Analysis the Factors Effecting the Farm Women Contribution in Rural Economy: A Study of Bhilwara Region

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Abstract: The rural economy is predominantly based on agriculture. Approximately 80 per cent Indian population lives in around five and half lakhs villages spread over the country and are depended mainly on agriculture. Agriculture is the backbone and base of the national economy. Agriculture is the lifeline of Indian economy and sustainability of agricultural growth has been the focused issue confronting the nation over the years. Indian agriculture could rise up to the challenges and has witnessed a gradual transformation from subsistence farming of early fifties to the present day intensive farming practices. Since ages, women continued to be the important stakeholders in farming actively in India. The nature and extent of women's involvement in agriculture, no doubt, vary greatly from region to region. Presently, they constitute one third of the agricultural labour force and about 48 per cent of self-employed farmers. Furthermore, management and involvement of Indian women in farming enterprise has been on rise in recent years especially in better-endowed rural regions. It is a well-known fact that economic development of any society depends on the quality of human resource especially the decision-making ability. The Government must have been implementing various programmes to empower women in order to strengthen the women sector and make them self reliant, confident and enhance their decision making abilities for better management of the professional resources. The present study has been conducted in 5 Panchayat Samities of Bhilwara district of Rajasthan. Ten Villages selected for research, two villages from each PS. Main objective of this paper is analysis the impact of personal and socio-economic factors on farm women working.

Key words: - Agriculture, backbone, Panchayat Samities, decision-making ability, self-employed, National economy

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I. Introduction

Women have played a significant role in traditional agricultural production technology About 36 million Indian women are engaged on farm operations as main workers; from sowing to harvesting and storing in bins and bags. They also participate in off- firm activities like processing and marketing of farm products. Women play a significant role in farming and farm management activities, though most are engaged either as cultivators or helpers to cultivators or as agricultural labourers. It has been found that women from weaker sections of the society and possessing small or no land holding participate in larger proportion in agricultural operations than women from middle class socio- economic status. They are actively involved in agricultural development and allied fields including crop- production, livestock production and post-harvest operations etc.

In India women play a major role in the field of agriculture. Because women's contribution is so central in both the agricultural division of labor and its reproduction, traditional structures of resource allocation have provided them access to the basic factors of production in agriculture. Despite the fact that they remain socially subordinate to men, they participate in resource control, decision-making, and production. However in programs for improvement of agricultural technologies, women are seldom recipients of the benefits, although they, no doubt, are capable of using them. In the cases cited in the literature where women either could not obtain the new technology or were adversely affected by it, underlying social, cultural, and economic conditions were primarily responsible. This was usually compounded by insensitivity in program design and implementation. Development programs can produce drastic changes within households by altering the perceived value of women's contribution and the traditional structures of authority and resource allocation.

Women belonging to low socio economic strata are actively engaged in agricultural labour. They also show their involvement in planning, decision-making and supervisory activities. According to the latest data (Census 2011), female work participation is recorded as 8.7%, compared to 4.4% a decade ago. Women's participation in farm activities is dependent upon social, cultural and economic conditions in the area. It also varies from region to region and even within a region, their involvement varies widely among different farming systems, castes, classes and socio-economic factor status (Swaminathan 1985). The participation of women

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greatly helps to supplement the family income but the dual role they play as income generator as well as homemaker does have some negative impact on the family too.

II. Review Of Literature

Chouhan et al (1994) concluded that age, education, annual income, social participation, communication sources, socio- economic status, farm power and land holding were significantly associated with knowledge of farmers. In case of adoption only education was significantly associated with adoption of pigeon pea technology.

Jaiswal and Dubalia (1994) concluded that wheat growers characteristics like age, education, size of land holding and socio- economic status were significantly associated with level of adoption of improved farm technology, whereas, caste of respondents was not significantly related with the level of adoption.

Bhujbal and Kadam (1995) found that the size of land holding, social participation, and socio- economic status had significant relationship with the adoption of recommended cultivation practices of food crop where age and education were not related with adoption.

Dubay *et al.* (1996) found that age of tribal respondents was not a significant factor of PHT maize but in the case of non-tribal respondents this was a significant factor. Education of respondents was significant factor and land holding was not significant factor with the level of adoption.

Bhanwar Lal (1997) reported that the education level, socio- economic status, social participation and agricultural progressiveness were positively and significantly associated with the attitude of adopter farmers and remaining independent variable viz. size of family and size of land holding were found to be non- significantly associated with the attitude adopter farmers of Jojoba plantation.

Yadav (1997) revealed that adoption level of respondents was found to be positively and significantly associated with the level of education, socio- economic status, irrigation potentiality and knowledge level in both the crop.

Rajpurihit (1998) revealed that the extent of fertilizer utilization of small, medium and large farmers was found significantly associated with their socio- economic status. While, the remaining variables i.e. level of aspiration, economic motivation and achievement motivation were not found significantly associated with extent of fertilizer utilization.

Soni (1999) found that attributes like size of holding, socio- economic status, level of education, knowledge about pesticides attitude towards pesticide, economic motivation and social participation, exerted a definite and positive influence on use of pesticide to particular extent.

Shriram (1999) observed that age, caste, education, size of land holding, social participation, farm implements and material possession of the farmers had significant association with adoption of improved technology of wheat cultivation.

III. Research Methodology

The present study has been conducted in Bhilwara district of Rajasthan. The Bhilwara district is purposely selected for the study as the researcher belongs to this district and familiar with the women of the study and local dialect, which help in collection of data, building of rapport and availability of funds with the researcher.

There are total numbers of 11 Panchayat Samities in Bhilwara district, out of these following 5 Panchayat Samities was purposely selected on the basis of highest number of female population.

Under each Panchayat Samiti, for the purpose of selection of women contribution, two villages from each Panchayat Samiti were selected on random basis. Thus 10 villages from five Panchayat Samities were selected for the present study.

List of farm families was obtained from the revenue record of the ten randomly selected villages, two each five purposely selected Panchayat Samities. 30 farm women were selected randomly as respondents for this investigation. Thus, in all 300 farm women was selected as the respondents for the study.

Personal interview technique was adopted for collecting the data from farm women. The survey schedules were prepared in Hindi language. The interview was conducted in Hindi and local dialect was used as and when necessary.

IV. Techniques Of Analysis

After collecting data it is necessary to analyze them with the help of statistic to arrive at proper and adequate conclusion. The data were processed; tabulated and analyzed using frequency and percentage mean per cent score and chi-square test.

Chi- square test: It was used to study whether the two variables were independent or associated with each other.

$$X^2 = \frac{(ad - bc)^2}{R_1 R_2 C_1 C_2} \times N$$

Where if any cell have frequency more then 5

 R_1 and R_2 = Sum of frequencies of respective row

 C_1 and C_2 = Sum of frequencies of respective columns

N = Grand total (a+b+c+d)

$$d.f. = (C-1)(R-1)$$

In case of 2 3 tables the following formula was used

$$X^2 = \frac{(Q_1 - E_1)^2}{E_1}$$

Where, Q_1 = Observed frequency of a cell

 E_1 = the expected frequency of a cell obtained by diving the product of marginal total against that cell by the total of all the cell in the table

This was tested at 5 and 1 per cent level of probability for different degree of freedom.

OBJECTIVE OF THE STUDY

- 1. To find out the personal and socio- economic factors of rural economy.
- 2. To find out the impact of personal and socio- economic factor on women contribution in rural economy.

HYPOTHESIS

The following hypothesis has been taken for study of factors influencing the working of women.

- (i) Education has significantly positive influence on the contribution of farm women in agriculture (H₁)
- (ii) Socio-economic status has significantly positive influence on the contribution of farm women in agriculture (H_2)

V. Analysis The Personal And Socio-Economic Factors Of Selected Farm Women

Age

Table 1 reveals that half of the respondent 51.67 per cent belongs to the age group of below 30 years while, 37.33 pre sent respondents are 30-45 year of age. About one fifth of the respondents are above 45 years of age.

Family Income

The question related to family income is very psychological and every care has been taken during investigation in getting the responses. Majority of the respondent have 51 per cent annual income upto Rs. 15,000 and 21.33 per cent of them have their family income ranging from Rs. 15,000-30,000. It has been found that they are only 28 per cent respondents who have the annual family income above Rs. 30,000.

Knowledge

Perusal of the table reveals that the farm women have average knowledge of improved wheat cultivation practices as overall MPS of knowledge have been found to be 45.83. Distribution of the respondents in different categories of knowledge highlight that majority of them 42.75 per cent are in category of average knowledge whereas, only 25.43 per cent respondent belong to good knowledge category and 31.82 per cent fell in poor knowledge category

Caste

Analysis of caste of the respondent shows that majority of the respondents 59 per cent are under reserve caste categories, which include SC, ST, OBC whereas, the respondents under general caste constituted only 31 per cent. Critical examination of the table shows that incase of reserve categories 41.67 per cent of the respondents are from backward caste, whereas 19.67 and 7.33 per cent respondent belong to scheduled caste and scheduled tribes, respectively.

Education

Education plays a vital role in human resource development. It brings about a desirable change in attitude of an individual, which motivate him/her for adoption of an innovation. Educational status of the respondent reveals that 43.67 per cent are illiterate and 23.67 per cent can just read and write. Only 15 per cent

respondent completed their primary education and only 11 per cent completed their middle education, about 6.67 per cent respondent join secondary and above classes and completed their education.

Table 1. Distribution of selected farm women (respondent) according to personal and socio-economic variables

S.No.	Variables		Percentage
1	Age	51.67	
		Middle	37.33
		Old	11.00
2.	Income	5-15 Thousand	50.67
		15-30 Thousand	21.33
		Above 30 thousand	28.00
3	Knowledge	Poor	31.82
		Average	42.75
		Good	25.43
4	Caste	Schedule caste	7.33
		Schedule tribe	19.67
		Backward caste	41.67
		General caste	31.33
5	Education	Illiteracy	43.67
		Literacy	23.67
		Upto primary level	15.00
		Upto middle level	11.00
		Upto secondary level	5.00
		Upto college level	1.67
6.	Occupation	Labourer	15.00
	_	Caste occupation	16.33
		Agriculture	31.33
		Business	24.00
		Service	13.33
7	Land Holding	Marginal farmers	35.33
		Small farmers	46.67
		Big farmers (above 2.6)	18.00
8.	Farm Power	Marginal animal power holder	54.01
		Small animal power holder	31.66
		Large animal power holder	14.33
9	Farm Implement	Partially equipped	18.00
		Mixed equipped	25.00
		Fully equipped	50.33
10	Family Structure	Nuclear (Upto 5)	37.00
		Joint (Above 5)	63.00

Occupation

India is a land of village where nearly 70 per cent of the population depends on agriculture. Information related to the family occupation has been recorded into five categories viz. labour, caste occupation, agriculture, business and service. The results presented in table 13 reveals that agriculture is the main occupation of the entire respondent. However, around 70 per cent respondents are engaged in some subsidiary along with the agriculture. Around 15 per cent respondents report that they do labour work during the slack period. Similarly 32 per cent respondent have agriculture the main occupation, 24 per cent respondent are involved in agriculture and other allied business, only 16 per cent respondent work as in caste occupation and 13 per cent respondents have service along with agriculture as subsidiary occupation of the family.

Land Holding

The farmland is an important resource to a farming family. Perusal of the table depicts that 35 per cent of the respondents have land-holding upto 1 hectare (marginal farmer). Around 47 per cent respondents have land holding of 1 to 2.5 hectare (small farmers). There are only 18 per cent respondents who have farm size above 2.5 hectares (large farmers).

Farm Power

Cow and buffalo are the common milk animals in the area. Few respondents specially schedule tribes and schedule castes are rearing goat and sheep for milking purpose. As regards the number of milk animals majority of the respondents 54.01 per cent respondents have 1-2 animals (marginal animal power holders), whereas 31.66 per cent have herd size rearing 2-4 animals (small animal power holders). There are only 14.33 per cent respondents have herd size consisting at more than four animals (big animal power holders).

Farm Implement

The implements are an important part of farming, without farm implements they cannot do work. Only 44 per cent respondents are big farmers who have more implements and 22.67 per cent are small farmers who have only 1-5 number about 16.67 per cent are marginal farmer who have only very necessary implements.

Family Structure

It is evident from the table that majority of the respondent 62 per cent are from the nuclear family and rest of them 38 per cent belong to joint family. With regard to size of family, it has been found that more than sixty 63 per cent of the respondent has small size family consisting of up to five members while 39 per cent have the large size of family more than 5 members.

VI. Analysis The Impact Of Factors On Farm Women Contribution In Rural Economy Impact of Personal and Socio-economic Factors on Participation of Selected Farm Women in Agriculture Activities

Under this section, an attempt have been made to find out the impact of personal and socio-economic factors and extent of contribution of farm women in agriculture activities. Personal and socio-economic factors are - age, income, knowledge, caste, education, farm power, farm implement, family structure and socio-economic status of respondents with their contribution in agriculture activities, chi square test was applied in the study.

In order to apply chi-square test for finding out the association of attributes, the observed cell frequency of each cell in contingency table must be 5 or more than 5. When observed cell frequency of any of the cell was less than 5, two adjacent rows were adjusted. The process was continued till either minimum observed call frequency for each of the cells was observed to be 5 or table was reduced to 2 2 contingency table. Then Yates correction of contingency table was applied than 5. Otherwise, chi-square test was applied and calculated chi-square was compared with table value of chi-square at 5 or 1 per cent level of significance to draw the inference.

Impact of age factor on participation of selected farm women in agriculture activities

Table 2. Impact of age factor on participation of selected farm women in agriculture activities

Scores category	AGE CATEGO	Chi-Square			
	Young	Lower middle	Upper middle	Total	value
	22	44	17	83	
1-8	(65.15)*	(52.87)*	(41.56)*	(52.67)*	
	(27.22)**	(52.53)**	(20.25)**	(100)**	
M 41 0	41	140	36	217	
More than 9	(34.85)*	(47.13)*	(58.44)*	(47.33)*	(3.75)◆
	(16.20)**	(52.11)**	(31.69)**	(100)**	
	63	184	53	300	
Total	(100.00)*	(100.00)*	(100.00)*	(100.00)*	
	(22.00)**	(52.33)**	(25.67)**	(100.00)**	

• Computed chi-square value 3.75 non- significant at the 5 per cent level of significance.

Tabulated value of chi-square at 5 per cent 5.99 at 2 degree of freedom

* = Percentage of column

** = Percentage of rows

The table 2 clearly depicts that the calculated values of chi-square were 3.75 respectively, which were less than the tabulated value at 5 per cent level of significance. This means that there was no association between participation in cash crop production activities and age of the respondents. Women of variables age up to 60 years actively participated in agriculture activities.

Impact of annual income factor on participation of selected farm women in agriculture activities

Table 3 Impact of annual income factor on participation of selected farm women in agriculture activities

Scores category	ANNUAL INCOM	Chi-Square			
	Low	Medium	High	Total	value
	35	37	60	132	
1-8	(70.00)*	(33.04.)*	(43.48)*	(44.00)*	
	(26.52)**	(28.03)**	(46.43)**	(100)**	
More than 9	15	75	77	168	
Wiole man 9	(30.00)*	(66.94)*	(56.52)*	(56.00)*	(19.20) •
	(8.93)**	(44.64)**	(46.43)**	(100)**	

Total	50 (100)* (16.67)**	112 (100)* (37.33)**	137 (100)* (46.00)**	300 (100)* (100)**	
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• Computed chi-square value 19.20 non- significant at the 5 per cent level of significance.

Tabulated value of chi-square at 5 per cent 5.99 at 2 degree of freedom

* = Percentage of column

** = Percentage of rows

The calculated value of chi-square (19.20) was greater than that of its tabulated value (5.99) at 5 per cent level of significance. Hence, that significant association between annual income and participation of farm women in agriculture activities.

Result shows that higher participation was observed with higher degree of annual income of the respondents in other words higher annual income of respondents shows his high degree of interest in agricultural activities.

Impact of knowledge factor on participation of selected farm women in agriculture activities

Table 4 Impact of knowledge factor on participation of selected farm women in agriculture activities

Scores category	KNOWLEDG	Chi-Square			
	Low	Medium	High	Total	value
	56	34	36	126	
1-8	(62.22)*	(31.48)*	(35.29)*	(42.00)*	
	(44.44)**	(26.98)**	(28.57)**	(100)**	
M 41 0	34	75	77	174	
More than 9	(37.78)*	(68.52)*	(64.71)*	(58.00)*	(21.90)◆
	(19.54)**	(42.53)**	(37.93)**	(100)**	
	90	108	102	300	
Total	(100)*	(100)*	(100)*	(100)* (100)**	
	(30.00)**	(36.00)**	(34.00)**	(100)** (100)***	

• Computed chi-square value 21.90 significant at the 5 per cent level of significance.

Tabulated value of chi-square at 5 per cent 5.99 at 2 degree of freedom

* = Percentage of column

** = Percentage of rows

The calculated value of chi- square (21.90) was greater than the tabulated value (5.99) at 5 per cent of significant, which means that there was a significant association between knowledge and participation of farm women in agriculture activities.

Impact of caste factor on participation of selected farm women in agriculture activities

Table 5 Impact of caste factor on participation of selected farm women in agriculture activities

Scores category	CASTE	CASTE				
	ST	SC	OBC	General	Total	value
1-8	92 (68. 5)* (46.70)**	26 (72.22)* (13.20)**	52 (63.41)* (26.40)**	27 (57.45)* (13.71)**	197 (65.67)* (100)**	
More than 9	43 (31.85)* (41.75)**	10 (27.78)* (9.71)**	30 (36.59)* (29.13)**	20 (42.55)* (19.42)**	103 (34.33)* (100)**	(2.65)◆
Total	135 (100)* (45.00)**	36 (100)* (12.00)**	82 (100)* (27.33)**	47 (100)* (15.67)**	300 (100)* (100)**	

• Computed chi-square value 2.65 non- significant at the 5 per cent level of significance.

Tabulated value of chi-square at 1 per cent 11.341 at 3 degree of freedom

* = Percentage of column

** = Percentage of rows

The computed value of chi-square was (2.65) which was statistically non- significant at 1 per cent level of significance. That there is no significant association between farm women caste and their participation in agriculture activities. It means that caste has not influenced on participation of farm women in agriculture activities.

TESTING OF HYPOTHESIS

In order to ascertain testing of hypothesis, chi square test was applied in the study.

Influence of education on contribution of farm women in agriculture

H₁ – Education has significantly positive influence on the contribution of farm women in agriculture.

Table 6 Influence	of education or	contribution	of selected farn	ı wamen in	agriculture (H.)
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Scores Category	EDUCATION	Chi-Square			
	Illiterate	Literate	Educated	Total	value
	97	50	37	184	
1-8	(58.08)*	(62.50)*	(69.81)*	(61.33)*	
	(52.72)**	(27.17)**	(20.11)**	(100)**	
	70	30	16	116	
More than 9	(41.92)*	(37.50)*	(30.19)*	(38.67)*	(2.40)◆
	(60.34)**	(25.86)**	(13.79)**	(100)**	
	167	80	53	300	
Total	(100)*	(100)*	(100)*	(100)* (100)**	
	(55.67)**	(26.67)**	(17.67)**	(100) (100)	

- = Computed chi-square value 2.40 non- significant at the 5 per cent level of significance.
 - Tabulated value of chi-square at 5 per cent 5.99 at 2 degree of freedom
- * = Percentage of column
- ** = Percentage of rows

Observation of the data in table shows that the calculated chi-square value (2.40) was less than its tabulated value (5.99) at 2 degree of freedom and 5 per cent level of significance. Hence, the hypothesis was rejected that significant association between education and participation of farm women in agriculture activities. This infers that there was a non-significant association between education and participation of farm women in agriculture activities. Because an educated person do not like works in the field, he is interested in job.

Influence Of Socio-Economic Status On Contribution Of Farm Women In Agriculture

 H_2 – Socio-economic status has significantly positive influence on the contribution of farm women in agriculture.

Table 7 Influence of socio-economic status on contribution of selected farmwomen in agriculture (H₂)

Scores Category	SOCIO-ECON	Chi-Square			
	Low	Medium	High	Total	value
1-8	30 (51.72)* (26.79)**	54 (35.06)* (48.21)**	23 (26.14)* (23.00)**	112 (37.33)* (100)**	
More than 9	38 (65.52)* (20.21)**	100 (64.94)* (53.19)**	65 (73.86)* (34.57)**	188 (62.67)* (100)**	(5.26)◆
Total	58 (100)* (19.38)**	154 (100)* (51.33)**	88 (100)* (29.33)**	300 (100)* (100)**	

- Computed chi-square value 5.26 non- significant at the 5 per cent level of significance.
 - Tabulated value of chi-square at 5 per cent 5.99 at 2 degree of freedom
- * = Percentage of column
- ** = Percentage of rows

It is obvious from the tables that the calculated values of chi-square were (5.26) respectively, which were less than the tabulated value (5.99) at 5 per cent level of significance, so the hypothesis was rejected. This means that there was no association between socio-economic status of the respondents and their participation in agriculture activities.

VII. Findings

The result of chi-square test was indicated that independent variables selected for the study were highly efficient in predicting the adoption behavior of the farmers.

- (i) The big farm holders are generally innovative and resourceful farmers. They have the risk bearing capacity too; joint family has the risk bearing capacity and much resourceful as compared to nuclear family, higher socio-economic status respondents generally have the venturesome ness and the positive opinion towards innovations, higher annual income of respondents shows his high degree of interest in adoption. So, all these reasons might have contributed positively toward the association with adoption of family type, land holding, socio-economic status and annual income.
- (iv)The result of chi-square test indicated that independent variables selected for the study were also highly efficient in predicting the contribution of women in agricultural activities.
- (v) Socio-economic status and age did not in participation of agriculture activities. 60 years old women actively participated in agriculture activities, whereas, caste, annual income, knowledge and education were positively associated with women participation of agriculture activities.

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Testing of Hypothesis

- (i) The first hypothesis, education has significantly positive influence on the contribution of farm women in agriculture, rejected, when findings of the study considered in terms of the hypothesis. The education of farm women confirmed the results classifying into three categories, illiterate, literate and educated. The study reasonable distribution to the categories respectively, 55.66, 26.67 and 17.67 per cent of participation in agriculture activities
- (ii) The study rejected to second hypothesis, socio-economic status has significantly positive influence on the contribution of farm women in agriculture. It was observed through socio-economic status of farm women was distributing to the three categories, low, medium and high. The study considered distribution of three categories respectively, 19.34, 51.33 and 29.33.

VIII. **Suggestions**

This study has attempted to investigate the crucial question does the certain characteristics of farmers change their behavior with respect to practice contribution? Results of this study indicate that age, knowledge, education and socio-economic status have significant direct influence on the adoption and discontinuance. Hence, extension efforts may be directed to all the farmers without any apprehension about their above mentioned characteristics. Farm women of landless, small and marginal farm holders need additional sources of employment and income due to season ability and low incomes hence non-farm sectors have a lot of policy significance for rural development to utilize their leisure time for income generating activities. If this sector fails to offer any employment opportunities to the rural people, they will slip deep below the poverty line and also migrate to the urban center.

IX. **Scope For Further Research**

The present study was based on a limited geographical research area. Therefore, there is sufficient scope for further research.

- 1. Similar studies can be conducted in other zones of Rajasthan as well as in other states of the country to highlight the overall picture of total agrarian profile of the farm women for more valid conclusions.
- An exploratory study can be conducted on drudgery reducing farm and household technologies, their merit and demerit.
- 3. A study can be undertaken to find out inhibitors and promoters of women more productive participation in farming system.
- 4. An exploratory study is needed on non-farm activities for incomes generation for farm women.

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