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Full Length Research Paper

Education and women's participation in Indian economy: A regional analysis

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The paper examines the work participation rate (WPR) of women in Indian states based on the census conducted in 2001. As per 2001 census, the WPR of women was 25.6% in India though they constituted 48.27% of the total population. It was well documented that the educational condition of women has improved in the past few decades but their WPR is still low. Here, the paper tried to see reasons behind this anomaly. There are many determinants of WPR but the author limit this paper to education. The paper is based on the hypothesis of increasing women WPR with educational development. The correlation matrix between occupational composition and educational development shows significant relation. This implies that education is one of the reasons for increasing WPR. In addition, it was found that women with primary education are actively engaged in agricultural sector. Finally, the paper concludes with some general observations and suggestions.

Key words: Gender inequality, economic participation, education, workers, regional analysis.

INTRODUCTION

In recent past, a growing proportion of the national income of many low-income industrializing countries has been invested on education. The main reason of this has been the exceptionally rapid growth of population and the widespread belief that "human investment" is one of the most effective means of stimulating economic growth. However, in this process, the education of women has lagged considerably behind that of men. The same way, lower education deprives them to take part in labour force. In essence, it is vicious circle. Because women have not been expected to work in the labour force, they have been deprived of education, their employment opportunities have been restricted; and because those opportunities have been restricted their limited access to education has been rationalized and perpetuated (Standing, 1976).

In most countries, work participation rates are lower among women than men. Also, the economic activity rates of women differ from country to country and also between different states in a country. In general, it is perceived that women's primary obligations are focused around family and home. Further, their participation in economic activity is contingent upon certain factors for example, economic need, institutional restrictions on their employment and the kind of employment available (especially if it can be combined with their primary roles etc). India is no exception to this phenomenon. Recently, women actively contribute in the promotion of economic development in various capacities. Women contribute in the production system of the nation by their work in the families and factories. In an important way, women, with child bearing and proper child rearing are helping in the development of human capital.

Also, the status of women is intimately connected with their economic position which depends on opportunities for participation in economic activities. The economic status of women is now accepted as an indicator of a society's state of development. The orientation of the society as a whole regarding the desirability that women should play an equal part in the country's development was taken as very important precondition for the advancement not only for women but of the country as a whole. Until recently in India as in many other developing countries, the role of women in the economic activities of the nation was practically ignored (Singhal, 1995). The recommendations of the United Nations World Conference (Mexico, 1975) to declare 1975 to 1985 as the international women's decade and to initiate plans for

raising the status of women and for ensuring their full participation and integration in the development at all levels, helped at least to focus attention on the problems specific to women such as steadily declining trend of their participation in the workforce in India (Ibid). A study focused on the effect of economic development on the women participation in economic activity and concluded that female participation rate falls with the economic development although this is true at district level only. The most important conclusion is that the whole process of social change and modernization planned through social welfare scheme will slow down because educated women have a key role in these programmes and their participation in economic activity show a downward trend. Hence, the study indicates that there is a need to educate the women so that the economic growth will be possible to desired level (Nath, 1970b). The lower participation of women in education also affects their participation in the economic activities. Ramachandran (1964) on the basis of a survey in the greater Bombay found that higher proportion of women who were in the labour force were non-collegiate and belong from low household income group. In contrast, a high proportion of women who were not seeking employment was collegiate and was from household where the per capita income is medium or high. He further emphasized that the work participation rate (WPR) of educated women (matriculation or above) is already low; more than 70% of educated women are non-workers in 1961. If the overall trend of falling the WPR of women continues, WPR of educated women low as it is might reduce further. Another study examined the effect of certain development variables like marital status, income, literacy on female participation rates and concludes that socio-cultural factors have a significant bearing on the levels of female participation rate (Patel and Dholakia, 1978). It is necessary to relate labour participation rates, income and literacy to have clear idea of the groups with high female labour participation rate (Rao, 1978). Women's work and contribution to the economy is either undervalued or outright dismissed. As a result, they are perceived as being a drain on family and societal resources. Their skill, knowledge and abilities are mostly undervalued (Ramchandran, 2000). The above studies did present a holistic understanding of women's participation in labour force with economic perspective and less on how education influence the participation of women in the economic activities. Hence, this study primarily engaged to explore how education influence women's contributions in the working force of the country considering the fact that education is one of the strong agent of human development.

In India, women's WPR is low though the education condition of women has improved in the last few decades. Paradoxically, it has not affected their low participation in the work force. In the initial few decades of independence, women's WPR was 28% in 1961, 14% in 1971, 20% in 1981 and 22% in 1991. Correspondingly, the figure for males also have fluctuated but within the smaller range, between 52 and 57% (Dev, 2004). According to the 2001 census, female work participation in India is only 25.63%. While the national average of WPR is 39.10% and male contribute 59.68%.

Conceptual framework: Women's work participation rate

Measuring of women's work force participation is complicated for the reasons of both perception and methods (Sudarshan and Bhattacharya, 2009). Since the concept of work is inadequate or methodological problem in collection of data because of all women work in agricultural sector or household sector, women work force participation rate is so low in South Asian countries (Bose, 2004). As an example, the 1971 census defines a 'worker' as a person whose main activity is participation in any economically productive work by his physical or mental activity. The census goes on to explain that a man or woman who is engaged primarily in household duties such as cooking for own household should not be treated as a worker for the main activity (Gulati, 1975). Thus, if a person engages in an economically productive work but only as his secondary activity, he is not considered as a worker. This definition of a worker is much stricter than the 1961 census definition whereby even secondary economic activities are qualified for a person to be considered as a worker. On contrary, 2001 census, defined work as "participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. It even includes part time help or unpaid work on farm, family enterprise or in any other economic activity. All persons engaged in 'work' as defined above are workers" (Census of India, 2001). Methodologically, female work participation rate (FWPR) is calculated as the proportion of total workers (main plus marginal) among female workers above 6 years.

At all the India level, this rate is substantially low to the extent of 26% only as shown in Table 1. Yet, there is a fluctuation among the states. Female work participation is lower among the states and Union Territories of Lakshadweep and Kerala, while it is the highest in Mizoram. In most of the states of Northeast India, Himachal Pradesh and Chhattisgarh, FWPR are quite high. This high level of women's labour participation is due to the fact that community based organization of subsistence production are practiced. This form of engagement encourages greater participation of women. In addition, the southern states have relatively higher WPRs as women's work participation is encouraged. Opposite to the others, in the northern states the work participation of women is very low; a primary reason

Table 1. Women's work participation rate in India.

S/N	India/States/UT	Person	Male	Female
00	India	39.10	51.68	25.63
01	Jammu and Kashmir	37.01	49.99	22.45
02	Himachal Pradesh	49.24	54.62	43.67
03	Punjab	37.47	53.60	19.05
04	Chandigarh	37.80	56.11	14.22
05	Uttaranchal	36.92	46.14	27.33
06	Haryana	39.62	50.30	27.22
07	Delhi	32.82	52.06	9.37
08	Rajasthan	42.06	49.95	33.49
09	Uttar Pradesh	32.48	46.80	16.54
10	Bihar	33.70	47.37	18.84
11	Sikkim	48.64	57.44	38.57
12	Arunachal Pradesh	43.98	50.63	36.54
13	Nagaland	42.60	46.70	38.06
14	Manipur(Excl. 3 sub-divisions)	43.62	48.12	39.02
15	Mizoram	52.57	57.29	47.54
16	Tripura	36.25	50.62	21.08
17	Meghalaya	41.84	48.34	35.15
18	Assam	35.78	49.87	20.71
19	West Bengal	36.77	53.99	18.32
20	Jharkhand	37.52	47.96	26.41
21	Orissa	38.79	52.53	24.66
22	Chhattisgarh	46.46	52.81	40.04
23	Madhya Pradesh	42.74	51.50	33.21
24	Gujarat	41.95	54.87	27.91
25	Daman and Diu	46.01	65.47	18.61
26	Dadra and Nagar Haveli	51.76	62.33	38.74
27	Maharashtra	42.50	53.28	30.81
28	Andhra Pradesh	45.79	56.23	35.11
29	Karnataka	44.53	56.64	31.98
30	Goa	38.80	54.60	22.36
31	Lakshadweep	25.32	42.41	7.28
32	Kerala	32.30	50.20	15.38
33	Tamil Nadu	44.67	57.64	31.54
34	Pondicherry	35.17	17.25	1.98
35	Andaman and Nicobar Islands	38.26	56.57	16.60

Source: Census of India (2001

being the subjugation and denial of women to engage in social and family life. Apart from the sociological factors, factor that is associated with better work participation has been literacy or the levels of educational attainment. However, it has been observed that instead of higher level of literacy and educational level the share of women in the labour force is poor. For example, states of Punjab and Kerela with high levels of female literacy are found to have low FWPRs. With these factors, the questions that are being raised is why there is low participation of women in the economic activities? Is there any relation between work participation and education? And how they influence each other?

METHODOLOGY

The questions raised above shall be addressed through the analysis of state-wise census data for the year 2001, from the 35 states including Union Territories, pertaining to WPR across sex and residence, main workers and marginal workers with educational level, women literacy rate and categories of economic activities that have been derived from the census of India 2001. The data has been computed and compared by author as require. It shall be followed by an analysis of relation between women's work participation rate and the educational development in last decades.

Finally, the paper concludes with some general observations and suggestions. Work participation rate is defined as the percentage of total workers (main and marginal) to total population.

Work participation rate = Total workers (main + marginal)/ total population × 100

RESULTS AND DISCUSSION

State wise women participation rate

There have been a number of studies on female work participation and its determinants. The studies found that participation of women in the working force is low and mostly concentrated in the agriculture and cultivation in the rural areas (Nath, 1968a, 1970b; Pandey, 1973; Nayyar, 1987). But recently, few studies have come up on the basis of census 2001 data (Dev, 2004). This being the backdrop shows the analysis of women participation in the working force of India levels that there is a variation in the women's WPR across the state and Union Territories. Among the Union Territories and states, the lowest WPR are Pondicherry (1.98%) and Kerala (15.38%). And the states with highest WPR are Dadra and Nagar Haveli (38.74%) and Mizoram (47.54%). Over all, there are 11 states where women's WPR ranges from 0 to 20%. In this category, states like Delhi, Kerala, Uttar Pradesh, West Bengal, Punjab and Bihar are the prominent ones. While there are 22 states and Union Territories that have women's participation rate ranges between 20 and 40%. Some of these prominent states include Assam, Andhra Pradesh, Madhya Pradesh, Karnataka, Tamil Nadu including Union Territories like Goa, Daman and Diu. The three remaining states, Chhattisgarh, Himachal Pradesh and Mizoram have women WPR that is slightly more than 40% but less than 45%.

Gender disparity

India has made commendable progress in the economic sphere but it has not trickled down to the masses as a result we find inequality still existing in the society in terms of gender, caste, religion etc. This section of the paper took the existing gender inequality in Indian society. As an outcome, women are lacking behind in different sectors of employment. At the national level, WPR of women's stands at 26% point less than the male members. Among all the states and Union Territories, the largest gap of WPR between women and male are found in the state of Daman and Diu with 46% point, Delhi with 42% point and also the Northern states. Women participation in the country's economic activities is poor as compared to the male members. Indian society is believed that male dominated and lower value for women in the society or family is the reasons of their invisibility in economic activities of the country. This shows the need for further micro level study to explore the socio-cultural dimension of the present low status of women. From Table 2, it is clear that the lowest gap (8.64%) was found in the state of Nagaland.

The highest gender inequality was found in Daman and Diu followed by Delhi being the capital of India. This implies that a woman deprivation is not dependent on the level of holistic development of the state. Rather the reasons of this inequality are more to do with the existing social structure of the society.

There were 32 states including Union Territories where

Table 2. Difference in male-women WPR in India.

S/N	India/States/UT	Difference (%)
0	India	26.05
1	Nagaland	8.64
2	Manipur (Excl. 3 sub-divisions)	9.1
3	Mizoram	9.75
4	Himachal Pradesh	10.95
5	Chhattisgarh	12.77
6	Meghalaya	13.19
7	Arunachal Pradesh	14.09
8	Pondicherry	15.27
9	Rajasthan	16.46
10	Madhya Pradesh	18.29
11	Uttaranchal	18.81
12	Sikkim	18.88
13	Andhra Pradesh	21.11
14	Jharkhand	21.56
15	Maharashtra	22.46
16	Haryana	23.08
17	Dadra and Nagar Haveli	23.59
18	Karnataka	24.66
19	Tamil Nadu	26.11
20	Gujarat	26.96
21	Jammu and Kashmir	27.54
22	Orissa	27.87
23	Bihar	28.52
24	Assam	29.16
25	Tripura	29.54
26	Uttar Pradesh	30.27
27	Goa	32.24
28	Punjab	34.55
29	Kerala	34.82
30	Lakshadweep	35.13
31	West Bengal	35.67
32	Andaman and Nicobar Islands	39.97
33	Chandigarh	41.88
34	Delhi	42.68
35	Daman and Diu	46.87

Source: Census of India (2001).

Table 3. State wise rural-urban WPR in India.

State code	India/State/Union Territories/Districts	Male		Female	
		Urban	Rural	Urban	Rural
00	India	50.60	52.11	11.88	30.79
01	Jammu and Kashmir	51.43	49.49	10.39	26.20
02	Himachal Pradesh	54.22	54.67	15.23	46.42
03	Punjab	53.06	53.88	10.44	23.37
04	Chandigarh	55.12	63.88	14.54	11.08
05	Uttaranchal	47.36	45.69	7.59	33.55
06	Haryana	49.23	50.73	10.55	33.91
07	Delhi	52.25	49.42	9.31	10.18
08	Rajasthan	47.42	50.74	9.55	40.63
09	Uttar Pradesh	44.61	47.39	6.80	19.05
10	Bihar	41.69	48.05	7.04	20.18
11	Sikkim	55.51	57.69	21.67	40.60
12	Arunachal Pradesh	50.53	50.66	17.15	41.33
13	Nagaland	43.81	47.32	15.61	42.48
14	Manipur (Excl. 3 sub-divisions)	44.94	49.25	32.25	41.53
15	Mizoram	54.84	59.66	40.52	54.55
16	Tripura	51.64	50.42	12.45	22.87
17	Meghalaya	43.82	49.43	20.98	38.62
18	Assam	52.90	49.41	10.61	22.15
19	West Bengal	53.74	54.09	11.57	20.86
20	Jharkhand	42.36	49.65	6.52	31.81
21	Orissa	49.06	53.17	10.02	27.12
22	Chhattisgarh	47.81	54.12	13.19	46.54
23	Madhya Pradesh	47.41	53.00	11.98	40.72
24	Gujarat	53.91	55.46	9.41	38.54
25	Daman and Diu	53.80	70.78	16.74	20.03
26	Dadra and Nagar Haveli	65.63	61.26	14.54	45.13
27	Maharashtra	52.43	53.93	12.57	43.61
28	Andhra Pradesh	50.76	58.30	13.17	43.28
29	Karnataka	53.85	58.10	16.37	39.87
30	Goa	54.68	54.51	18.17	26.39
31	Lakshadweep	44.62	40.63	8.65	6.20
32	Kerala	50.61	50.06	13.64	15.99
33	Tamil Nadu	55.80	59.10	18.94	41.40
34	Pondicherry	13.98	23.69	0.54	4.87
35	Andaman and Nicobar Islands	55.95	56.88	12.24	18.65

Source: Census of India (2001).

the gender gap lies in between 10 and 47% point. This strongly proves that there was still gender inequality in Indian society.

Rural - urban differentials in work participation rate

Table 3 showed that the inter-state disparities for rural males were lower than for rural females. In the rural areas, more women participated in the low paying menial works. The disparities are also low for male across urban to rural. But for females, the disparities in urban to rural is large. In other words, the participation of women workers is higher in rural areas than the urban areas. The male WPR in urban areas varies from 65.63% in Dadra and Nagar Haveli to 13.98% in Pondicherry. While male WPR in rural areas varies from 63.88% in Chandigarh to 23.69% in Pondicherry. In other words, WPR is high in both urban as well as rural areas. On the contrary, the WPR of women is higher in rural areas (30.79%) as compare to urban (11.8%) areas. Many research studies have shown that women in rural areas are engaged in

Table 4. WPR by level of education.

Variable	Main worker			Marginal worker		
	Person	Male	Female	Person	Male	Female
Total	30.43	45.13	14.68	28.51	14.52	74.62
Illiterate	24.35	35.27	16.50	43.02	17.58	82.11
Literate	35.51	50.85	12.46	20.20	13.29	62.57
Literate but below matric/secondary	29.84	43.78	10.75	25.15	15.90	76.72
Matric/secondary but below graduate	43.44	60.95	11.26	14.69	10.93	52.10
Technical diploma or certificate not equal to degree	60.87	64.59	46.80	6.84	6.95	6.26
Graduate and above other than technical degree	57.02	73.43	23.52	6.84	6.05	11.88
Technical degree or diploma equal to degree or post-graduate degree	65.57	72.17	48.56	3.51	3.26	4.47
Rural						
Total	30.87	44.31	16.65	35.24	17.59	84.93
Illiterate	25.89	36.87	18.09	46.55	18.44	87.23
Literate	36.10	49.58	14.32	26.71	17.14	80.26
Literate but below matric/secondary	31.53	44.31	12.86	29.70	18.39	86.61
Matric/secondary but below graduate	46.92	60.94	14.79	21.09	15.38	74.96
Technical diploma or certificate not equal to degree	58.33	60.73	49.17	11.49	11.87	9.69
Graduate and above other than technical degree	59.59	69.58	23.75	13.82	12.02	32.76
Technical degree or diploma equal to degree or post-graduate degree	68.12	72.48	52.24	7.17	6.71	9.47
Urban						
Total	29.29	47.19	9.42	10.09	7.22	26.08
Illiterate	17.63	28.58	9.35	20.41	12.90	37.74
Literate	34.42	53.38	9.46	7.77	6.21	19.41
Literate but below matric/secondary	25.69	42.36	6.19	11.48	8.88	32.29
Matric/secondary but below graduate	39.51	60.97	8.28	6.12	5.03	17.72
Technical diploma or certificate not equal to degree	62.84	67.58	44.99	3.49	3.51	3.39
Graduate and above other than technical degree	55.76	75.83	23.45	3.19	2.65	5.99
Technical degree or diploma equal to degree or post-graduate degree	64.55	72.03	47.53	1.97	1.70	2.93

Source: Census of India (2001).

agricultural activities hence their participation is high in villages (Nayyar, 1987; Banerjee, 1989). This is validated by the fact that women WPR in rural areas is highest in the state of Mizoram 54.55%, Himachal Pradesh, Sikkim, Rajasthan, Nagaland, Arunachal Pradesh and Manipur and lowest in Delhi 10.18% followed by Punjab 11.08%.

Occupational composition

Division of work force or economically active population into various occupational compositions is a primary aspect of economic development. The regional variation in the work participation under occupational group is quite notable to determine the work participation. And they are classified into four categories that is, cultivators, agricultural workers, household industry workers and other workers. The women's WPR are discussed in four categories of workers as follows.

Cultivators

It is found that there is a close relationship between the occupation of cultivation and women work participation. In states where agriculture is a major source of capital generation, women tend to engage themselves in the production process of agricultural products. State like Himachal Pradesh (85.8%) (Appendix 1), Uttaranchal, Nagaland, Arunachal Pradesh, Rajasthan, Sikkim, Mizoram, Dara and Nagar Haveli, Jammu and Kashmir, and Meghalaya are found to have high women work

participation. Similarly, the share of women cultivators is low in non-agricultural states like Delhi, Pondicherry and Chandigarh.

Agricultural workers

Agricultural women workers are found in each and every state but their percentage differs. The highest percentage of women in this category was found in the state of Bihar (62.2%), Arunachal Pradesh, Orissa, Tamil Nadu Chhattisgarh, Karnataka and Maharashtra. In all these states, the women agricultural workers range from 40 to 60%. However, low concentration of women that is, less than 10% in agriculture are found in the Delhi, Himachal Pradesh and Nagaland. It is of interest to note that this is the reverse of the position. In most developed countries, agriculture is primarily a male activity and the proportion of workers in the non-agricultural sector is much higher than females (Nath, 1968a).

Household industry worker

The concentration of women in the household work is low in all states. The highest concentration has been seen in the state of Manipur (18.30%) and lowest in Union Territories of Dadra and Nagar Haveli (0.9%). Such forms of engagement are generally small scale in nature and are located in the home or around the home. In Uttar Pradesh and Bihar, the women's participation in this category is high. This being the reason most of the work forces are constituted by the members of the family or the extended kin. As these works act as an extended work of the family or the social relationship, the workers themselves never consider it is important to inform the data collectors. Hence, the participation of women has not been reported at the time of data collection.

Other workers

In effect, all those workers other than cultivators or agricultural labourers or household industry workers are 'other workers'. This type of work includes medical, engineering, works related to academic and research. In most of the states, the concentration of the women's worker in this category is low. In 'other workers' the contribution of women ranges from 1 to 30% in 21 states and Union Territories. There are 11 states and Union Territories with 'other workers' in the ranges of 30% to 70%. The highest participation of women in this category is in the state of Chandigarh with 96.6%, followed by Delhi 92% and Lakshadweep 83%. As shown, higher participation of women in this sector are found in few states. Probable reason for women's increase participation in this sector may be due to the modernization of women and change in the attitude and increase social security. In this category, participation of male is also higher than the female but in some states it is half as compare to men.

Education and women's work participation

Five decades after Independence of India, our political leaders and administrator have repeatedly affirmed that we cannot achieve the goal of education for all unless we reach out to women and girls, and ensure they have access to basic education. In addition, there is a significant regional difference, but the main point is that a very significant number of Indian women and girls do not have basic access to education. Any discussion on the reason for this unfortunate situation invariably ends in a debate on women's status and how it influences women's access to education and other development resources like participation in economic activities and other work.

Education is one of the important indicators that influence the participation rate in the working force (Srivastava and Srivastava, 2010). It is also argued that increase in the literacy rate changes person's attitude to work, enables him to locate available job opportunities and thus, facilitates the migration of persons from job deficit areas to other areas. The literacy rate also affects the age of marriage of persons, especially females. Therefore, the literacy rate and participation rate should be positively associated (Pandey, 1973).

Main workers

The data in Table 4 showed that the WPR is increasing with the rise of educational level. Among the main workers, WPR of literate was 35.51% while the post-graduate or equivalent level goes to 65.57% of total population. In rural areas, the WPR for literate male was 36.10 and 68.12% at the post-graduate or equivalent level. In urban areas, the WPR at literate level varies from 34.42 to 64.55%. Out of the total population, male WPR was 53.38% for literate and 72.12% at post-graduate level. In rural areas for male, it ranges from 49.58 to 72.48% while in urban areas it is 53.38% and it goes up to 72.03%. Out of the total population, women's WPR in main worker category is low as compare to the male member with same level of education. Only 12.46% literate women are engaged and it goes up to 48.56% at post-graduate level. It also varies across residence from rural to urban. In rural areas, 14.32% literate women and 52.24% post-graduate women were engaged. While in urban areas it varies from 9.46 to 47.53% for literate and post-graduate women. From the data, it is clear that the male WPR in general, for both rural and urban is increasing with increase level of education with less fluctuation. In the contrary, women's WPR are fluctuated

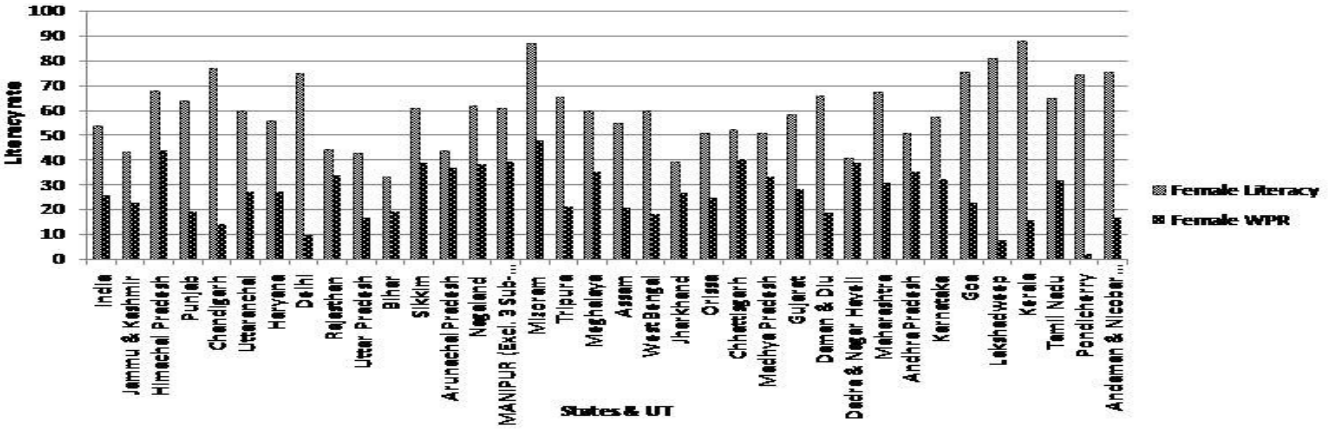

Figure 1. Literacy and Work Participation Rate for Women in different states in India.

with the rise in educational level. It can be said that participation of women in rural areas is not increasing with the same pace as that of urban areas and not likely to their male counterpart.

Marginal workers

In the marginal category, the concentration of illiterate population is high. As the level of education rises, WPR decreases for male in both rural as well as urban areas. If we look at the data of women, the participation of illiterate women is very high in both rural and urban areas.

Women constituted 74.62% as a marginal worker of the total workers in India. Of all female marginal workers, 83.94% are in rural areas and 26.08% are in urban areas only. In general, large share of women are marginal workers in Indian economy. Also, the number of marginal workers is higher in rural areas than urban areas. For illiterate women, the WPR is higher than the corresponding male in both rural and urban areas. More than 62% literate women work as marginal workers against 13.29% male literate marginal workers. In rural areas, the presence of literate women in this category was 80.26% as compare to 19.41% in urban areas.

At the post-graduate level overall share of women as marginal worker was 4.47%. While, male constituted less than women and it was 3.26%. In rural areas, this rate was 9.47% for women and 6.71% for male. In urban areas, it sharply declines as women share is 2.93% and for male it was 1.70%. This implies that women with higher education did not join this sector or remain unemployed.

Literacy and work participation rate

As mentioned earlier, literacy is an important indicator of determining the work participation. But it is always not true for all regions. The liberal capitalism assumes that with higher education, the capability of the individual increases. From Figure 1, it is shown that there is no systematic relation between literacy and WPR. Women's WPR is low in some states with higher literacy rate. For example, Kerala with the highest literacy rate of 87.72% have low participation of women (15.32%). In some major states where literacy rate is high like Mizoram, Delhi, Chandigarh and Himachal Pradesh have low women's participation in the labour force (Appendix 2). Also, the correlation is negatively significant between female literacy and work participation. From the analysis, it is found that it is difficult to establish systematic relationship between literacy and work participation of women. It has also been observed that "while economic factors principally determine a man's participation in employment, the forces that influence a women's participation in work are diverse and include demographic, reproductive, social, religious and cultural factors" (Srivastava and Srivastava, 2010). Why is this happening? It was found that WPR is higher for illiterate women than for women with higher level of education – a trend which reverses itself only for women with technical/vocational education or graduate or post-graduate. This pattern is manifested in both rural and urban areas. So, it can be argued that "education may not positively influence a women's participation in work, but for women who are in work force, education is the most important determinant of better quality non-agricultural work" (Srivastava and Srivastava, 2010).

Relationship between occupational composition and literacy rate

The present analysis is an attempt to examine the causal relationship between occupational compositions as a

Table 5. Inter relationship between occupational composition and literacy.

Variable	Female Literacy (X^1)	Female WPR (X^2)	Cultivator (X^3)	Agriculture (X^4)	Household Industry (X^5)	Other workers (X^6)
Female literacy (X^1)	1.00					
Female WPR (X^2)	-0.263	1.00				
Cultivator (X^3)	-0.382*	0.760**	1.00			
Agriculture labours (X^4)	-0.468**	0.028	-0.264	1.00		
Household industry (X^5)	0.073	-0.362*	-0.443**	0.063	1.00	
Other workers (X^6)	0.700**	-0.693**	-0.697**	-0.491**	0.206	1.00

*, Significant at p = 0.05; **, significant at p = 0.01. Source: Census of India (2001) (Computed from Appendix 1 and 2).

cause and literacy rate as an effect. In order to assess the inter relationship among the variables, Karl Pearson's technique of correlation matrix have been used and level of significance have been tested using student's't' test technique. For determination of the inter relation, the following variables are used; female literacy (x^1), FWPR (x^2), female cultivator (x^3), female agriculture (x^4), female household industry (x^5) and female other workers (x^6).

Table 5 shows that literacy is negatively related with first three variables that is, female WPR (X^1 = -0.263), cultivator (X^2 = -0.382) and agriculture (X^3 = -0.468) but they are significantly related with X^3 and X^4 with 5 and 1%, respectively. It implies that with the increase of literacy, rate will decrease the female participation in cultivators and agricultural labours. While literacy is positively related with household Industry (X^5 = 0.73) and other workers (X^6 = .700) X^6 with positive relation significant at 1% level, thereby it implies that the women participation will increase in above two occupational groups with rise in literacy.

It is observed that women's WPR positively related with cultivator (X^2 = 0.760) is significant at 1% level. Women's WPR also has positive relation with agriculture (X^3 = -0.468) without any significance. While women's WPR is negative related with household industry (X^5 = -0.362) and other workers (X^6 = -0.693) are significant at 5 and 1% level, respectively. Thus, it can be said that with the increase of female, WPR will also increase the female cultivators and decrease the female HHIW and other workers.

Female cultivation is negatively related with agriculture (X^3 = -0.264) but without any significance. Also, cultivation is negatively related with household industry (X^5 = -0.443) and other workers (X^6 = -0.697) are significant at 1% level. Agriculture is positively related at lower level with household industry (X^5 = 0.063) but not significant. While cultivation is negatively related with other workers (X^6 = -0.491) and are significant at 1% level. Household industry is positively related with other workers (X^6 = 0.206) has no significance. It may be ascertained that low level of literacy is mainly associated with the occupational composition of low women's WPR and higher concentration of women in cultivation and agricultural work. As the literacy rate increase, it positively increase the participation of women in other workers occupational composition.

From the data, it was revealed that the participation women in the economic activities had been ignored. It is observed that "most of the time priority is given to the female person in Maldives while addressing. For example, mother comes before father, woman comes before man and wife comes before husband when they are addressed. The literacy rate and educational level is higher among females than among males" (Bose, 2004). One of the expectations from the use of education is that it will bring reduction in inequalities in the society assuming that education leads to equalization of status between individuals coming from higher to unequal socio-economic strata of the society. The history of the movement for improving women's status all over the world shows emphasis from the beginning on education as the most powerful instrument for changing women's subjugated position in society. From the point of view of an individual, education provides essential qualifications to fulfill certain economic, political and cultural functions, and consequently improves his socio-economic status.

Conclusion

The participation of women in Indian economy was less as compared to their male counterpart and it varied from one region to another. The participation of women in the northern states was less. The major finding of the paper is that the WPR of women is not increasing with the rise in level of education. There was no single state with higher WPR of women than the male. This means, in Indian society, male gives less priority to their women. Participation of women in the rural sector is always larger than the male members of the society. This is because of the low mobility of women from the villages, due to religious and social restriction. On the supply side, reproductive work and domestic roles prove to be significant variables in influencing female labour force participation. If the trend continues for some more time, there will be serious repercussion to the society we left

for generations to come. First, it is believed that high level of education and vocational training for women workers is necessary for improving their level of productivity and enabling them to move into non-agricultural sectors. Second, women should be given autonomy and freedom to move, and to join self-help groups, affects their ability to access resources and improve productivity. Third, it is evident that women are regarded as the peripheral producers and marginal recipients of the benefits of government programmes and from development and credit institutions. So, there is a strong need for a gender sensitive agricultural strategy which strengthens the role of women workers in the agriculture (Srivastava and Srivastava, 2010). In the short run, it is necessary to recognize the productive work done by the women, reduce the discrimination against them by legislations on equal pay and equal job opportunities and create more jobs specially suited to their skills and needs.

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APPENDIX

Appendix 1. Distribution of workers by category of workers (cultivators, agricultural laboures, household industries workers and other workers) by sex.

Number	India/States/UT	Cultivators	Agricultural laborers	Household industry workers	Other worker
0	India@				
	Persons	31.7	26.5	4.2	37.6
	Males	31.1	20.8	3.2	44.9
	Females	32.9	38.9	6.5	21.7
1	Jammu and Kashmir				
	Persons	42.4	6.6	6.2	44.8
	Males	37.5	7.1	4.7	50.7
	Females	54.7	5.2	10.1	30
2	Himachal Pradesh				
	Persons	65.3	3.1	1.8	29.8
	Males	49.5	3.3	2	45.2
	Females	85.8	2.9	1.4	9.8
3	Punjab				
	Persons	22.6	16.3	3.7	57.4
	Males	25.3	15.9	2.6	56.2
	Females	13.9	17.8	7.2	61.1
4	Chandigarh				
	Persons	0.6	0.2	1.1	98.1
	Males	0.6	0.2	0.9	98.4
	Females	0.8	0.2	2.5	96.6
5	Uttaranchal				
	Persons	50.1	8.3	2.3	39.3
	Males	34.3	9.5	2.2	54
	Females	77.8	6.1	2.5	13.6
6	Haryana				
	Persons	36	15.3	2.6	46.1
	Males	32.5	12.5	2.3	52.7
	Females	43.7	21.1	3.1	32.1
7	Delhi				
	Persons	0.8	0.3	3.1	95.7
	Males	0.7	0.3	2.8	96.2
	Females	1.8	0.8	4.7	92.7
8	Rajasthan				
	Persons	55.3	10.6	2.9	31.2
	Males	48.1	7.2	2.9	41.9
	Females	67	16.2	2.8	14
9	Uttar Pradesh				

Appendix 1. Contd.

	Persons	41.1	24.8	5.6	28.5
	Males	42.7	20.1	4.7	32.5
	Females	36.1	39.6	8.3	16
10	Bihar				
	Persons	29.3	48	3.9	18.8
	Males	31.5	42.6	3.2	22.6
	Females	23.2	62.6	5.9	8.3
11	Sikkim				
	Persons	49.9	6.5	1.6	42
	Males	42.3	5.3	1.7	50.7
	Females	62.8	8.5	1.4	27.3
12	Arunachal Pradesh				
	Persons	57.8	3.9	1.3	37
	Males	46.4	3.5	1.1	49
	Females	75.5	4.5	1.5	18.5
13	Nagaland				
	Persons	64.7	3.6	2.6	29
	Males	55.4	3.3	1.9	39.4
	Females	77.5	4.2	3.5	14.9
14	Manipur@				
	Persons	40.2	12	10.3	37.6
	Males	40.6	9.5	3.9	46
	Females	39.6	15.2	18.3	26.9
15	Mizoram				
	Persons	54.9	5.7	1.5	37.9
	Males	49.6	4.9	1.3	44.2
	Females	61.6	6.9	1.8	29.7
16	Tripura				
	Persons	27	23.8	3	46.1
	Males	26.6	19.6	1.8	52.1
	Females	28.1	34.6	6.2	31.1
17	Meghalaya				
	Persons	48.1	17.7	2.2	32
	Males	44.9	16	1.6	37.5
	Females	52.8	20.1	3	24.1
18	Assam				
	Persons	39.1	13.2	3.6	44
	Males	38.3	12.1	1.9	47.6
	Females	41.1	16.2	7.9	34.8
19	West Bengal				
	Persons	19.2	25	7.4	48.5

Appendix 1. Contd.

	Males	20.8	22.7	4.1	52.4
	Females	14.1	32.2	17.7	36.1
20	Jharkhand				
	Persons	38.5	28.2	4.3	29.1
	Males	36.1	22.3	3.6	38
	Females	43	39.6	5.6	11.8
21	Orissa				
	Persons	29.8	35	4.9	30.3
	Males	34.2	26.4	3.3	36.2
	Females	20.1	53.9	8.5	17.5
22	Chhattisgarh				
	Persons	44.5	31.9	2.1	21.5
	Males	44.6	22.8	2.1	30.5
	Females	44.5	44.1	2	9.4
23	Madhya Pradesh				
	Persons	42.8	28.7	4	24.5
	Males	42.5	21.7	3.2	32.6
	Females	43.3	40.4	5.4	10.9
24	Gujarat				
	Persons	27.3	24.3	2	46.4
	Males	27	17.3	1.7	54
	Females	28	39.1	2.7	30.2
25	Daman and Diu				
	Persons	5.5	1.8	1.6	91
	Males	3.3	0.6	0.6	95.5
	Females	16.6	8	6.5	68.9
26	Dadra and Nagar Haveli				
	Persons	34.6	12.9	0.7	51.8
	Males	23.8	7.2	0.6	68.4
	Females	55.9	24.3	0.9	18.9
27	Maharashtra				
	Persons	28.7	26.3	2.6	42.4
	Males	24.9	18.3	2.1	54.7
	Females	35.8	41.1	3.6	19.4
28	Andhra Pradesh				
	Persons	22.5	39.6	4.7	33.1
	Males	24	29.8	3.3	42.9
	Females	20.1	55.8	7	17.1
29	Karnataka				
	Persons	29.2	26.5	4.1	40.2

Appendix 1. Contd.

	Males	31.7	17.2	2.7	48.4
	Females	24.7	43.4	6.7	25.2
30	Goa				
	Persons	9.6	6.8	2.8	80.7
	Males	6.9	4.3	2.4	86.5
	Females	16.7	13.4	3.9	65.9
31	Lakshadweep				
	Persons	0	0	5.9	94.1
	Males	0	0	4.1	95.9
	Females	0	0	17	83
32	Kerala				
	Persons	7	15.8	3.6	73.6
	Males	7.8	13.9	2.5	75.9
	Females	4.8	21.5	7.1	66.5
33	Tamil Nadu				
	Persons	18.4	31	5.4	45.3
	Males	18	23.5	3.6	54.9
	Females	19	44.8	8.7	27.5
34	Pondicherry				
	Persons	3.2	21.1	1.8	73.9
	Males	3.7	16.3	1.3	78.7
	Females	1.5	35.9	3.7	58.9
35	Andaman and Nicobar Islands				
	Persons	15.8	3.8	5.2	75.3
	Males	13.7	3.7	4.3	78.3
	Females	24.1	4.2	9	62.8

Source: Primary Census Abstract (Census of India, 2001). [@]- Excludes Mao-Maram, Paomata and Purul sub-divisions of Senapati district of Manipur.

Appendix 2. Women's WPR and literacy rate.

India/State/UT	Female literacy	Female WPR
India	53.67	25.63
Jammu and Kashmir	43.00	22.45
Himachal Pradesh	67.42	43.67
Punjab	63.36	19.05
Chandigarh	76.47	14.22
Uttaranchal	59.63	27.33
Haryana	55.73	27.22
Delhi	74.71	9.37
Rajasthan	43.85	33.49
Uttar Pradesh	42.22	16.54
Bihar	33.12	18.84
Sikkim	60.40	38.57

Appendix 2. Contd.

Arunachal Pradesh	43.53	36.54
Nagaland	61.46	38.06
Manipur (Excl. 3 sub-divisions)	60.53	39.02
Mizoram	86.75	47.54
Tripura	64.91	21.08
Meghalaya	59.61	35.15
Assam	54.61	20.71
West Bengal	59.61	18.32
Jharkhand	38.87	26.41
Orissa	50.51	24.66
Chhattisgarh	51.85	40.04
Madhya Pradesh	50.29	33.21
Gujarat	57.80	27.91
Daman and Diu	65.61	18.61
Dadra and Nagar Haveli	40.23	38.74
Maharashtra	67.03	30.81
Andhra Pradesh	50.43	35.11
Karnataka	56.87	31.98
Goa	75.37	22.36
Lakshadweep	80.47	7.28
Kerala	87.72	15.38
Tamil Nadu	64.43	31.54
Pondicherry	73.90	1.98
Andaman and Nicobar Islands	75.24	16.60