An analysis of women's self-help groups' involvement in microfinance program in India

Gaurav Joshi
Lal Bahadur Shastri Institute of Management, New Delhi, India

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Abstract

Purpose – The purpose of this is to classify the social and economic factors which impact the involvement of women in self-help groups (SHGs) for their economic as well as social empowerment.

Design/methodology/approach – The research has been conducted in Nainital district of Uttarakhand (India) in 2018. Primary data have been gathered from women respondent only on factors relating to the ownership of asset, housing characteristics and other demographic details. Both SHG and non-SHG women members have been chosen as key informants during the survey. Multi-stage purposive and stratified random sampling has been used for the selection of respondents and SHGs. The logit regression model has been formulated to describe the causes that influence the participation of women in SHGs. Also, an empowerment index has been constructed to measure the effect of SHGs on women empowerment.

Findings – The results show that factors including age, education, family type and distance from the market have a significant impact on the participation of women in SHGs. Also, there is a significant difference in both these values which suggests that the value of the empowerment index gets significantly increased after joining the SHGs.

Practical implications – Analytically derived factors have been used to develop an empowerment index. Hence, the present research is valuable for marketing practitioners, entrepreneurs and professionals from the development sector who intend to work amongst SHGs, primarily with women. The paper is valuable for academic researchers in this area so that the limited body of knowledge, on the empowerment index, could be developed.

Originality/value – The present research is unique because the authors did not find work, especially in the context of rural India, in the said area. Factors impacting the participation of women in SHGs along with the impact of participation on empowerment have been explored using the logit regression model, leading to the development of an empowerment index.

Keywords Logit model, Socio-economic factors

Paper type Research paper

Introduction

Microfinance programs in India are increasing and have attracted the attention of corporate and financial institutions for their effectiveness in the battle against poverty and have been recognized internationally as an economic system subsector owing to their ability to combat poverty and rural unemployment. In emerging economies, strengthening access to credit

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and the ability to mobilize microfinancing, membership in self-help groups (SHGs) is being encouraged (Mayoux, 2000).

In India, agriculture contributes 16.11 per cent (Planning Commission, GOI) to the GDP, and receiving timely credit can act as a major enabler for farmers, but India's farming community largely remains excluded from the formal credit delivery mechanism (Binswager *et al.*, 1993; Agbor, 2004; Satyasai, 2000). A total 25.6 per cent (Census of India, 2011) of women in India rely on farming for their livelihood and represent a considerable section of the farming population. Many studies have shown that there is a significant positive correlation between SHG membership and the social and economic empowerment of women (Reddy *et al.*, 2009; Satish and Mehrotra, 2009) and is enabled because of the potential of credit delivery and microfinance in helping women to cope with the impact of structural modification polices and internationalization (Mayoux, 2000).

Few of the researchers, however, have argued that microfinance programs divert the attention of women away from other operative strategies for empowerment (Ebdon, 1995).

Studies have also indicated that there is a need to address the difficulties facing the demand perspective (Karmakar, 2007) as credit delivery and accessibility depend on the interest and capacity of the individuals applying for loans. Other studies have aimed to classify the nature of demand for credit, its elements and restrictions in retrieving credit in respect of developing countries (Feroze *et al.*, 2011; Anjugam and Ramasamy, 2007; Pandit *et al.*, 2007; Shah and Panigrahi, 2015; Singh and Singh, 2008; Kumar, 2009; Pokhriyal and Ghildiyal, 2011; Wydick, 1999a, 1999b; Ghatak, 1999; Besley and Coate, 1995; Anggraeni, 2009; Balogun and Yusuf, 2011; Olaoye *et al.*, 2012). These researchers found that factors including education, total income of the household, number of dependents and the women's age all impacted their participation in SHGs. However, the findings from the extant literature cannot be generalized with regard to the poorer regions of emerging economies. Moreover, very few researchers have placed importance on analyzing the factors that influence the participation of women in SHGs. The present study therefore aims to identify the factors that lead to the participation of women in SHGs and also examines the importance of participation in SHGs with regard to female empowerment.

Research methodology

The primary research was conducted in the Nainital district of Uttarakhand (India) in 2018, and the research instrument was in the form of a questionnaire for the collection of primary data relating to the ownership of assets, housing characteristics and other demographic details of the respondents. Respondents for the present study are women only. Both SHG members and SHG non-members were chosen as the key informants during the survey. Multi-stage purposive and stratified random sampling has been used during the selection of respondents and SHGs.

The state of Uttarakhand has been divided into two administrative divisions, namely Kumaon and Garhwal. The Kumaon division of Uttarakhand was selected purposely for the study as the number of SHGs is higher in this area compared with the Garhwal division. The Nainital district of the Kumaon division was then selected owing to it having the highest number of SHGs. For the selection of respondents from the Nainital district, a list of all female SHGs was prepared and then divided into three strata: low-, medium- and high performing. This division was made on the basis of savings during the course of one year using the cumulative square root of the frequency method. There was a total of 30 female SHGs selected for the study and each stratum was represented in every SGHs on a proportional basis. The list of all members of the selected SHGs was used as a sampling frame for the selection of respondents for primary data collection, whereas four members

from each SHG were selected randomly. During the selection, it was ensured that there were members from all three wealth strata selected on a proportionate basis. The total number of 120 members was drawn from the SHG set for the final respondents for the study. In addition, 60 non-members, who belonged to similar socio-economic groups, were selected from the same villages so that the ratio of members to non-members emerged as 2:1 in the final sample of the study. The final study constituted a total sample size of 190 respondents.

A logit regression model has been formulated to describe the causes that influence the participation of women in SHGs. The logit analysis describes the relationship of one or several predictor variables to a binary response variable. The binary response variable has been coded such that value 1 or 0 indicates success or failure, respectively (Gujrati, 2006). The logit regression model Y (value 1 in the case of a respondent being a member of SHG and 0 if the respondent is not the member of SHG) is dependent on multiple predictors such as age, income, education, family type, economic status and distance from market (in kilometers.). The logit model is:

$$P_i = \frac{1}{(1 + e^{zi})}$$

where P_i is the probability that the dependent variable accepts a value of 1:

$$1 - P_i = \frac{1}{(1 + e^{zi})}$$

$1 - P_i$ is the probability that the dependent variable accepts a value of 0:

$$Z_i = \alpha + \sum \beta_i X_i$$

$$\text{Odd's ratio} = \frac{P_i}{1 - P_i} = e^{Z_i}$$

After taking log of both sides to make the relationship between a categorical outcome variable and its predictors linear (Madala, 1992):

$$\text{Ln}\,\frac{P_i}{1 - P_i} = Z_i = \alpha + \sum \beta_i X_i + e_i$$

where $\mathbf{X}_i$ is a vector of independent variables and β_i is the coefficients to be estimated. These coefficients represent change in the log of odds of involvement in SHGs. A positive estimated coefficient implies an increase in probability that the respondent will be a member of an SHG with a unit increase in the concerned explanatory variable.

An empowerment index has been created to measure the impact of SHGs on female empowerment. Relevant variables which represent empowerment have been kept in the index. The weighted indices have been used for the construction of the empowerment index. Table I shows the variables used for creating the empowerment index and the scores allocated to each of the variables.

The empowerment index was developed by adding the scores related to responses to each variable across all the variables and dividing this added score with the maximum possible added scores (i.e. the added score is equivalent to the highest possible score for each

Variables	Category	Scores
Education	Illiterate	0
	High school	1
	Intermediate and above	2
Asset ownership	Less asset ownership	0
	Medium asset ownership	1
	High asset ownership	2
Participation in decision-making over household activities	Low participation	0
	Medium participation	1
	High participation	2
Assess – Access? Over household income	No assess – access?	0
	Partial assess – access?	1
	Full assess – access?	2
Assess – Access? Over income from SHG's operations	No assess – access?	0
	Partial assess – access?	1
	Full assess – access?	2
Control over savings	No control	0
	Partial control	1
	Full control	2
Participation in decision-making for accessing credit	Low participation	0
	Medium participation	1
	High participation	2
Freedom of mobility	Can't go out	0
	Can go out with permission	1
	Can go out without permission	2

Table I.
Variables used for designing the empowerment index

variable). The respondents were then classified into three categories of empowerment levels: high, medium and low. These categories have been constructed within the index using the cumulative square root of frequency method.

The data have been collected from respondents who are members of SHGs to measure the level of empowerment owing to their participation in SHGs. The "paired *t*-test" analysis has been used to determine the difference between the empowerment index with respect to the two groups, i.e. before and after joining SHGs. The respondents gave data pertaining to empowerment indicators before joining SHGs based on their memories and recollections.

Table II shows the comparison of the socio-economic profiles of respondents. The mean age of SHG member respondents is 44 years, while for non-members it is 38 years. Clearly, these two groups have significant differences in terms of age. As far as education is concerned, the members have a high mean value compared with non-members. On average, members were educated through graduation, whereas non-members were educated to an intermediate level. This indicated that there is a significant difference in education levels between the groups. Agriculture was the main occupation of both members and non-members. A total of 66.3 per cent of the respondents from the SHG member group pursued agriculture as their main occupation, whereas 43.2 per cent respondents from the non-member SHG group depended on it for their livelihood. Clearly, these two groups show a significant difference in terms of the percentages dependent on agriculture as their occupation. Only 3.2 per cent of member respondents were engaged in government jobs which is much less compared with non-members where 17.3 per cent held government positions. In terms of allied agricultural activities, it was observed that there is a significant

Sl. no.	Particulars	Members	Non-members
1.	Average age of the respondents	43.3***	37.8***
2.	Education[a]	4.88***	3.66***
3.	Occupation		
	Agriculture	66.3***	43.2***
	Agriculture labor	20.2	18.3
	Government job	3.2***	17.3***
	Agriculture + Others	10.3***	21.2***
4.	Family size (adult equivalent)[b]	3.86	3.66
5.	Family type (percentage of respondents)		
	Joint	29.3	26.6
	Nuclear	70.7	73.4
6.	Annual household income (INR)	186,645	165,790

Notes: [a]Education: Illiterate = 0, Primary = 1, Matric = 2, High school = 3, Intermediate = 4, Graduate = 5, Post-graduate = 6, Post-graduate and above = 7; [b]Family size: 4 children = 3 adult women = 2 adult men; ***Represents the 5 per cent significance level

Table II.
Socio-economic profile of members and non-members of SHGs

difference between the groups. From the member group, 10.3 per cent were engaged in these activities, whereas 21.1 per cent from the non-member group were engaged in such activities. The family size in both of the groups was similar and had no significant differences. Roughly, the same percentages of respondents live in either joint or nuclear families, from both the member and non-member groups. The annual household income was estimated to be INR186,645 for members, whereas for non-members, it was INR165,790 which illustrates that there is no significant difference in the average income for both groups.

Factors influencing participation of women in self-help groups

The logit regression model has been used to measure the impact of different factors which lead to the participation of women in SHGs. The result shows that factors, including age, education, family type and distance from the market, have a significant impact on the participation of women in SHGs. The values of all regression coefficients, except the distance from the market, in the model were found to be positive which implies that the likelihood of participation in SHGs increased with an increase in age, education level and family type. In the case of distance from the market, the value of coefficients was found to be negative which indicates that, as the distance increases, there is less chance of the participation of women in SHGs. The odds ratios related

Sl. no.	Independent variables	Estimated coefficients	Standard error	Odds ratio
1.	Constant	3.170	1.654	–
2.	Age in years	0.230*	0.067	1.45
3.	Education	1.987*	0.341	2.99
4.	Family type (Joint = 1, Nuclear = 0)	2.145*	0.099	1.11
5.	Economic status	0.126	0.789	0.81
6.	Distance from market (in kilometers)	–0.34*	0.451	0.85

Notes: –2log likelihood 76.095, Cox and Snell R^2 0.568, Nagelkerke R^2 0.682; correct predication 86.2 per cent; dependent variable = 1 when respondent is a member of SHG and 0 if the respondent is not a member of an SHG; *Represents the 5 per cent significance level; Odd's ratio = value more than 1 are more likely and less than 1 are less likely influences on dependent variables

Table III.
Factors impacting the participation of women in SHGs

A. Change in empowerment index

Sl. no.	Wealth categories	Index value (before participation in SHGs)	Index value (after participation in SHGs)	Gain in empowerment	"*t*" value
1.	Rich	0.339	0.567	0.228	7.43*
2.	Medium	0.331	0.579	0.248	6.49*
3.	Poor	0.333	0.576	0.243	8.01*
4.	Overall	0.334	0.574	0.240	9.24*

B. Change in assets possession (INR)

Sl. no.	Wealth categories	Average of asset (before participation in SHGs)	Average of asset (after participation in SHGs)	Change in asset	"*t*" value
1.	Rich	3,453	5,239	1,786	2.49*
2.	Medium	2,167	3,986	1,819	1.76*
3.	Poor	1,984	3,978	1,994	3.11*
4.	Overall	2,534	4,401	1,867	3.48*

C. Change in total household income (INR)

Sl. no.	Wealth categories	Average household income (before participation in SHGs)	Average household income (after participation in SHGs)	Change in household income	"*t*" value
1.	Rich	165,240	235,734	70,494	9.89*
2.	Medium	136,568	179,891	43,323	11.23*
3.	Poor	99,489	144,310	44,811	11.69*
4.	Overall	133,765	186,645	52,880	14.88*

Note: *Represents the 5 per cent significance level

Table IV.
Empowerment of women through participation in SHGs

to each independent variable indicated in the percentages created the increase in the likelihood of an individual becoming a member of an SHG. Every single unit increase in age leads to the increased probability by 1.45 times toward joining an SHG. The probability of an individual holding an SHGs membership increased 2.99 times with each increase of one unit level of education. The results show that education and age are important factors impacting the participation of women in SHGs (Table III).

Table IV represents the comparison of SHG members' asset possession and annual household income, as well as the empowerment index before and after their joining the SHG. The value of the empowerment index was found to be 0.574 after joining the SHGs, in comparison with the index value of 0.334 before joining the SHG. There is a significant difference in both these values which suggests that the value of the empowerment index significantly increases after joining SHGs. The average asset(s) acquired by the members after joining SHGs was found to be 4,401, up from 2,534, the figure at the time when the respondent was a non-member. Again, with regard to assets possession, the statistics show that there is a significant difference in asset possession before and after joining the SHG. The average income of a household after joining SHGs was INR186,645, up from INR133,765. There is a significant increase in the average household income after joining SHGs.

Policy implications

- The government and NGOs who are working in the area and emphasizing the formation of SHGs to improve living and working conditions for women must focus on increasing the women's educational level. The improved education system in rural areas will automatically lead towards increased participation in SHGs. As the distance from the market is one of the factors which negatively influence participation in SHGs, the government and other agencies must invest in infrastructure development, which will in turn increase participation in SHGs. Non-members of SHGs must be incentivized for their efforts toward becoming members and awareness must be spread amongst the non-members.
- As participation in SHGs leads toward the empowerment of women, government agencies and NGOs must provide help to SHGs to make them sustainable. They must extend financial support, guidance and extension services, so these activities can be converted into income generation ventures, which would obviously empower women financially as well as socially.

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Corresponding author
Gaurav Joshi can be contacted at: gauravjoshi12@gmail.com