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Impact of Women Dairy Self-Help Groups on Employment Generation of Women in Rajasthan

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Abstract

The present study analysed the impact of women dairy self-help groups (SHGs) on employment generation in Rajasthan. The primary data was collected from 320 respondents and Heckman two stage econometric analysis was done for impact assessment. The findings show that the employment generation through dairy farming was significantly higher for SHG members than that of non-members. The variables education level, involvement in off-farm activities, annual income, and prior indebtedness had significant effect on women' s participation in dairy SHGs. Regression results show that the variable, participation dummy had significant impact on employment generation, which reveals that participation in SHG activities significantly increases the employment among women of the study area. Besides this, herd size, education level, formal training and land holding also had significant effect on employment generation of women. Hence, active participation of women in SHGs is suggested.

Keywords: Dairy, Employment, Impact, Self-help Groups

JEL Codes: E24, Q14

Introduction

Poverty is the most dangerous curse in our society as thousands of people die due to lack of livelihood resources (Feroze 2009). There are several causes of poverty, but nowadays the most dangerous cause of poverty is insufficient household income due to unemployment (Khawari, 2004). Unemployment results in lack of sufficient income in a household. High unemployment rate and poor proprietorship of assets compel the rural people to remain in the vicious cycle of poverty. Since independence, Government of India has implemented a number of programs like Integrated Rural Development Programme (IRDP), *Jawahar Rozgar Yojana* (JRY) and *Sampoorna Gramin Rozgar Yojana* (SGRY) etc. These programmes were launched considering poverty alleviation as the major goal by generating better work opportunities for the unemployed. However, they were not completely successful in achieving their targets because of several flaws in implementation, monitoring, delivery and design of these programmes. Moreover, only one-time credit support was given under these programmes without any follow-up plan. Hence, problem of credit and unemployment continued among the rural poor due to failure of these programs.

Concerns on these issues are not limited to India but have also expanded globally. In 1999, United Nations had set eight Millennium Development Goals (MDG); in that "Achieve decent employment for women, men, and young people" was set as one of the targets. Following the MDGs, United Nations has taken a major step by setting seventeen Sustainable Development Goals and in that too "Decent work and economic growth reducing inequality" was kept a prime goal. The government of India is also focusing on achieving these targets of Sustainable Development Goals in next few years. In this regard two types of strategies can be followed, asset creation or wage labour. Asset creation is more sustainable than wage labour, but for asset creation credit is a limiting factor. Hence, the concept of microfinance using SHG is the best way to achieve these goals through asset creation and consequently may change lives of poor people. SHGs provide credit to poor and generate self-employment among them. Microfinance movement plays a crucial role in addressing this national issue of unemployment and emerges as the single largest savior of the rural poor from the denial of finances with a special emphasis to women.

Currently, dairy is the top-ranking commodity in India in value terms. About one third of the rural people are dependent upon dairying and 75 per cent of rural households own, on an average, two to four animals (20th Livestock Census, 2019-20). Also, dairying provides a source of continuous employment and hence, it generates regular income. This regular income from dairy has a huge impact on minimizing risks to income. Therefore, dairy SHGs were selected for the study. According to International Labor organization (2019), labour force participation rate in India for female (20.1 per cent) was less than one-third of male (76 per cent). Hence, this study was taken exclusively on women SHGs. After analyzing the mentioned issue of unemployment, the present study was undertaken to identify the role of SHGs in providing employment to the rural women.

Materials and Methods

Selection of Study Area

Rajasthan is India's second largest producer of milk after Uttar Pradesh. It possesses 10.59 per cent of the total livestock population of the country and contributes to about 12.60 per cent of the milk production (20th Livestock Census, 2019). About 22.50 per cent of the total household income, whereas in arid region it contributes even more than 50 per cent of the total household income (Department of Animal husbandry, Govt. of Rajasthan 2017-18). Dairy farming is considered a treasure of the state's economy as it has become a major economic activity especially to the drought prone region of the state. Livestock rearing acts as a cushion for drought proofing in the state. Hence, Rajasthan state has been selected purposively for the study where livestock is an important source of employment generation, to break vicious circle of poverty by providing employment to poor and deprived people, especially illiterate women.

Out of 33 districts of Rajasthan, two districts, namely Baran and Jhalawar, which have the highest number of dairy SHGs in the state, were selected purposively (RAAJEEVIKA). From each district, 40 SHGs and two members from each of the selected SHG were selected randomly. Thus, 160 SHG members from both the districts were selected. To examine the impact of dairy financing through SHGs on employment generation of women, 160 non-members were selected from the same village.

Data

Primary data were collected from 320 respondents by conventional survey method on a well-structured and pre-tested schedule. Data with respect to the socio-economic characteristics of the households, ownership of assets (land and livestock), training attended by the respondents and actual time spent in various operations of dairy farming were collected.

Analytical Framework

To estimate employment generation through dairy farming, number of hours per day spent in different dairy activities by women was recorded for each household and aggregated to work out the utilization of women's time in dairy operations for members and non-members.

Heckman two step correction method (Heckman 1979) was used in addition to Z-test to delineate the impact of SHGs on employment generation of women. It is a two-step model.

Step-1: First step is a selection model which estimates the Probit model of following form to determine whether women were participating in SHGs or not:

$D_i^* = \alpha Xi + vi$
Di = 1, if Di*>0 and Di = 0 if Di*<0
Where,
$Pr\{Di = 1|Xi\} = \Phi(\alpha Xi)$
$Pr\{Di = 0|Xi\} = 1-\Phi(\alpha Xi)$ and
Di = 1, if Di*>0 and Di = 0 if Di*<0
Di*- latent variable that takes the value 1 if farmers participate in SHG and 0 otherwise
α - vector of parameter
Xi - vectors of variables explaining decision to participate
Φ – Standard normal cumulative distribution function
v_i– error term

From first step inverse mills ratio was generated.

Step 2: Second step is a regression model. Taking inverse mills ratio as one of the independent variables, OLS regression was done by using the following equation

$$NET\_EMPL_i = \alpha_0 + \alpha_1 CD_i + \alpha_2 EDN_i + \alpha_3 AGE_i + \alpha_4 HERD_i + \alpha_5 LAND_i + \alpha_7 TRNG_i + \alpha_8 IMR_i\_CD_i + v_i$$

Where,

NET_EMPL_i= Net employment generated through dairy farming (days)

The explanatory variables used for the regression were shown in Table 1.

Table 1: Explanatory variables used for Heckman regression

Explanatory variables	Measurement	Expected signs
Participation dummy (CD)	Dummy 1 for members and 0 otherwise	+
Education level (EDN)	0-Illiterate; 1-Primary; 2-Secondary; 3-Higher Secondary; 4-University	+
Age (AGE)	Number of years	--
Herd Size (HERD)	Number of milch animals	+
Land holding (LAND)	Acre	+
Formal training (TRNG)	Dummy 1 if trained and 0 otherwise	+
Inverse mill ratio (IMR)		

Categorization of Respondents

Based on the herd size, respondents were categorized, using cumulative square root frequency method into three groups namely, small, medium and large. Respondents having herd size from 1-4 were categorized as small groups, while respondents having 5-6 and above 6 animals fell in medium and large groups, respectively.

Results and Discussion

Employment of Women Members and Non-Members

It was observed in the study area that contribution of women in different dairy activities was relatively higher than that of men, in case of both members and non-members. Tanusha, Chander, & Sinha (2019) also reported the same result. Member women contributed 61.87 per cent as compared to 38.13 per cent by men in different dairy activities, while in case of non-members women contributed 64.13 per cent against 35.87 per cent by men. Table 2 reveals that average annual days of employment generated from dairy farming were more for women members at 152.57 days/annum than that of non-members (142.383 days/annum). Mean difference between employment generation from dairy enterprises for women members and non-members was significant and it is higher for women members than that of non-members. This finding is in line with the findings of other researchers (Bose *et al.* 2013; Nirmala and Yepthomi 2014; Sarania 2015).

Table 2: Average employment generation through dairy for women members and non-members across different herd size categories (days/annum)

Herd Size Category	Member	Non-member	Mean Difference	Z-Statistics
Small	116.115	112.14	3.98	1.738
Medium	192.82	179.58	13.24	1.67
Large	247.288	212.49	34.796**	4.272#
Overall	152.57	142.38	10.187*	2.2

** =P≤0.05, ** =P≤0.01, # =t-statistics*

Category-wise breakup shows that the average employment generated for small, medium and large herd size categories of members were 116.115 days/annum, 192.82 days/annum and 247.288 days/annum, respectively, while for the non-members, the corresponding figures were 112.135 days/annum, 179.577 days/annum and 212.492 days/annum, respectively.

Explanatory Variables Used for the Impact Analysis

As shown in the Table 3, average education level of non-members (0.781) was higher than that of members (0.563). Non-members were relatively younger than the members albeit by only a year. Average age of members was approximately 35 years compared to 34 years for non-members. Average herd size in member households (3.431years) was higher than that of non-members (3.288 years). Average land holding size for members was 0.927 ha as compared to 1.017 ha for non-members.

Table 3: Average values of explanatory variables

Variable	Unit	Member	Non-member
Credit / participation dummy	Dummy (Member-1, Non-member-0)		
Education level	Categorical variable	0.563	0.781
Age of respondent	Years	35	34
Herd size	Number	3.431	3.288
Land holding	Acre	0.927	1.017
Formal training	Dummy (Yes-1, No-0)	0.525	0.356
Number of dependents per household	Number	4.106	3.506
Annual income	1000 Rupee	60.532	76.031
Involvement in off-farm activities	Dummy	0.213	0.081
Prior indebtedness	1000 Rupees	22.454	12.698

To analyze formal training attended by respondents, dummy 1 was assigned to the respondents who had attended any training, and zero, otherwise. It was observed that out of 160 members, 84 members (52.5 per cent) and out of 160 non-members, only 57 non-members (35.63 per cent) had participated in any formal training. Average number of dependents in a member household (4.106) was higher than that of non-members (3.506). Annual income of members was Rs. 60532 compared to Rs. 76031 for non-members. To analyze involvement in off-farm activities, dummy 1 was assigned to the respondents engaged in off-farm activities and, zero, otherwise. Out of 160 members, 34 (21.25 per cent) members, whereas 13 (8.13 per cent) out of 160 non-members were engaged in off-farm activities. Prior indebtedness was higher in member households (Rs. 22454) as compared to non-member households (Rs. 12698).

Impact Assessment

Results of Heckmen two stage regression are presented in Table 4. In the first step of Heckman regression, Probit model was estimated, where variables 'age of respondents', 'education level', 'number of dependents per household', 'annual income', 'involvement in off-farm activities', and 'prior indebtedness' were considered as the important variables influencing the women's decision to participate in an SHG. Being a binary variable, dependent variable takes the value 1 if women participate in SHGs, and zero, otherwise.

Table 4: Estimates of Heckman two stage analysis explaining impact of SHGs on employment

Explanatory variable	Probit results (Stage-1)	Regression results (Stage-2)
	Participants of SHG= 1; otherwise= 0	Net employment through dairy farming
Constant	-0.842	0.071
	-0.624	-0.066
Age of respondents	0.021	0.0003
	-0.015	-0.002
Education level	-0.144	-0.019*
	-0.093	-0.009
Number of dependents	0.148*	-
	-0.062	
Annual income	-0.123**	-
	-0.024	
Involvement in off-farm activities	0.526*	-
	-0.229	
Prior indebtedness	0.242**	-
	-0.052	
Participation dummy	-	0.047**
		-0.017
Herd size	-	0.370**
		-0.02
Land holding	-	0.069**
		-0.022
Formal training	-	0.071**
		-0.015
Inverse mill ratio	-	0.08
		-0.016
Pseudo R-square	0.218	-
LR chi-square (6)	78.590**	-
R-square	-	0.589
Adjusted R-square	-	0.579
F-test	-	63.540**
Number of observations	320	320

** =P≤0.05, ** =P≤0.01; Figures in parentheses are standard errors.*

As shown in Table 4, results reveal that 'annual income' had negative and significant effect on women's participation in dairy SHGs because households with higher annual income may not find SHGs worthy. 'Number of dependents per household', 'involvement in off-farm activities' and 'prior indebtedness' depicted significantly positive influence on the participation of women in the SHG.

In second step, regression model was estimated in which net employment generation through dairy farming was used as dependent variable. As shown in Table 5, the coefficient of variable participation dummy had significant and positive influence on employment generation of women which proved that participation in SHG activities significantly increases the employment of the member women through dairy farming. The reason being, participation in dairy SHGs provide skills to the women and hence, generates greater employment.

Table 4 also reveals that besides participation in SHGs, net employment was also expected to be affected by other variables. Regression results show that the education level had negative and significant influence on the net employment of women through dairy because women with higher education find other work opportunities besides dairy activities where they earn more than SHGs. Herd size and land holding depicted a positive and significant influence on employment generation of women which implies that with the increase in herd size and land holding, employment generation increases. As expected, formal training also depicted a significant and positive effect on employment generation of women. The reason being, formal training makes the women more skilled and aware about different dairy activities and hence generates more employment. The bias correlation factor 'inverse mills ratio' was insignificant which implies that selection bias is not prevalent in the model. Value of F-statistics (63.54) implies that fitted model is statistically significant.

Conclusion

Poverty is the main problem of our society as number of people die due to lack of livelihood resources. Several causes lead to the problem of poverty, but out of them, the most terrible cause of poverty is insufficient household income due to unemployment. To overcome this problem, two types of strategies viz., either asset creation or wage labour can be followed. Asset creation is more sustainable than wage labour, but for asset creation credit is a limiting factor. Hence, the concept of microfinance using SHG is the best way to address this national issue of unemployment through asset creation, which consequently may change lives of poor people. Concept of SHG is a credit plus approach which not only provides credit to poor but also generates self-employment among them. The findings of the study reveals that the average annual days of employment generation from dairy farming were more for women of member households than that of non-member households across all herd size categories. It has been revealed that the factors like education level, annual income, involvement in off-farm activities, and prior indebtedness had significant influence on women's participation in dairy SHGs. The coefficient of variable participation dummy was positive and significant which indicates that participation in SHGs significantly increases the employment generation of women members as compared to the non-members. Besides, education level, herd size, land holding, and formal training also had significant effect on the net employment generation of women. Hence, it is suggested that rural poor should actively participate in SHGs. Moreover, training on different dairy activities should be provided to the women to improve their skill, which consequently increase their employment generation.

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Conflict of Interests

There is no conflict of interest.

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