) while providing the financial capability approach integrated the aspects of human capital as well as physical, cultural and economic properties to the existing financial inclusion concepts. Deepti and Tiwari (2014) argue that providers must also acknowledge the legal, social and cultural contexts that limit women's access to financial service. Christabell and Raj (2012) showed that lower the asset class or income, the higher the degree of exclusion. Chattopadhyay (2011) classified Indian states into three categories i.e. states having high, low and medium extent of financial inclusion which is based on three basic dimensions – (1) banking penetration (2) availability of the banking services and (3) usage of the banking system with the volume of outstanding deposit and credit. Arunachalam (2008) asserts that to truly financially include the poor requires consistent and simultaneous mechanisms for the management of a variety of risks and vulnerabilities. He argues that a new paradigm of financial inclusion is required which reduces risk and vulnerability in the livelihoods of the poor.

Research Objective

The basic objective of this study is to -

Examine the relation between financial inclusion through microfinance programme and poverty reduction in Hooghly district of West Bengal.

Methodology

The Reserve Bank of India (RBI) had advised West Bengal to complete 100% financial inclusion in eight districts by March 2010. The banking regulator had also urged the government to prepare a comprehensive list of households that are excluded from banking services in these districts to expedite the drive. The Hooghly district, which was identified for financial inclusion as a pilot project, was slated to attain 100% coverage by March 2009, according to top RBI officials. The aim of the drive was to extend banking services like savings and loans to every household, thus minimising the dependence on non-informal sources of finance. Following the RBI advisory, the state government along with commercial banks, cooperative banks and the National Bank for Agriculture & Rural Development (NABARD) had formed district level coordination committees to carry out the task of preparing village-wise lists of excluded families. The state level bankers committee (SLBC) led by its convener United Bank of India was supervising the progress. West Bengal had

kicked off its financial inclusion drive rather late in mid-2007, when compared to states like Karnataka or Andhra Pradesh. Yet, the government has set a March 2012 deadline for extending minimum banking facility to each and every household in the state. This is in contrast to what the Rangarajan Committee on financial inclusion suggested: achieving 100% inclusion across the country by 2015. Under this drive, banks were opening no-frill bank accounts with minimum facility of savings deposits for at least one member of every household. This is, however, financial inclusion in narrow sense. At a later stage, banks were told to extend loan facility, offer insurance cover and provide remittance services to the no-frill account holders in order to enhance the scope of financial inclusion. The deadline in West Bengal was stiff but achievable. Therefore Hooghly district was selected as the sample. Out of the 18 districts in West Bengal, the cumulative number of SHGs provided with bank loan and the cumulative amount of bank loan disbursed was largest in Hooghly.

Out of eighteen blocks in Hooghly, two blocks Chinsurah-Mogra and Tarkeshwar have been selected randomly. Both the blocks are tribal-based communities with a considerable percentage of people below the poverty-line. As the basic objective is to examine the relation between financial inclusion and poverty reduction, it is necessary to do the impact study for which the sample was divided into two groups during the time of drawing them. The two groups include one treatment group and one control group or reference group. The treatment group includes households who have formed SHGs in 2008 under PACS. The total number of groups formed in 2008 was 40 out of which 37 groups were selected. All members of each group were included in the sample. Much care was taken when selecting the control group. The sample households belonging to the control group were chosen from the same locality from where the sample households belonging to the treatment groups were chosen. But it was ensured that the sample respondents belonging to the control group were not getting any indirect benefit from the sample respondents belonging to the treatment group. The rural households having one member of PACS and another member, mainly the female belonging to SHG were left out of the sample. To minimise the problem of sample selection bias, we here depend on longitudinal data. So the survey was carried out twice in order to determine the impact of microfinance programme on the treatment group and to evaluate whether there has been any economic improvement among the members of SHGs vis-a-vis the control group. The first survey period was from August to November in 2009 to get the socio-

economic information of the sample respondents and the second survey period was from September to December in 2014.[1] The periods were chosen to minimize the recall period of each respondent and to get direct observation as much as possible. After the sample households were selected the socio economic conditions were studied with the help of a well framed detailed questionnaire in order to determine the impact of micro credit in improving the economic conditions of the members of joint liability loan contract system. In this sample, the rural households of the same villages had the option of either joining self-help groups or stay away from them. Thus the sample two categories:

1. Individuals who have taken membership of self-help group in the tth period and plans to take credit in future when required from her respective group under joint liability loan contract. These individuals in this study belong to treatment Group.

2. Individuals, from almost identical socio-economic backgrounds who are not members of self-help groups in the tth period but can become members if they want. These sample respondents belong to control group.

The total sample size is 320, out of which the treatment group has 220 individuals and the control group has 100 individuals. As the members of the treatment group are indirectly related to PACS, initially we have to identify the size of land holdings of the sample households belonging to treatment group as well as control group which is shown in Table 1.

Table 1: Distribution of the Sample Respondents of Joint Liability Loan Contract System in Terms of the Size of Land Owned

Size of Land (Acres)	Treatment Group		Control Group	
	2004:(t^{th} period)	2008: $(t+1)^{th}$ period	2004	2008
No Land	100	100	45	45
< 1 acre	80	80	19	19
1 acre to 2.5 acres	38	38	36	36
Greater than 2.5 acres	2	2	0	0
Total	220	220	100	100

Source: Field Survey

It is observed that 118 sample households belonging to treatment group are marginal farmers both in t^{th} and in $(t+1)^{th}$ period. They have the eligibility of taking credit directly from PACS (under individual liability loan contract) but still they prefer their wives to become a member of SHGs under PACS. The main reason is that under direct membership of PACS a rural household can only get credit for agricultural purposes but under joint liability system a member household can get credit from their respective groups not only for agricultural purposes but also for non-agricultural purposes like house repairing, health, and sometimes purely for consumption purposes.

Similarly in order to investigate the effectiveness of microfinance programme in improving the economic conditions of the members of joint liability loan contract system through PACS, 'first differenced method' is used. But before studying the impact it is necessary to check whether there is any sample selection biasedness. In order to check whether there is any sample selection problem, two step treatment effect model has been used. If there is no problem with the sample selection, then the impact analysis can be done using the 'first differenced method'. The basic idea behind treatment effect model in a two - step procedure is to estimate two regressions simultaneously. The first one is a Probit regression predicting the probability of 'treatment' and the second is a set of two linear regressions for the outcome of interest as a function of treatment variables.

Thus the equations of interest are:

Selection Equation:

$$MICFIN_j = \gamma_0 + \gamma_1 DRATIOjt + \gamma_2 ICOMOHjt + \gamma_3 EDU_{jt} + \gamma_4 AGE_{jt} + \gamma_5 OSBROWjt + u_j$$
......................(I)

where u_j is the disturbance term.
Here the dependent variable $MICFIN_j$ can be expressed as

$MICFIN_{j=1}$ if the respondent belonged to the treatment group i.e. became members of self-help group in the tth period.

$MICFIN_j = 0$ if the respondent belonged to the control group i.e. had not joined the loan contract system.

The participation of the sample respondent in microfinance programme (MICFIN) through joint liability may be influenced adult equivalent dependency ratio of the sample household in the tth period ($DRATIO_{jt}$), income earned from other sources by the sample household in the tth period ($ICOMOH_{jt}$), education level of the sample respondent in the tth period (EDU_{jt}), age of the sample respondent in the tth period (AGE_{jt}) and borrowing from other sources by the respondent in the tth period ($OSBROW_{jt}$). Land does not play any significant role in influencing an individual to join self-help group because majority of the sample respondents belonging to the treatment group are landless.

Regression Equations:

$$\Delta y_i = \beta_0 + \delta_1 \, MICFIN + \delta_2 \, \Delta DRatio + \delta_3 \, CRINGACT_i + \delta_4 \, CRNIGACT_i + \Delta \varepsilon_i$$

.....................(II)

$$\Delta MPCE_i = \beta_0 + \delta_1 \, MICFIN + \delta_2 \, \Delta DRatio + \delta_3 \, CRINGACT_i + \delta_4 \, CRNIGACT_i + \delta_5 OUTMCR + \Delta \varepsilon_i$$ ....(III)

Here the outcome variables of interest are same as those of the equations for individual liability loan contract system. They are average monthly income of the ith sample household in the tth period and $MPCE_{it}$ is the monthly adult equivalent [2] per capita consumption expenditure of the ith sample household in the tth period. During the time of calculating y_{it} we have considered net income from land and income from other sources like income as agricultural labourers as well as a non-agricultural labourers (reference period is one year), earnings from selling milk products, small business like grocery shop, wage income as labourers after being engaged in different activities as carpenters, primary school teachers and working in firms (reference period is one month). It also includes women folks working as maids and income earned from National Rural Employment Guarantee Scheme under NREGA Act which promises to provide 100 days of employment during a financial year to adult members of any rural household willing to do unskilled manual work at the statutory minimum wage. After calculating the annual income where necessary we have converted that in to average monthly income. If in a sample household we observe more than one earning member then initially we have converted the earning of each member in terms of monthly income and then added the average monthly income of each earning member (giving them equal importance) to get y_{it} the average monthly income of the ith sample household either belonging to treatment group or to

control group in the tth period. Similarly we got the value of average monthly income of the sample household's income in the $(t+1)^{th}$ period at the current price. But we had to convert that average monthly income in constant term considering 2008-09 as the base year on the basis of consumer's price index of the rural labourers of West Bengal. The baseline period is treated as the base year. During the time of calculating monthly per-capita consumption expenditure of the sample household i.e. MPCE we initially have subtracted average monthly savings and average amount spent for loan repayment per month if required from calculated average monthly income to get total monthly consumption expenditure of that sample household. Dividing that by adult equivalent family members we can get MPCE of the ith household.

Among the explanatory variables in both the equations, $DRatio_{it}$ is the dependency ratio of the ith household in the tth period. It is the ratio between total number of adult equivalent family members and total number of adult equivalent earning member(s). $DRatio_i$ may change over time if the participant of the microcredit programme becomes an earning member in the second period after taking credit from her respective group and utilize that for any income generating activity. $CRINGACT_i$ is total size of credit taken by the sample members for income generating activity between the concerned time periods. Loans taken for cultivation, health, son's/ husband's business like tea stall, grocery shop, tailoring, cycle garage etc. and self-employment are here considered as credit taken for Income generating activity. Expenditure on health after taking credit from her respective group is here considered investment of the member for income generating activity because health is an asset for an individual. In India out of pocket individual medical expenditure is very high. Therefore loans through joint liability loan contract system provide much relief to the rural poor because they do not have health insurance. Easy loans available for health purposes at low rate of interest through joint liability loan contract system helps the member households to become fit after proper treatment which ultimately help them to join her(his) economic activity within a very short period. Better the health better will be the working capability of the individual and hence more will be scope of earning. As we here consider only two time periods, total size of credit taken by the member households between the concerned time period for income generating activity are accommodated in the second time period. Same thing also happens for $CRNIGACT_i$ i.e. size of microcredit taken by the member households for non-income

generating activities. Loan taken for consumption, marriage, housing, education are here treated as non-income generating activity. Credit taken from respective groups for non-income generating activity indirectly help the participants to raise their income as well as consumption because that prevents them to fall in to debt trap after taking credit from informal sources with high rate of interest. Table-2 shows the distribution of the borrowers belonging to treatment group who took credit from their respective groups either for income generating activity mainly cultivation or for non-income generating activity within the concerned time period.

Table-2: Distribution of the sample households (SHG members) taking credit for different purposes.

Purpose of Borrowing	Number of Respondents took credit between 2004-2008
1. Income Generating Activity	
(i) Cultivation	70
(ii) Self-Employment	05
(iii) Husband's/ Son's business	33
(iv) Health	20
Total Number of Households took microcredit from their respective group for different Income Generating Activities	128
2. Non-Income Generating Activities	
(i) Daily Expenses	53
(ii) Education	13
(iii) Housing	26
Total Number of Households taken microcredit from their respective group for different	92

Non-Income Generating Activities	

Source: Data collected from field survey.

So it comes out that only 70 out of total 220 sample households took microcredit for cultivation under joint liability system[3]. There is no question of the existence of multi-co linearity in the above two models and the Pearson Correlation Coefficient between CRINGACT and CRNINGACT is .12 and that is statistically insignificant[4]. In the second equation we incorporate another dummy variable OUTMCR i.e. whether the participant has any outstanding microcredit in the second time period. It is '1' if the participant has any outstanding microcredit in the second time period and '0' otherwise. Actually if the participant has any outstanding microcredit in the second time period, then she has to repay a good amount of loan and that can be done only through sacrificing present consumption which ultimately may affect $MPCE_{i2}$. MICFIN is the endogenous dummy variable which is equal to 1 for treatment group and 0 for the control group.

Table-3 gives the summary statistics of the explanatory variables both in t^{th} and in $(t+1)^{th}$ period. **Table-3: Summary Statistics of the Explanatory Variables:**

Table-3(a): Sample Respondents belonging to Treatment Group

Variables	Base Year 2008 (t^{th} time period)			2014 i.e. $(t+1)^{th}$ time period		
	Mean (Rs.)	Median	S.D.	Mean (Rs.)	Median	S.D.
Y	2402.99	1750	2140.36	2847.29	2047	2307.19
MPCE	671.64	535	512.4	728.5	563	557.5
CRINGACT	0	0	0	3492.41	2000	12266.31
CRNINGACT	0	0	0	1718.41	0	3025.19
N	220			220		

Source: Calculated from the data collected directly from field survey

Table-3(b): Sample Respondents belonging to Control Group

Variables	Base Year 2008 (tth time period)			2014 i.e. (t+1)th time period		
	Mean (Rs.)	Median	S.D.	Mean (Rs.)	Median	S.D.
Y	2842.07	1987.5	2362.06	2948.38	2142	2416.39
MPCE	757.9	650	428.8	782.5	689	409.5
CRINGACT	0	0	0	0	0	0
CRNINGACT	0	0	0	0	0	0
N	100			100		

Source: Calculated from the data collected directly from field survey

It has been checked that there is no significant difference between $\overline{y_{1T}}$ and $\overline{y_{1C}}$ or $\overline{MPCE_{1T}}$ and $\overline{MPCE_{1C}}$. So we can mention that during the time drawing samples from the control group there was little possibility of selection bias. Rather we can say that in the tth period the economic condition of the sample households belonging to treatment group and those belonging to control group was almost homogeneous in nature. It is also observed that average size of microcredit taken for income generating activity is comparatively higher if we compare that with non-income generating activity.

Before the impact study it is necessary to check whether there is any sample selection problem and if there is no problem then the impact analysis can be done using the 'first differenced method'. The procedure is the same as explained in case of individual liability loan contract system. The treatment effect model is expressed in three equations – one selection equation and two regression equations as there are two outcome variables:

Impact study through First Differenced Method:

As two surveys had been done more than two years apart, the problem of selection bias during the time of choosing samples can be minimized. Here all household specific variables are not

dropped out. Rather $\Delta DRatio_i$ will be non-zero if either (i) the family size changes or (and) (ii) the number of earning member of the sample household changes. It is expected that after taking credit from the respective group the member herself or her son become new earning member of the family after being self-employed. The two explanatory variables CRINGACT and CRNIGACT were zero at t=1. Total size of microcredit taken for income generating activity (CRINGACT) and for non-income generating activity (CRNIGACT) taken by the self-help group members between the concerned time period are accommodated in t =2. The estimated values of the parameters are expressed in Table-4 (a) and (b) when the outcome variables are Δy_i and $\Delta MPCE_i$ respectively:

Table 4 (a): Estimation Results of Model 1 (Δy_i)

VARIABLES	Two Step Treatment Effect Model	Standard Error	First Differenced Equation	
MICFIN	414.1265	214.9674	260.719	
$\Delta DRatio$	-259.3136[*]	99.61385	-260.830[*]	
CRINGACT	-.0067857	.0138221	-0.001154	
CRNIGACT	.0299079	.0158269	0.03109	
Constant	33.0445	164.1369	130.815	
$\hat{\lambda}$	-95.45591	137.5711	$\overline{R^2}$	0.210

* $\longrightarrow$ significant at 5% level

Wald $\chi^2 = 15.40$

So from the above tables it is clear that $\hat{\lambda}$ is statistically insignificant i.e. we fail to reject H_0: $\rho = 0$. This establishes the fact there is no sample selection problem in case of joint liability as well. The impact study can be obtained by using equations (II). As in the reported model $\chi^2 = 15.40$ (p <.0001), the covariates used in the regression model may be appropriate and at least one of the covariates has an effect that is not equal to zero. Thus the model is appropriate to measure the goodness of fit. As the sign and the magnitude of the regression coefficient indicate the net impact of an independent variable on the dependent variable, from the above

table it is clear that there is a negative relation between change in microcredit for income generating activities (CRINGACT) and change in average monthly income. The reason is most members of the treatment group who took loans for income generating activities utilised it for cultivation. As the land size owned by these individuals did not change during the concerned time periods, the productivity of land also did not change. Majority of these members who possess land are marginal farmers who use the proceeds for self-consumption and therefore very little reach the market for sale. Moreover, prices of the crops grown by these individuals also did not rise during the concerned time periods. These blocks also faced major crop and minor crop failures during those time periods.

Table 4(b): Estimation Results of Model 2 ($\Delta MPCE_i$)

VARIABLES	Two Step Treatment Effect Model	Standard Error	First Differenced Equation	
MICFIN	88.06585	68.6391	25.070	
ΔDRatio	-102.566**	30.8442	-97.842*	
CRINGACT	-.0121278**	.0042611	-0.001876*	
CRNIGACT	.0057888	.0048856	0.008853	
OUTMCR	.6355597	28.68281	3.382	
Constant	1.322557	50.68469	21.217	
$\hat{\lambda}$	-22.66989		$\overline{R^2}$	0.067

** $\rightarrow$ significant at 1% level

* $\rightarrow$ significant at 5% level

Wald χ^2 = 23.64

So from the above tables it is clear that $\hat{\lambda}$ is statistically insignificant i.e. we fail to reject H_0: ρ = 0. This establishes the fact there is no sample selection problem in case of joint liability as well. The impact study can be obtained by using equations (III). As in the reported model χ^2 = 23.64 (p<.0001), the model is appropriate to measure the goodness of fit. It is clear from the above table that with the change in microcredit for income generating activity, there is a fall in

monthly adult equivalent per capita consumption expenditure. This is because sample respondents belonging to the treatment group have to curtail their household budget to repay the loan amount. They are forced to curtail their household expenses because income generating activities failed to generate adequate income for them.

It is also clear from table 4(a) that except ΔDRatio no explanatory variable related with microcredit play any significant role to improve average monthly income. It is observed from table 4(b) that ΔDRatio and CRINGACT play a significant role in improving monthly adult equivalent per-capita consumption expenditure of the participants of microcredit programme. From the above tables it can be definitely said that there has been no economic improvement among the participants operating through joint liability loan contract system under Primary Agricultural Credit Society as MICFIN is insignificant. The Adjusted R-square, which is a measure of goodness of fit, is very low for equation (II) and equation (III) which explains monthly income and monthly adult equivalent per capita consumption expenditure respectively[5]. The in-efficiency of micro credit programme under joint liability operated by Primary Agricultural Credit Society for economic improvement among the participants is reflected in Table-5 where it is observed that between the concerned times period only few number of households belonging to treatment group is able to improve their economic conditions. Here according to the estimate of Planning Commission of India done by the expert group, the rural poverty line of West Bengal was Rs. 643 MPCE in 2008-09[6]. So we need not make any adjustment of MPCE of the sample respondents in the tth time period but some adjustments of both average monthly income and monthly adult equivalent per-capita consumption expenditure of the entire sample respondents both belonging to treatment group and control group in 2014 was required. All are converted at constant term after considering 2008-09 as base year and adjustments were done on the basis of consumer's price index of the rural labourers of West Bengal. The baseline period is treated as the base year.

Table-5: Distribution of the sample respondents in terms of MPCE both in tth and (t+1)th period

Range of MPCE	Treatment Group		Control Group	
	tth Period	(t+1)th period	tth Period	(t+1)th period
Below Rs. 0	`	7	11	10
Between Rs. 540 and Rs. 643	100	98	24	24
Above Rs. 445	110	115	65	66
Total	220	220	100	100

Source: Calculated by authors on the basis of data collected from field survey

Table-5 shows that majority of the participants of microfinance programme under PACS are either lying above the poverty line or lying just below the poverty line in the tth period. The picture is almost identical even in the (t+1)th period. Now we will have to identify the reasons responsible for such a result in spite of the high repayment rate, low rate of interest charged from the members within the group and small size of groups where there is constant monitoring and peer pressure within the group.

Let us now identify the reasons behind the ineffectiveness of microfinance programme through joint liability loan contract system operated by PACS in these two blocks from where the samples are drawn. The reasons behind such a result are explained below.

1. Actually more than half of the samples respondents belonging to treatment group possess no land and near about 30% of the respondent households are marginal farmers having less than 1 acre of land. Since the return from the land is risky and if not then the return is just sufficient for self-consumption, there will be problems for repayment if loans are taken for agriculture purpose. Therefore households majority of whom are marginal farmers prefer not to take loans for agriculture purpose from PACS through joint liability loan contract system because it involves peer pressure and group dynamics.

2. Lack of initiative on the part of PACS for skill based training facilities: There has not been much scope of training by the three PACS in the study. Talandu Sech 'O'

Samabyay Unnayan Samiti Ltd. did not have any training programme for the poor women who have formed SHGs in the two villages to which it caters. Digsui Union Large Sized Primary Cooperative Agricultural Credit Society Ltd. had arranged for the training programme for mushroom cultivation in 2002 (not during the impact study period). It was a three day programme, the cost of which was entirely borne by the respective PACS. Vivekananda Samabyay Krishi Unnayan Samiti Ltd. has provided training to its members of SHGs to produce vermi compost, produce *'sindoor'* and *'alta'*. It has also given them training about breeding of eggs of ducks which can be sold at a higher price. Some training was also provided for 'zari work'. But these training were not on a large basis and all were provided much before 2004. After 2004 no arrangements for training programmes have been made for the members of joint liability loan contract system.

3. Lack of initiative on the part of members of SHGs for training facilities – The rural women are also not very motivated nor are they very much inclined to undertake any training programme because they say it is difficult for them to manage time after household chores to attend training programme. They remain very busy and prefer to remain very busy with their indoor activities and thus do not find any incentive to undertake any productive activity.

4. Lack of marketing facilities: Even though there have been efforts by some rural women of these blocks on their own initiatives though not a large scale basis to undertake some productive activity like embroidery which is known by the name of 'kantha stitching', production of clay items but the major constraint they face is the problem of marketing their products because again no provision has been made for selling these products. Mushroom cultivation also faced the same problem and finally was stopped.

5. Problem of funds and skill-based training programmes: The PACS complained of not getting proper financial assistance and assistance for skill-based training programmes from the higher authorities in spite of constant reminders to them.

6. Availability of an alternative avenue for skill-based training programmes organized by Panchayats through District Rural Development Cell: The "Swarnajayanti Gramin Swarozgar Yojona", a scheme of the government provides funds to the rural women at a subsidized rate along with training facilities which is acting as an incentive for them. Thus they are gradually losing interest in the SHG- Bank linkage programme and showing their preference for the government scheme.

7. Loans for employment generating activities of rural women almost negligible: It is negligible because of lack of skill-based training programmes and absence of entrepreneurial skills among the members of self-help groups as compared to borrowings of other kinds. Loans have been taken for cultivation purpose i.e. to support family income. But since most of the members are marginal and small farmers, the income generated from cultivation did not show any significant change.

Microfinance best describes the idea of inclusive finance. The methodology of microfinance owes its genesis to global efforts to address the apparent imperfections in the financial services markets that particularly constrained poor households from fully participating in its functions. Progress under microfinance as on March 31, 2014 - savings of SHGS with cooperative banks in Hooghly district, total loan disbursed and bank loan outstanding against SHGS respectively are given below in table 6.

Table 6: Progress of Microfinance in Hooghly district as on March 31, 2014

No. of SHGs	25485
Total Loans Disbursed	Rs. 2866.27 Lakhs
No. of Women SHGs	24273
No. of members	161064
Amount	Rs. 2741.304 Lakh

No. of SHGs	24696
Loan Outstanding	Rs. 4444.00 Lakhs
No. of Women SHGs	24202
Amount of loan outstanding	Rs. 4351.20 Lakh

No. of SHGs	25631
No. of members	165156
Savings Amount	Rs. 3430.98 Lakhs
No. of Women SHGs	24996
No. of members	161064
Amount	Rs. 3345.84 Lakhs

Source: NABARD Report 2013-14

The Microfinance Penetration Index (MPI) provides estimates of the relative share of the state in microfinance clients as compared to their share in the population. The Microfinance Poverty Penetration index (MPPI) is derived by dividing the share of the state in the microfinance clients by the share of the state in the population of the poor. West Bengal has a MPI of 1.54 and MPPI of 2.68 which indicates better than par performance where 1 is the par

value. State level poverty data has been taken from the Report of Rangarajan Committee on poverty (Government of India, 2014) and population data from Census 2011.

Hooghly district is well known in West Bengal for its network of cooperative societies. According to estimates obtained in 2007-08, the total number of members in all credit and non-credit cooperative societies in the district was more than 3 lakh (Government of West Bengal, 2008). The rank correlation coefficient between the rate of financial inclusion and poverty is not noteworthy (Majumdar and Gupta, 2013). Credit to the farmer households is one of the important elements of financial inclusion among them providing credit to the marginal and sub marginal farmers as well as other small borrowers is crucial to the need of the hour. Opening no-frills accounts gained momentum after the RBI order of 2005 in Hooghly district. Financial inclusion is delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups. As banking services are in the nature of public good, it is essential that availability of banking and payment services to the entire population without discrimination is the prime objective of the public policy. Although credit is the most important component, financial inclusion covers various financial services such as savings insurance, payments and remittance facilities by the formal financial institutions. But the members of joint liability loan contract system in the sample are under the umbrella of financial inclusion through microfinance programmes even though they did not open no-frills account. Financial literacy, one of the components of financial inclusion was conducted by the Hooghly District cooperative Bank via PACS.

The broad objective of Financial Inclusion (FI) is to extend the scope of activities of the organized financial system to include within its ambit people with low incomes. Through graduated credit, the attempts must be to lift the poor from one level to another so that they come out of poverty (Rangarajan, 2008.). Inclusive growth encompasses ideas related to basic needs and equity. It focuses on broad – based growth so that growth covers all strata of society. It seeks to bridge the various divides that may fragment the society. Reduction in poverty and disparities of income and ensuring everyone a basic minimum standard of living are the objectives of inclusive growth. In this context access to finance by the poor and vulnerable groups has to be recognized as a pre requisite for poverty reduction and social cohesion. It has to become an integral part of the efforts to promote inclusive growth. In fact, providing access to finance is a form of empowerment of the vulnerable groups. Increasingly,

with the proliferation of micro finance initiatives, there is evidence that inclusive financial systems can empower poor households socially as well in other words financial inclusion is delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups (Thorat, 2007). Although credit is the most important component, financial inclusion covers various financial services such as savings insurance, payments and remittance facilities by the formal financial system to those who tend to be excluded. In the context of India becoming one of the largest micro finance markets in the world especially in the growth of women's savings and credit groups such as Self Help Groups (SHGs) and the sustaining success of such institutions which has been demonstrated by the success of SEWA bank in Gujarat, low The SHG-Bank Linkage Programme launched by NABARD in 1992 continues to be the predominant Micro-Finance (MF) model in the country.

The financial inclusion attained through SHGs is sustainable and scalable on account of its various positive features. One of the distinctive features of the SHGBLP has been the high recovery rate. It is a proven method of financial inclusion, providing un-banked rural clientele with access to formal financial services from the existing banking infrastructure. The uniqueness of the SHG Bank Linkage programme lies in the fact that it is not mere delivery of financial services but has an inherent design for promoting financial literacy. As the financial literacy increases, the financial inclusion gets more sustainability and stability in terms of being inclusive on a long haul.

Inclusive financial system, one that allows broader access to financial services, can lead to faster and more equitable growth. Such a system allows poor households to save and manage their money securely, decreases their vulnerability to economic shocks and allows them to contribute more actively to their development. The poor need a range of financial services that are convenient, flexible, and affordable and not just loans. At this juncture the introduction on "financial inclusion" comes from the recognition that this can serve the interests of both society and the banking system. As a complementary to this, micro-finance can work as a powerful tool to fight poverty became the effective approach of financial inclusion. With the new philosophy and policies pertaining to micro credit, micro finance institutions (MFIs) such as Self Help Groups (SHGs) have emerged and they now have a strong footing in the developing countries. But what is observed in this paper that even though the individuals in the sample are financially included via SHG-Bank model, yet microfinance has failed to

improve the standard of living of the members of joint liability. So, it can be said with certainty that there is no positive correlation between financial inclusion through microfinance programme and poverty reduction.

Conclusion

Micro credit through joint liability as a major tool against poverty claims to overcome information asymmetries and solves the problem of adverse selection leading to positive assortative matching. The problem of moral hazard can also be mitigated through group lending. Even though microfinance has significant role in bridging the gap between formal financial institutions and rural poor by allowing broader access to financial services thereby leading to faster and more equitable growth, yet we find that financial inclusion through microfinance has failed to reduce poverty in the two blocks of Hooghly district. Certain policy prescriptions are made for positive results.

1. The macroeconomic environment must be stable as microfinance does not operate in a vacuum. Stable economic conditions help operations and reduce costs.
2. Microfinance should be used to increase access to public goods so that there is n improvement in the quality of life of people.
3. Microinsurance should be provided to motivate poor women to undertake entrepreneurial activities which are risky ventures due to lack of marketing facilities.
4. There should be flexible and effective mechanism of supervision and regulation. There should be least political interference in the operation of MFIs for a social cause.

End Notes

1. To do the impact study, I consider the time gap of six years.
2. Following Townsend (1994), to get adult equivalent family members, we have considered 1 foe any adult member (both male and female), 0.25 for any member of that household upto six years of age, 0.5 for any member of the household between 6 and 14 years of age and 0.75 between 14 and 18 years of age. I have calculated dependency ratio in terms of adult equivalence.

3. I have found an identical picture in NSSO (59th round, 2005) report where it was observed that there are substantial differences among marginal' semi-marginal farmers and other farmer households regarding the purpose for which the loan is obtained. It was noted that share of consumption was higher among marginal and sub-marginal farmers.

4. Total number of respondents taking credit for income –generating and non-income generating activities between the concerned time period is 26. But one can take credit only after repaying the previous one. As the group size is small and size of credit is not so large, few members took loans more than once.

5. Low value of $\overline{R}^2$ is not important in this type of econometric study for quasi experiment. The required parameter estimate is insignificant and most of the remaining explanatory variables are also insignificant.

6. The estimation is given according to the report (November 2009) of the expert group by Planning commission, government of India. To review the methodology for estimation of poverty under the chairmanship of Prof. Suresh Tendulkar.

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