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Role of rural women in socio-economic development in Hardoi district of Uttar Pradesh

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Abstract

Every country's development rate is largely determined by the involvement of its people, especially the women who make up almost half of the population. Women's participation in the economy can inevitably improve their standing and provide them more authority. According to a number of research, more female empowerment may be sparked by economic empowerment. The data gathered from 120 female respondents in the Behadar and Kachhauna blocks of the Hardoi district between 2022 and 2023 was analyzed using basic statistical tools, the binary probit model and Garrett's ranking technique. The results showed that women's involvement in agriculture rises with farm income and landholding size and falls with age. Through a variety of activities, women greatly increased the family income, and their involvement in decision-making had a positive correlation with age, education, income, size of farm, and vocation. Lack of credit, access to markets, farm equipment, agricultural knowledge, mobility, and cooperation among field workers were among the main obstacles that women had to overcome. The study suggests expanding income-generating options, improving logistic support, and offering training tailored to the needs of rural women in order to better their socioeconomic circumstances. Acknowledging women's equal rights to engage and mobilize can help combat poverty and advance the socioeconomic growth of the country as a whole.

Keywords: Binary probit model, empowerment, correlation, Garrett's ranking technique and respondents, NED

Introduction

India's economic growth and progress on different development indicators prompt the examination of the effectiveness of economic growth in promoting women's empowerment. The effect of economic growth, though essential, is debated for its effectiveness as a singular intervention for improving women empowerment. Some scholars argue that economic growth reduces women's vulnerabilities by diminishing household constraints, empowering them with more time, and enhancing legal rights. Others caution against simplistic narratives ^[1] and argue that empowerment involves more than traditional metrics of progress, and advocate for interventions that address power dynamics and ensure meaningful participation in decision-making processes ^[2].

Women's empowerment is currently considered to be a crucial topic of interest around the world, as development in one country cannot be achieved without equal participation of women ^[3]. Gender equality is a realization of women's equal rights, and women's participation in all decision-making areas is a prerequisite for sustainable development in one country. Since women play a crucial role in achieving social, political, and economic development, reducing gender inequalities and empowering women are widely regarded as central development goals around the world ^[4].

In the world, women account for 70% of the poor. This femininity of poverty has influenced policy development and the identification of practical solutions. This condition imposes real costs on society in the form of untapped potential in achieving agricultural output, food security, and economic growth in various sectors and many developing countries ^[5].

Several studies have highlighted the crucial role of women in rural development ^[6]. Women are considered key agents of change as they play a critical role in enhancing food security, poverty reduction, and sustainable development. Moreover, women's empowerment has been linked to several positive outcomes, including improved health and education outcomes for themselves and their families ^[7].

The studies that have been done on role of rural women in socio-economic development for livelihood security have shown how successful socio-economics parameter, participation of women's in agricultural activities, contribution of women's in family income and decision making, and constraints faced by women's in socio-economic Still, not much research has been done on the study on rural women. Thus, in order to Age group, marital status, determinants of women participation, annual income of households and constraints the following goals were set for the current study, "Role of Rural Women in Socio-

economic Development for Livelihood Security in Hardoi District of Uttar Pradesh"

Materials and Methods

This chapter provides an overview of the study area and explains the methodology used for selecting the sample, collecting data, and analyzing the results. The study was conducted in Hardoi district of Uttar Pradesh, focusing on two blocks, Behadar and Kachhuna, chosen for their higher number of rural women beneficiaries under the HCL Foundation and NRLM Project. Six villages (three from each block) were randomly selected, and from these, 120 respondents were chosen using a proportionate random sampling technique. Data was primarily gathered through personal interviews. The analysis relied on statistical tools to process the data and achieve the study's objectives. Both purposive and random sampling methods were employed to ensure a representative sample. The chapter outlines these procedures clearly to provide a solid foundation for understanding the study's results.

1. To study the participation of women in agricultural activities in the study area.

The binary response Probit model was used to determine the factors that influence women's participation in agricultural activities [8]. The Agricultural activities were not attended by all of the ladies in the study region. As a result, the dependent variable was women's program participation, which had a value of one for participation and zero for non-participation [9].

It is assumed that participation or non-participation in the Agricultural activities is determined by an unobservable utility index (I_i) that is explained by an explanatory variable (X_i) such that the higher the value of index I_i , the greater the likelihood of involvement in the agricultural activities. The index I_i was expressed as per Equation (1):

$$I_i = \beta_1 + \beta_2 X_i + \beta_3 X_i + U_i \dots \dots \dots (1)$$

Where,

X_i is the vector of explanatory variable, B_1 is the constant, B_2 is the coefficient, U is the random disturbance.

The index I_i has a crucial threshold level above which households was participating in the agricultural activities if I_i exceeds I_i^* ; otherwise, they will not. The odds that I_i^* is less than or equal to I_i can be calculated using the standardized normal cumulative distribution function (cdf) as stated by equation 2:

$$P_i = P_r(Y=1) = P_r(I_i^* < I_i) = F(I_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{T_i} e^{-\frac{t^2}{2}} dt \dots \dots (2)$$

$$P_i = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\beta_1 + \beta_2 X_i} e^{-\frac{t^2}{2}} dt$$

Where, 't' is a standardized normal variable $N(0,1)$

To obtain information on I_i , the utility index, as well as the coefficients β_1 and β_2 , inverse was taken.

$$I_i = F^{-1}(I_i) = F^{-1}(P_i) = \beta_1 + \beta_2 X_i \dots \dots \dots (3)$$

Where, F^{-1} is the inverse of the normal cdf

In probit analysis, the unobservable utility index I_i was simply known as Normal Equivalent Deviate (NED) or simply Norm it. Since the I_i would be negative, i.e., $P_i < 0.5$ in practice, the number 5 was added to the NED and the result was called probit [Equation (4)]:

$$\text{Probit} = \text{N.E.D.} + 5 = I_i + 5 \dots \dots \dots (4)$$

To estimate β_1 and β_2 , it was written as Equation (5):

$$I_i = \beta_1 + \beta_2 X_i + U_i \dots \dots \dots (5)$$

Where, U_i is the stochastic disturbance-term.

The model will be specified as given below:
 $Y = \beta_0 + \beta_1 AW + \beta_2 FS + \beta_3 LH + \beta_4 EW + \beta_5 NI + U_i$

where,

Y = Participation of women in agricultural activities

β_0 = Intercept, AW = Age of women (years), FS = Family size,

LH = Land holding size (ha),

EW = Education (years),

NI = Net farm income

β_1 - β_5 are the respective coefficients and U_i is the error term

2. To identify the constraints faced by women in socio-economic upliftment

The Garrett Ranking Technique was used to determine the restrictions that women face in socio-economic upliftment [10]. The Garrett Ranking Technique (Garrett, 1969) was used to quantify the ranks they provide, using the formula [11]:

$$\text{Percent Position} = \frac{100(R_{ij} - 0.50)}{N_j}$$

Where,

R_{ij} = Rank given for the i^{th} problem by the j^{th} individual,

N_j = Number of problems ranked by the j^{th} individual

The percent of rank, for a single variable (reason) were added up total sample of agricultural activities to give the overall percent position of that preference. The overall percent position thus calculated was divided by the number of respondents in order to derive the average percent position, which was then converted to scores by referring to the transmutation table, given by Garrett.

Results and Discussion

Factors that influence how much women contribute to household income

Various linear models were applied initially estimated to ascertain the effects of the explanatory variables chosen element on how much women contribute to the income of various household groupings. However, it was discovered that the multiple linear regression model performed better in terms of the expected co-efficient signs and magnitudes,

modified R², and F-values. For interpretation, the parameter estimators that were derived the multiple linear model revealed were chosen. Also, great care was taken to prevent the chosen variables from being multicollinear.

Table 1: Coefficient estimates and associated statistics

Variables	Co-efficient	p-value
Intercept	5.315	0.058
Age(X1)	-19.610	0.120
Education(X2)	1.542	0.050*
Education(X2)	1.542	0.050*
Family size(X3)	5.692	0.044*
Land holding size(X4)	2.882	0.702
Marital status(X5)	0.7105	0.933
Farm income	13.721	0.134
R ²	0.80	
Adjusted R ²	0.782	
F-value	12.76	

Note: *=significant at 5% level of significance

The factors affecting women's contribution to household income are shown in Table No.1 It was determined that the regression coefficient for age was -19.610. As women age increases, their income contribution to the household appears to decrease beyond a certain point, according to the statistical insignificance and negative co-efficient (41-50). Considering that the bulk of the respondents worked as farm laborers and domestic assistants, their productivity and financial contribution to the household decrease with age. The regression coefficient for education was 1.452. According to this, if all other variables remain constant, a one percent increase in education level would translate into a 1.452 percent increase in women's contribution to household income. With all other variables held constant, a 1% increase in farm size would lead to an increase in, according to the regression coefficient of 5.692 for farm size. The family size regression coefficients reveal a positive correlation with women's income, indicating the significance of the issue. With a co-efficient of determination (R²) of 0.80, the set of explanatory variables in the model was able to explain around 80.00 percent of the variation in the home income contributions made by women. Even after taking into consideration the degree of freedom (d. f.), the adjusted R² value of 0.782 demonstrated that the five explanatory variables in the model were still able to explain 78.20 percent of the changes in the women's contribution to family income. At the 1 percent level, the F-value was significant at 12.76. It assesses the computed regression model's overall goodness of fit.

The constraints faced by women in socio-economic upliftment

Women are widely seen as key drivers of economic growth, particularly in low-income communities. Over the last few decades, measures to empower women have grown dramatically. These initiatives aim to give women with options for self-employment and increased economic

engagement. However, execution frequently falls behind the anticipated aims. Women typically encounter challenges such as limited access to financial resources and a lack of support infrastructure. There are persisting gaps and difficulties that require immediate response. Critical issues include assuring long-term revenue streams, moving from microcredit borrowers to company owners, and attaining economic independence. Addressing these issues is critical for really empowering women and allowing them to participate successfully to socioeconomic development.

Table No.2 illustrates that the members' issues were extremely diverse, making it difficult for the respondents to priorities them. In the study, women's were ranked 1 to 11 to determine their ranks for their constraints. The calculated percentage position for the rank 1 to 11 and their correspondent Garrett value of presented. The study revealed that, the major challenges experienced by women's in the study area were the lack of credit (53.74), lack of availability of farm equipment's (52.41), lack of agriculture field production (51.20), lack of local market (50.80), Lack of Agriculture field knowledge (50.21), lack of mobility because of restrictive family (50.14), Lack of getting better prices for agriculture produce (49.91), Lack of mutual understanding among field workers (49.18), Long distance to the agriculture field (48.04), Long distance between agriculture field to market (47.62) and Inability to devote full time to work (45.76).

Conflicts and a lack of consensus among participants frequently disturb the regular operation of efforts targeted at women's socioeconomic upliftment, which is critical for collective activities. Poor management, a lack of professionalism, and personal aspirations frequently derail these initiatives. Furthermore, formal education is essential for empowering people to think rationally; conversely, a lack of education among women can restrict creativity and vision. As a result, women with less education have difficulty managing their finances, making investment decisions, and comprehending government programs and plans. Furthermore, cultural and familial restraints limit women's potential, causing a lack of enthusiasm and focus in their entrepreneurial or economic pursuits.

In the research area, there was insufficient transmission of new agricultural technology to women, with many still using out-of-date farming gear. This dependence on outdated tools increased women's burden while also reducing operational efficiency, hurting total agricultural yield. Furthermore, marketing issues had a substantial economic impact on these women. The most serious difficulties included low product costs, a lack of market understanding, and the absence of local buyers. This lack of market awareness hampered women's capacity to pick which crops to plant and their ability to accurately evaluate demand and supply for their products. As a result, these constraints worsened, restricting their ability to obtain higher economic returns and integrate into larger market systems.

Table 2: Rankings of the problems faced by the women

S. N	Perceived Constraints	Percent Position	Garrett Value	Total	Mean	Rank
1.	Long distance between agriculture field to market	4.55	83	5714	47.62	X
2.	Inability to devote full time to work	13.64	72	5491	45.76	XI
3.	Lack of Agriculture field knowledge	22.73	64	6024	50.21	V
4.	Lack of getting better prices for agriculture produce	31.82	59	5989	49.91	VII
5.	Lack of local market	40.91	55	6096	50.8	IV
6.	Lack of availability of farm equipment's	50.00	50	6289	52.41	II
7.	Lack of agriculture field production	59.09	45	6144	51.2	III
8.	Lack of mobility because of the restrictive family	68.18	41	6017	50.14	VI
9.	Lack of mutual understanding among field workers	77.27	35	5901	49.18	VIII
10.	Long distance to the agriculture field	86.36	28	5765	48.04	IX
11.	Lack of credit	95.45	17	6449	53.74	I

Conclusion

Women made a significant participation in the family income overall as well as to a variety of activities. Women's contribution to household income were shifting in pattern. Currently, women are engaged in a wide range of agricultural and non- agricultural activities that generate revenue, particularly in the areas of crop production, livestock enterprises, jobs, business and non-farm labour. According to this study, women's income has a negative correlation with age and family but a good correlation with women's education and farm size both amount and debt. The involvement of women in decision-making processes was inversely correlated with the size of the family, but positively correlated with the age, education, income, size of the farm, and occupation of the respondents. For the socioeconomic advancement of families and the growth of the country as a whole, women's potential must be realised. Women ought to be informed of their equal right to participate and to organise. Women should be given access to a variety of income-generating opportunities in order to reduce poverty in rural areas. In the study area the major problem faced by the respondents were lack of credit, lack of availability of farm equipments, lack of agriculture field production, lack of local market, lack of agriculture field knowledge, lack of mobility because of the restrictive family, lack of getting better prices for agriculture produce, lack of mutual understanding among field workers and Inability to devote full time to work etc.

Suggestions

Women make excellent partners in the family and the nation's overall socioeconomic development as silent labourers specifically. If the right conditions and resources are provided, they can make a greater contribution to the family's socioeconomic advancement.

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