

THE IMPACT OF MICROFINANCE ON WOMEN EMPOWERMENT: EVIDENCE FROM EASTERN INDIA

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This paper contributes to the empirical literature on the women empowerment effects of microfinance. Using data on women borrowers of a large microfinance institution in Eastern India, we examine the effect of access to microfinance by female borrowers on four dimensions of women empowerment, namely (1) whether the borrower manages the microfinance backed enterprise, (2) influence over decision making on credit related issues, (3) influence over decision making on expenditure related issues, and (4) influence over decision making on children related issues. We find that greater access to microfinance as measured by longer duration of treatment is associated with no or negative empowerment effects on the economic dimensions of empowerment i.e., enterprise management, credit related decisions, and expenditure related decisions; but an increase in empowerment in terms of child related decisions, implying a rebalancing of influence between men and women within the household along traditional gender lines.

Keywords: microfinance, women empowerment, household decision making

1. Introduction

In the traditional treatment of household behavior based on the unitary approach to utility maximization, there is no room for conflict of interest between male and female

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members of the household. Subsequently however, theorists have recognized such conflict of interest in their endeavor to explain certain ills of the development process namely gender inequality, underinvestment in women and child education and health, and even gender discrimination in the market place (see for example Manser and Brown (1980), and McElroy and Horney (1981) for early contributions on intrahousehold bargaining and Behrman (1997) and the citations therein for evidence on development implications). It is against this background that microfinance to provide access to credit to women is often looked upon as an effective tool to resolve the above-stated ills of the development process, and even contribute to achieving the Millennium Development Goals on gender equality and women's empowerment (Kabeer, 2005). Although it is generally hoped that women's access to credit through the microfinance route can empower women, the empirical evidence so far provided in support of this view is mixed.

For example, Hashemi, Schuler and Riley (1996, 650) find that access to microfinance increases "women's mobility, ability to make purchases and major household decisions, ownership of productive assets, legal and political awareness, and participation in public campaigns and protests." Pitt, Khandker and Cartwright (2006, 817) find positive effects of microfinance on women's autonomy in purchasing decisions, women's access to financial and economic resources, the size of women's social networks, greater freedom of mobility for women, and greater likelihood that the woman initiates discussion with the husband about family planning. Ashraf, Karlan and Yin (2008) find that access to a commitment savings product leads to increased purchases of female-oriented durable goods (e.g. washing machine, sewing machine stoves etc.) as opposed to other durables such as vehicles, recreational goods etc.

However, some studies find no or negative effects of microfinance access on women empowerment. Armendariz and Roome (2008) cite anecdotal evidence that female access to microfinance with male exclusion may have perverse effects on women's empowerment. Pitt et al (1999) find that women's access to microfinance may sometimes have a positive effect on fertility and no impact on contraceptive use. Rahman (1999) finds that a majority of women borrowers of Grameen Bank experienced increased spousal conflict and aggression (both verbal and physical). Garikipati (2008) in a study of two drought prone villages in India finds negative empowerment impacts on women's work time allocation as well as control over minor finances. Banerjee et al (2010) in his study of Spandana finds no significant impact of microfinance on measures of women's decision-making over issues of household spending, investment, savings, or education.

What could explain the no or negative empowerment results in the literature? Anderson and Easwaran (2009) find in evidence from Bangladesh that earned income is more important than unearned income in enhancing women empowerment, as well as being employed outside the husband's farm as opposed to the mere fact of employment. Armendariz and Roome (2008) argue that microfinance may not increase women's bargaining power as women borrowers often surrender control over investment decisions to men. For example, Goetz and Sen Gupta (1996) found in Bangladesh that over 90% of the returns women realized from their investments were handled by their husbands. Garikipati (2008) argues that gender conflict over and ultimately male capture of control over productive assets and their fruits,

even where women were responsible for the generation or augmentation of these assets through their access to microfinance, is responsible for negative empowerment effects.

Nevertheless, caution must be exercised in interpreting such evidence for the following reasons. First is the ever-present risk of selectivity bias in the choice of samples, due to say women who are more empowered being more likely to join microfinance programs (Hashemi, Schuler and Riley, 1996). Second, it is argued that gender related issues such as relative neglect of females are culture and region specific, and depend on the social environment in addition to economic conditions (Sen, 1992). For example, Mayoux (1999) finds that women empowerment from several different microfinance programs in Africa was strongly influenced by the prevailing social norms and traditions. Therefore, it would be difficult to generalize from results obtained from a particular geographic and socio-economic setting. Third, recent evidence from Bolivia shows that the intent and social perspectives of the lender, which are often captured in the credit-plus approach¹, can be an important factor affecting the achievement of economic and gender empowerment through micro-finance (Velasco and Marconi, 2004). More research is therefore necessary to tease out whether it is the credit aspect, or the credit-plus aspect of a microfinance intervention which drives the empowerment results.

Given the mixed evidence of the literature on women empowerment effects of microfinance, more empirical evidence will be useful to shed light on the issue. The present paper attempts to provide additional evidence from the Indian context. We examine against a data set collected from women borrowers of Bandhan, currently India's largest micro-finance organization, whether and what way access to microfinance leads to women empowerment. We examine women empowerment in four dimensions—namely, whether: (1) women clients of Bandhan manage their credit-sponsored micro-enterprises, (2) their influence over decisions on credit related matters has increased, (3) their influence over decisions on expenditure related matters has increased, and (4) their influence over decisions on children related matters has increased. We find that greater access to microfinance as measured by longer duration of treatment is associated with no or negative empowerment effects on the economic dimensions of women empowerment i.e., enterprise management, credit related decisions, and expenditure related decisions. However, there is an increase in empowerment in terms of child related decisions, seeming to indicate a reallocation of influence within the household along traditional gender lines. The rest of the paper is organized as follows. Section 2 will describe the data and methodology used, Section 3 will analyze the empirical results, and Section 4 concludes the paper.

2. Data and methodology

The data used in this paper was collected from women borrowers of Bandhan, a microfinance institution (MFI) in India. As of December 2011 Bandhan was the largest MFI in India with its operation spread over 18 states and union territories². Of its 1,553 branches, 753

¹An approach where credit is offered alongside rigorous education, training and extension services etc.

² Retrieved from http://www.bandhanmf.com/bn_default.aspx as on Jan 3, 2012

branches are in West Bengal, and its headquarters are located in Kolkata, the state capital of West Bengal. Bandhan provides loans at three levels—Suchana, an introductory loan up to ₹25,000 with tenure of 1 year; Srishti, a second tier loan between ₹25,000 and ₹50,000 with tenure of 2 years; and Samriddhi, a third tier loan between ₹50,000–₹300,000 with tenure of up to 2 years³. Suchana loans are given only to adult women members. Srishti loans can be accessed by adult women members either through a graduation process from Suchana loans or can be accessed directly without going through a graduation process. Samriddhi loans can be given to anyone, not necessarily a woman. Given the women empowerment focus of this paper, we confine our attention to adult women members who have Suchana loans or have graduated to Srishti loans.

The data was collected from five clusters in the state of West Bengal during the period September-December 2010. These five clusters—namely, Dhupguri from North Bengal, Bishnupur from South-West Bengal, Fulia from middle-Bengal, and Bagnan and Canning from South Bengal were chosen so as to represent the diversity of agro-climatic features of the state of West Bengal, as well as the geographic spread of Bandhan's network in this state.

In designing the sampling plan, the pipeline approach to impact evaluation was used, which involves using new members as controls for existing members. The pipeline approach is useful in situations where it is not feasible to interview sufficient non-members in order to form a large enough comparison group, and when the intervention has already been going on for some time, both of which were characteristics of the present study. The gold standard in impact evaluation is the randomized experiment since it takes care of the issues of selection bias both on observables as well as unobservables. However, randomized experiments are not feasible if the microfinance institution (MFI) is not willing to turn away potential clients, or if the MFI contracts an impact evaluation only after several years of operations, both of which were characteristics of the present study.

Where randomized experiments are not possible, a longitudinal approach such as the difference in difference approach could be used. This approach compares the before and after situations of members and non-members. This technique can account for selection bias due to individual specific time-invariant unobservables. When neither randomized experiments nor the longitudinal approach is possible, another option would be cross-sectional comparisons of members and non-members. Handling selection bias in this approach would require simultaneously modeling selection into treatment for example via the Heckman two stage approach, or the instrumental variables approach, or the use of semi-parametric methods such as propensity score matching.

In the present context, since the evaluation was performed after the microfinance intervention had been going on for some years, a longitudinal approach was not feasible. Interviewing sufficient non-members in order to form a large enough comparison group was not feasible, thus ruling out the conventional cross-sectional comparisons approach. Given the circumstances of the evaluation, the most suitable approach was the pipeline

³ Following revised regulations of the Reserve Bank of India, these amounts were changed after the study was complete.

approach, wherein new members are used as controls for existing members. By restricting attention to members alone, the pipeline approach attempts to get around the selection bias issue, assuming that new and old members have similar unobservables. However, even if this assumption is true, it does not address the issue of timing of the joining decision, an issue that is related to dynamic selection biases (Karlan, 2001). For example, if the risk loving ambitious members in a locality join first, and only after observing their outcomes the risk averse less ambitious members of a locality join next, then the latter will not be a good control group for the former.

Karlan (2001) also warns against bias arising due to institutional dynamics. In the present context, such bias would arise if Bandhan's client identification process changes over time, thus changing the composition of newer member and older member pools. This would make the newer members non-comparable with older members. Such a change in identification process may be driven by macroeconomic realities e.g. loosening credit constraints in boom times and tightening them in recessions. For similar reasons, bias could also be caused because Bandhan may have initially targeted poorer communities, and then moved on to better off communities once the poorer communities were served, or vice versa. By restricting attention to that portion of the treatment group which has received treatment in the recent past, we can minimize bias due to both timing of the joining decision as well as institutional dynamics. One issue which then arises is what exactly is meant by "recent past", with consequent difficulties in interpreting results from data cuts with different maximum durations of exposure. Further, the cost of curtailing the sample by choosing a short maximum duration of exposure is that one perforce ignores the impacts of access to microfinance that manifest over longer periods of time. For these reasons, the present paper does not arbitrarily restrict the sample by maximum duration of exposure to treatment.

Other sources of bias in the pipeline method arise due to the fact that borrowers drop out of the program. If those who drop out (1) did so because they were impacted differently than those who stayed, or (2) differ from those who stay irrespective of the program effect, then the treatment effect will be biased if dropouts are not included in the treated group. Karlan calls the resulting biases the incomplete sample bias and the attrition bias respectively. Both biases can be mitigated by simply including dropouts in the treatment group. In order to minimize these sources of bias, the sampling design of the present study includes dropouts, defined as members who have left Bandhan within the last one year. Sampling members who have left Bandhan more than one year ago was not possible since Bandhan did not maintain records of such individuals.

From each of the five selected clusters in West Bengal, 20 Joint Liability Groups⁴ (JLGs) were chosen at random in a probability proportional manner, given the spread of JLGs across rural, semi-urban and urban areas inside each cluster. Each individual borrower (including dropouts) in the 20 JLGs per cluster was classified into different categories depending upon the type of loan availed. Only Suchana and Srishti-graduate borrowers

⁴ JLGs consist of a maximum of 30 borrower households and are formed by Bandhan's local credit officers.

were retained and then classified according to loan cycles⁵, before being sampled in a probability proportional manner.

Of the resulting sample of 927 households, 116 households were in the first loan cycle—these households correspond to the control group under the pipeline approach. The remaining 811 households were in second and higher loan cycles—these households correspond to the treatment group under the pipeline approach⁶. Of the 927 households sampled, 46 were dropouts i.e., 4.97% of the sample. The low dropout rate gives us some confidence that incomplete sample bias and attrition bias may not be serious concerns. Data on all households were collected using a structured questionnaire covering women empowerment measures, enterprise related information, and member & family socio-economic characteristics. The summary statistics of the variables used in regression analysis in Section 3 are provided in Table 1.

The present paper has concentrated on four dimensions of women empowerment—namely, (1) whether the member is indeed managing the microfinance backed enterprise, (2) whether her influence over household decisions on credit related matters has increased, (3) whether her influence over household decisions on expenditure related matters has increased, and (4) whether her influence over household decisions on child-related matters has increased. All these four variables are binary in nature. Women empowerment is measured based on the responses of the borrowers of Bandhan, not on the basis of responses of other members of the borrower household, and thus reflects the borrower's own feelings about her empowerment status. We ask whether the member's influence over household decisions has increased (i.e., change in influence), as opposed to asking for a measure of the level of influence so as to minimize the problem of selectivity bias in terms of surveying already empowered women and concluding that microfinance has empowered women. If access to microfinance increases women empowerment, then even in the presence of selectivity bias i.e., interviewing already empowered women, we should still expect to see empowerment increasing with duration of access to microfinance.

Since the four dimensions of women empowerment have been captured from the same set of households, an equation by equation estimation structure to explain variation in each of the four dimensions of empowerment may be inefficient due to possible cross-correlation of error terms between equations. In the case of continuous dependent variables, one solution to handle cross-correlation of error terms between equations is to use Seemingly Unrelated Regression (SUR) model, proposed by Zellner (1962). However, in our case we have binary response dependent variables and therefore use a multivariate probit specification to estimate these equations as a system, taking into account the cross correlations of errors across equations.

⁵A loan cycle is the period of time which begins from loan disbursement and ends with loan repayment, and lasts approximately one year. With higher loan cycles, a borrower can avail higher loan amounts, depending upon progress of the credit backed activity, and the improvement in repayment capacity, as assessed by Bandhan officials.

⁶ Given that only 59 households were in loan cycles greater than 6, we believe that bias due to institutional dynamics is not of major concern.

Table 1: Summary statistics of variables used in regression analysis

Variable	Loan cycle = 1 (N = 116)		p value [@]	Loan cycle > 1 (N = 811)	
	Mean	Std. dev.		Mean	Std. dev.
Dependent variables					
Woman member manages the micro-enterprise (0 = no, 1 = yes)	0.40	0.49	0.01***	0.27	0.44
Woman member's influence in credit-related decisions has increased (0 = no, 1 = yes)	0.33	0.47	0.31	0.28	0.45
Woman member's influence in expenditure-related decisions has increased (0 = no, 1 = yes)	0.34	0.47	0.23	0.28	0.45
Woman member's influence in child-related decisions has increased (0 = no, 1 = yes)	0.34	0.47	0.86	0.33	0.47
Independent variables					
Loan cycle	1.00	0.00	0.00***	4.33	1.52
Age of the woman member	31.07	8.44	0.00***	34.73	8.43
Whether member has completed primary education (0 = no, 1 = yes)	0.23	0.42	0.91	0.23	0.42
Whether member has completed secondary education (0 = no, 1 = yes)	0.41	0.49	0.58	0.38	0.49
Whether highest educated male is less educated than highest educated female (0 = no, 1 = yes)	0.32	0.47	0.09*	0.25	0.43
Percentage of dependents in family#	52.30	19.58	0.46	55.88	18.23
No of informal loan sources accessed	0.33	0.70	0.33	0.39	0.68
Per capita loan from sources other than Bandhan ('000 Rupees)	0.94	2.23	0.81	1.04	4.05
Number of problems faced in use of production credit\$	1.81	2.12	0.10*	2.19	2.36
Microfinance backed enterprise is engaged in non-farm activity	0.79	0.41	0.21	0.84	0.37
Whether household is upper caste (0 = no, 1 = yes)	0.43	0.50	0.00***	0.30	0.46
Whether household has a sanitary latrine (0 = no, 1 = yes)	0.48	0.50	0.20	0.42	0.49
Whether household located in rural area (0 = no, 1 = yes)	0.62	0.49	0.25	0.56	0.50
Whether household is in Bagnan cluster (0 = no, 1 = yes)	0.23	0.42	0.32	0.19	0.40
Whether household is in Bishnupur cluster (0 = no, 1 = yes)	0.22	0.41	0.58	0.19	0.40
Whether household is in Canning cluster (0 = no, 1 = yes)	0.17	0.38	0.43	0.20	0.40

(contd...)

Variable	Loan cycle = 1 (N = 116)		p value [@]	Loan cycle > 1 (N = 811)	
	Mean	Std. dev.		Mean	Std. dev.
Whether household is in Dhupguri cluster (0 = no, 1 = yes)	0.21	0.41	0.97	0.21	0.41

[@] p value is for the test for difference in means (or of proportions for dummy variables). *** for p<0.01, ** for p<0.05, * for p<0.1

Percentage of non-working to total members in a family

\$ Sample households have cited the following problems in use of production loan: non-availability of right quality/quantity of input; increased price of complementary inputs; production risk (e.g., due to weather/pest attack); managerial risk (e.g., absence/failure of management); capacity failure (owner's/family member's/staff's health hazard); market risk (low/volatile price, lack of demand of micro-enterprise output; lack of storage facility leading to distress sale; lack of processing facility leading to wastage/distress sale; lack of transport facility; adverse climate; natural catastrophe; and adverse use of loan (for a purpose less productive as compared to the original one for which the loan was taken).

3. Empirical results

The regression specification we use for the analysis is the following multivariate probit model, specified by Cappellari and Jenkins (2003):

$$y_{ik}^* = \beta_k' X_{ik} + \varepsilon_{ik} \quad (1)$$

$$y_{ik} = 1 \text{ if } y_{ik}^* > 0 \text{ and } 0 \text{ otherwise} \quad (2)$$

where k indexes outcomes, and i indexes borrowers. In equation system (1) and (2), the errors are distributed as multivariate normal, with mean zero and variance-covariance matrix. The diagonal elements of Ω are 1s and the off-diagonal elements are symmetric i.e., $\rho_{jk} = \rho_{kj}$. In equation (1), y_{ik}^* signifies the four measures of women empowerment and X_{ik} includes all independent variables in Table 1. The estimation is performed using the mvprobit command of Cappellari and Jenkins (2003), implemented in the STATA software. The estimation is performed both on the entire sample of 927 households (inclusive of dropouts), as well as on a sub-sample of 881 households (excluding dropouts). The discussion of the results that follows refers to the entire sample of 927 households (inclusive of dropouts).

We first perform the Likelihood Ratio test for diagonality of the error covariance matrix. Diagonality of the error covariance matrix implies that there is no cross-correlation of errors across equations. In this case, a series of single equation Probit models is as efficient as a multivariate Probit model. Diagonality of the error covariance matrix implies that $\rho_{21} = \rho_{31} = \rho_{41} = \rho_{32} = \rho_{42} = \rho_{43} = 0$. The test statistic was 493.34, while the while the critical value from the chi-square distribution with 6 degrees of freedom was 12.59 for $p = 0.05$. We therefore reject the hypothesis of diagonality of the error covariance matrix at the 5% level, and consequently utilize the multivariate probit specification for improved efficiency of the estimates.

We now interpret the results of the multivariate Probit estimation of equation system (1) on the entire sample of 927 households (inclusive of dropouts), as reported in Table 2. The effect of access to microfinance is captured by the coefficients on loan cycle and the square of the loan cycle. We find that access to microfinance is associated with a decreased

Table 2: Results of multivariate Probit estimation on women empowerment

Explanatory variables	Woman manages the enterprise		Credit related decisions		Expenditure related decisions		Child related decisions	
	Coeff	z value	Coeff	z value	Coeff	z value	Coeff	z value
Loan cycle	-0.23**	-2.43	0.005	0.05	0.12	1.21	0.16*	1.68
Square of the loan cycle	0.02**	2.01	-0.01	-0.84	-0.03**	-2.23	-0.03**	-2.41
Age of the woman member	0.15***	3.26	0.07	1.58	0.09**	2.18	0.14***	3.37
Square of the age of the woman member	-0.002***	-3.41	-0.001	-1.43	-0.001**	-2.06	-0.002***	-3.55
Whether member has completed primary education (0 = no, 1 = yes)	-0.08	-0.65	0.22*	1.79	0.07	0.55	0.30***	2.57
Whether member has completed secondary education (0 = no, 1 = yes)	-0.07	-0.58	0.06	0.55	-0.16	-1.44	-0.10	-0.89
Whether highest educated male is less educated than highest educated female (0 = no, 1 = yes)	-0.17	-1.60	0.04	0.42	0.19*	1.85	-0.06	-0.55
Percentage of dependents in family	-0.008***	-3.31	-0.005*	-1.89	-0.007***	-2.8	-0.00005	-0.02
No of informal loan sources accessed	-0.17**	-2.26	-0.02	-0.29	0.02	0.36	0.03	0.38
Per capita loan from sources other than Bandhan ('000 Rupees)	-0.05*	-1.86	0.04*	1.70	-0.01	-0.67	-0.01	-0.64
Number of problems faced in use of production credit	-0.04**	-2.01	0.07***	3.47	0.04**	2.22	0.08***	3.97
Microfinance backed enterprise is engaged in non-farm activity	0.23*	1.71	0.11	0.84	0.28**	2.13	0.03	0.28
Whether household is upper caste (0 = no, 1 = yes)	-0.14	-1.37	-0.21**	-2.04	-0.25***	-2.49	-0.06	-0.58
Whether household has a sanitary latrine (0 = no, 1 = yes)	-0.19*	-1.90	0.05	0.50	0.11	1.15	0.10	1.02
Whether household located in rural area (0 = no, 1 = yes)	-0.07	-0.60	-0.19	-1.61	-0.31***	-2.59	-0.41***	-3.55
Whether household is in Bagnan cluster (0 = no, 1 = yes)	0.67***	4.31	0.39***	2.59	0.19	1.26	1.01***	6.54
Whether household is in Bishnupur cluster (0 = no, 1 = yes)	0.38**	2.01	-0.20	-1.07	-0.009	-0.05	0.04	0.20
Whether household is in Canning cluster (0 = no, 1 = yes)	-0.01	-0.09	0.34**	2.10	-0.16	-1.02	0.34**	2.09
Whether household is in Dhupguri cluster (0 = no, 1 = yes)	-0.14	-0.81	-0.56***	-3.30	-0.61***	-3.71	-0.07	-0.44
Constant	-1.96***	-2.35	-1.61**	-2.05	-1.79**	-2.35	-3.12***	-4.02
No. of obs	927							
Wald Chi ²	311.91							

Note: *** for p<0.01, ** for p<0.05, * for p<0.1; Fulia is the omitted cluster.

likelihood of the borrower managing the microfinance backed enterprise. There is no change in the likelihood of increased influence over credit related decisions, and a lower likelihood of increased influence over expenditure related decisions. These results indicate no or negative empowerment effects of access to microfinance on economic dimensions of empowerment. However, we find a higher likelihood of increased influence over child related decisions, seeming to indicate a reallocation of influence between family members along traditional gender lines, rather than an unambiguous narrowing of women's sphere of influence.

Our results provide empirical corroboration of the anecdotal evidence cited in Armendáriz and Roome (2008) of the possible perverse effects on women empowerment of female access to microfinance with male exclusion. Decreased likelihood of the borrower managing the microfinance backed enterprise may be indicative of male capture of control over productive assets. Lower likelihood of increased influence over expenditure related decisions may be indicative of gender conflict over, and ultimate male capture of the fruits of productive assets even where women were responsible for the generation or augmentation of these assets through their access to microfinance—a scenario highlighted in Garikipati (2008). Alternatively, women may be simply allowing their husbands to handle the returns from their microfinance backed enterprises—a scenario highlighted in Goetz and Sen Gupta (1996). A third possibility is that a reallocation along traditional gender lines may be a natural process in situations where women access microfinance with the sole objective of improving their family's financial position, not necessarily with the objective of developing a business empire, and therefore have no qualms in returning to their traditional domain of decision making in the household especially child related matters, once the household economic position is suitably stabilized. For example, Mahmud et al (2012) find in Bangladesh that women in wealthier households are less likely to feel that they should have a say in household decisions.

Nevertheless, the type of reallocation of influence we observe in our results can hardly be considered evidence of increased women empowerment. Swain and Wallentin (2009, 541) argue that in the South Asian context, women empowerment should be looked at "...as a process in which women challenge the existing norms and culture, to effectively improve their well-being"—by this standard, our observed reallocation of influence merely conforms to existing norms and culture regarding women's traditional roles, rather than challenging them. By enabling women to better fulfill their traditional roles, access to microfinance may lead to increased self-esteem, confidence, and respect, but may not automatically lead to greater empowerment (Cheston and Kuhn, 2002). If women empowerment is one of the goals of microfinance, then our results illustrate the importance, in the present setting at least, of the need to explicitly design program features in order to promote clearly defined facets of women empowerment, rather than simply restricting the supply of credit to women, and assuming that improvement of the economic status of the family due to access to microfinance will automatically translate into gains in women empowerment.

Greater age of the borrower is associated with improvements in three of the four measures of women empowerment i.e., enterprise management, expenditure related decisions, and

children related decisions. We hypothesize that the empowerment disadvantage stemming from early marriage of women tends to dissipate with time, thereby allowing older women to recapture power along these dimensions of empowerment. Having completed her primary education increases empowerment of the borrower with regard to credit related matters and children related matters. Completing primary education may increase the ability of borrowers to understand the terms, conditions and ramifications of credit, thus increasing her ability to influence credit related decisions. However, for empowerment with regard to expenditure related decisions, rather than the borrower having completed primary education, it is the fact of women being more educated than men that has explanatory power.

Although all the borrowing households either have, or have had access to Bandhan, credit tends to be rationed by Bandhan for understandable reasons. As a result, the borrowing households are often required to simultaneously access a number of informal loan sources⁷ (which mainly lend to males) or MFIs other than Bandhan (which lend mainly to females). The greater is the number of informal sources that have been accessed, and the greater the per-capita loan from other MFIs, the lower is the likelihood that the borrower manages the enterprise. The greater the per-capita loans taken from other MFIs, the greater the likelihood of the borrower having increased influence on credit related decisions. In a male dominated society, it is quite natural that in households with greater leverage, males take control of the enterprise, while if the leverage comes from sources of credit that were tapped by females, by virtue of exercising significant monopoly power over the supply of credit to the household, females would have greater influence in credit related matters.

As the number of problems faced in the use of production credit increases, there is a decrease in the likelihood of the borrower managing the enterprise, and an increase in the likelihood of the borrower having greater influence over credit, expenditure and child related matters. Thus in times of trouble, males appear to focus more on management of the enterprise, while females have space to exercise more influence over credit, expenditure and children related decisions. When the percentage of dependents in the household increases, the borrower's customary intra-household activities increase, thus reducing the likelihood of her managing the enterprise. However, this increase in intra-household activities is not accompanied by empowerment in regard to credit, expenditure, and child related decisions; rather there are empowerment disadvantages in the former two measures.

When the household is located in a rural area, women empowerment in terms of expenditure and children related matters reduces, perhaps reflecting the more male dominated nature of rural society. Upper caste households and households with better roofing and sanitation arrangements tend to have lower levels of women empowerment along all dimensions except children related decisions. These households are typically better off both in material terms as well as in the social hierarchy. The results indicate that the scope for male domination may be greater in more affluent families, while males and females may have to behave more in the nature of economic partners in order to survive in poorer lower caste families (see Mahmud et al, 2012).

⁷Such as moneylender, grocer, relatives, friends etc.

Recall that the results discussed above refer to the entire sample of 927 households (inclusive of dropouts). We also ran identical regressions on a sub-sample of 881 households (exclusive of dropouts) in order to examine whether incomplete sample bias and attrition bias were driving the results in Table 2. We found no significant difference between the two sets of results, giving us further confidence that neither bias is a matter of concern in the present study⁸.

4. Summary and Conclusion

This paper contributes to the empirical literature on the women empowerment effects of microfinance. We examine the effect of access to microfinance on four dimensions of women empowerment, namely (1) management of the microfinance backed enterprise, (2) influence over credit related matters, (3) influence over expenditure related matters, and (4) influence over children related issues. We use data on a sample of women borrowers of a large MFI operating in Eastern India, a sampling plan based on the modified pipeline approach to impact evaluation taking appropriate precautions to minimize the concomitant incomplete sample bias and attrition bias, and used a multivariate probit regression specification in order to control for correlation of error terms across multiple equations estimated on the same data set.

We find that greater access to microfinance as measured by longer duration of treatment is associated with a decreased likelihood of the borrower managing the enterprise, lower likelihood of increased influence over expenditure related decisions, and higher likelihood of increased influence over child related decisions. Our results seem to indicate a reallocation of influence between family members along traditional gender lines, rather than an unambiguous narrowing of women's sphere of influence. The negative empowerment effects along economic dimensions provide empirical corroboration of the anecdotal evidence cited in Armendáriz and Roome (2008) of the possible perverse effects on women empowerment of female access to microfinance with male exclusion. The observed reallocation of influence merely conforms to existing norms and culture regarding women's traditional roles, rather than challenging them, and therefore may not constitute evidence of increased women empowerment in a South Asian context (Swain and Wallentin, 2009).

The intent and social perspectives of the lender, which are often captured in the credit-plus approach, can be an important factor affecting the achievement of economic and gender empowerment through micro-finance (Velasco and Marconi, 2004). If women empowerment is one of the goals of microfinance, then our results illustrate the importance, in the present setting at least, of the need to explicitly design program features in order to promote women empowerment, rather than simply restricting the supply of credit to women, and assuming that improvement of the economic status of the family due to access to microfinance will automatically translate into gains in women empowerment.

⁸ Results for the sub-sample of 881 households (exclusive of dropouts) are available on request.

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