



Women, work, and employment outcomes in rural India

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Abstract

This paper analyses the trends and pattern of women's employment in rural India using unit data from two types of large scale surveys. It shows that while rural women's employment has grown over the decades, there has not been much improvement in outcomes. Women are still largely concentrated in agriculture as self-employed or casual labour. Women workers face various forms of discrimination, including job-typing that pushes them in low paying jobs.

The paper analyses the determinants of women's employment through regression analysis. The significant predictor variables are social group, age, marital status, landholding, wealth status, and women's autonomy. Results show that higher work participation *per se* does not indicate higher welfare; only when accompanied by higher education, and /or assets does it lead to better employment outcomes. Further, education may not positively influence a woman's participation in work, but for women who are in the workforce, education is the most important determinant of better quality non-agricultural work. Along with education, women's autonomy measured in terms of access to land, control over its operation, mobility, and willingness to join self help groups enables her to move into non-agricultural jobs.

The paper argues for policy interventions to provide work opportunities and better wages to rural women workers and builds the case for improving the education, information and skill level of women workers. It emphasises strategies to promote women's control over assets and increase her autonomy. Finally the paper recommends policy initiatives and research to tackle the iniquitous functioning of the labour market in India, particularly with respect to valuing women's work, fixing minimum wages for home based work and looking at the needs of women workers from the most disadvantaged social groups.

Key words: India; gender and employment; rural employment.

1. Introduction

Employment is critical for poverty reduction and for enhancing women's status. However, it is potentially empowering and liberating only if it provides women an opportunity to improve their well being and enhance their capabilities. On the other hand, if it is driven by distress and is low-paying then it may only increase a woman's drudgery. To understand women's work status in India's rural areas and to examine the trends and nature of women's employment, this paper analyses the data from large scale national surveys.

The National Sample Survey (NSS) Organisation carries out quinquennial surveys on employment and unemployment and covers more than 100,000 households and 500,000 individuals throughout the country. The survey covers socio-economic and demographic characteristics, employment and unemployment characteristics, and provides information on wages. The latest year for which data is available for both surveys is 2004-05. The National Family Health Survey (NFHS) covers households with women in the reproductive age group of 15-49 and in the latest survey carried out in 2005-06; it covered 63,896 women in this age group. The authors' estimates from the NSS surveys of 1983, 1993-94, and 2004-05 and the NFHS survey of 2005-06 are based on analysis of unit level data. In addition, we have also drawn on data on women's control on agricultural holdings from the agricultural census, a large scale survey conducted by the Ministry of Agriculture, Government of India, as well as other sources of information such as national income data from the Central Statistical Organisation.

The paper is organised in six sections. The next section analyses work participation rates for women by socio economic characteristics such as caste, religion, education, and economic status. Section 3 discusses the participation of women in the agricultural and non-agricultural sectors and their categorisation by employment status. Section 4 examines some of the correlates of workforce participation including education and poverty. The determinants of women's work participation and the factors that influence their participation in different kinds of employment are explored by means of regression analysis in section 5. The last section concludes with an overview and suggestions for improving the position of women workers in rural areas.

2. Workforce Participation by Socio-Economic Characteristics

The notion of work and employment, especially for women, is complex. The reasons why women work (or do not work) in gainful activity, or whether they work part time or full time, can be diverse and may be rooted in a complex interplay of economic, cultural, social, and personal factors. In developing economies, workers combine multiple activities over different parts of the year. The NSSO defines a person who is employed (in gainful activity) for a major part of the year as being "Principal Status" employed. If gainfully employed only for a part of the year, she is described as being employed in the "Subsidiary

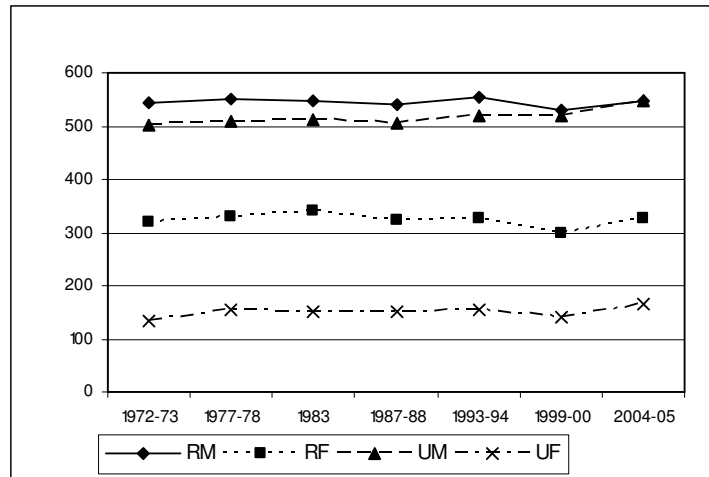
Status”. A person employed either in “Usual Principal Status (UPS)” or “Usual Subsidiary Status (SS)” is enumerated as being employed in the “Usual Status (also UPSS)”. Unless otherwise stated, the reference is to UPSS employment throughout this paper. The industry associated with her employment is the one which she is associated for a major part of the employment.¹ We focus for the most part on rural employment, but also provide data on urban employment in order to highlight the contrasts.

As in most other parts of the world, fewer women participate in employment in India compared to men. In 2004-05, while in urban areas, 16.6 percent women and 54.9 percent men (of all ages) were employed, in rural areas, these percentages were 32.7 and 54.6 respectively (Table 1). More women (proportionately) are employed only in the subsidiary status, than men, especially in rural areas. This can be explained by factors from the supply side as well as the demand side. Taking the former first, the rural economy has been largely stagnant over the years and employment opportunities have not grown. Most women, therefore, are able to get work for only a few months in the year. This keeps them employed only in the ‘subsidiary status’. On the supply side, women’s primary duties are supposed to be in the household. For economic reasons they have to work, but must do so in addition to their domestic responsibilities, and are therefore only able to enter the labour force as subsidiary workers.

Table 1. Workforce Participation Rates by Gender, 2004-05				
Employment Status	All Ages			
	Rural		Urban	
	Male	Female	Male	Female
Usual Principal Status	53.5	24.2	54.1	13.5
Subsidiary Status only	1.2	8.5	0.8	3.1
Usual Principal & Subsidiary Status	54.6	32.7	54.9	16.6
15-59 Years				
Usual Principal Status	85.6	38	79.2	19.7
Subsidiary Status only	1.6	13.5	1	4.5
Usual Principal & Subsidiary Status	87.1	51.5	80.2	24.2
<i>Source: Computed from Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.</i>				

Over a thirty-two year span (1972-73 to 2004-05), the workforce participation rate (WPR) of males and females shows no systematic variation despite a larger percentage of persons in the younger age groups joining education (Figure 1). The only notable changes appear to be a small increase in male WPR after 1987-88 and that urban females recorded a higher employment rate in 2004-05 over all preceding rounds of the survey. This also shows that globalisation appears to have enlarged work opportunities for women in urban areas, but has had no impact in rural areas. Yet, there are large variations in women’s participation in work across socio-economic groups and across regions and states in India which we shall presently discuss.

Figure 1: Workers per Thousand Persons by sex and residence, 1972-73 to 2004-05

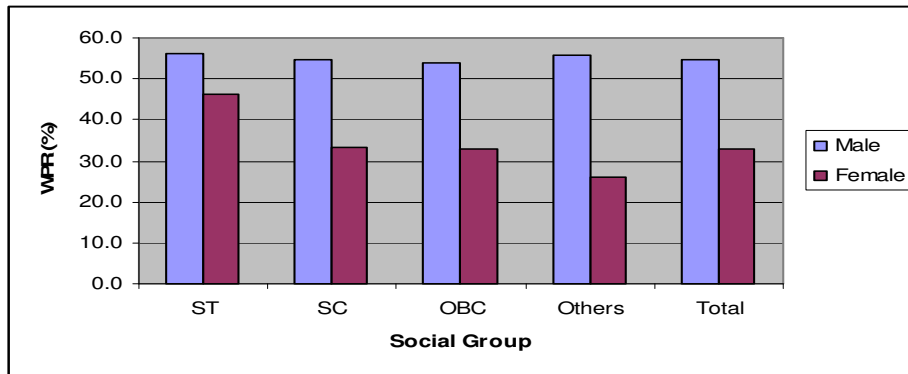


Note: RM – Rural Male, RF – Rural Female, UM- Urban Male, UF- Urban Female
 Source: NSS Employment-Unemployment Surveys, Various Years.

While mainly economic factors determine a man’s participation in employment, the forces that influence a woman’s participation in work are many and diverse and include demographic, reproductive, social, religious and cultural factors. Figure 2 shows that WPR is highest for scheduled tribe (ST) and scheduled caste (SC) women and lowest for women from the ‘other’ caste. The SCs and STs are the most marginalised sections in the economy and the most impoverished. Women from these groups have higher WPRs because extreme poverty leaves them with little choice but to work, and because they do not face social taboos that disapprove of work. The converse is true for women from ‘other’ castes.

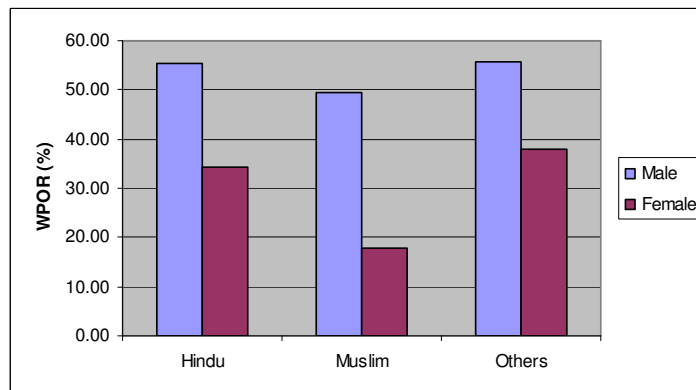
When religious background is considered, Muslim women in rural areas have a significantly low WPR – nearly half the national rate for women of all religions (Figure 3). Once again it is social norms that restrict women’s mobility and entry into the workforce that keep more Muslim women tied to hearth and home.

Figure 2: Rural Workforce Participation Rate by Social Group and Sex, 2004-05



Note: ST – Scheduled Tribe; SC – Scheduled Caste; OBC, Other Backward Castes
 Source: Computed from NSS Employment-Unemployment Survey data, 2004-05

Figure 3: Rural Workforce Participation Rate by Religion and Sex, 2004-05



Source: Computed from NSS Employment-Unemployment Survey data, 2004-05

Does education propel women into employment? The gender differences in this respect are interesting and stark. For male workers, higher levels of education are indeed associated with higher WPR, both in rural and urban areas. But for women, WPR is higher for illiterate women than for women with higher levels of school education – a trend which reverses itself only for women with technical/vocational education or graduates. This again is a pattern which reveals itself both in rural and urban areas. Thus 51 percent of illiterate men are employed but this percentage goes up to 71 percent among men who have passed their higher secondary (Table 2). On the other hand, 39 percent illiterate women are employed, but this percentage declines to just 25 percent among women who have passed higher secondary. Why? Multiple factors such as the compulsion for men to earn, the greater availability of jobs for men, and the restrictive social norms operating for women,

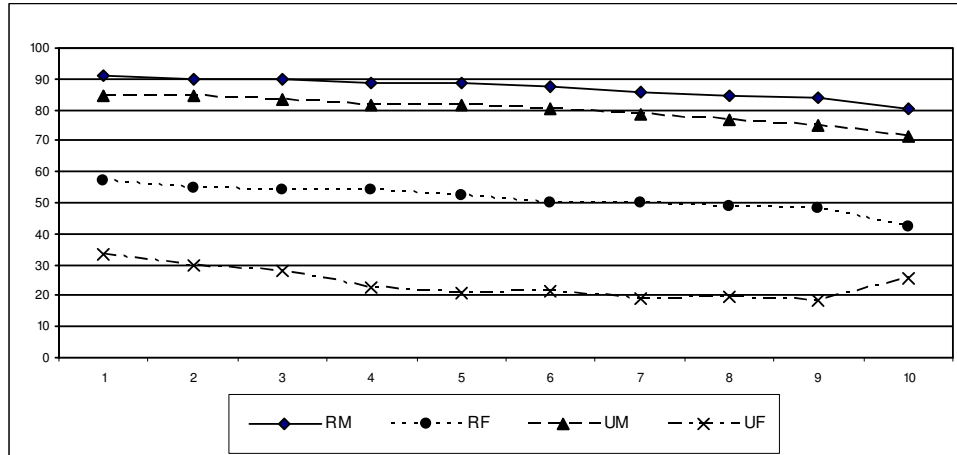
appear to explain this pattern. It is interesting that in urban areas by contrast, women’s employment goes up at higher educational levels and shows a pattern similar to that for men showing the narrowing of gender gaps in urban areas.

Table 2 Workforce Participation Rate by Level of Education, 2004-05				
Highest Level of Educational Attainment	Rural		Urban	
	Male	Female	Male	Female
Illiterate	50.8	39.2	37.6	20.1
Literate-&-up to-primary	44.9	21.3	42	12
Middle	70.3	31.8	66	13.6
Secondary	72.6	30.3	67	12.2
Higher-secondary	70.8	25.1	60.8	12.9
Diploma/certificate-course	81.5	52.2	79.6	48.4
Graduates & above	85	34.3	79.5	28.9
All	54.6	32.7	54.9	16.6

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

How does economic status of women influence their participation in work? Indeed, the relationship between workforce participation and economic status of the household is critical for policy and programme interventions. While the NSSO does not collect data on incomes, it provides data on monthly per capita consumption expenditure (MPCE); a measure that is widely used as a proxy for the economic status of households. In this paper the authors have computed participation in employment across MPCE deciles groups from NSS unit records. These results are presented in Fig 4. Workforce participation shows a consistently declining trend with rising economic status for rural women, clearly reflecting on the economic distress that compels poor women to work. In contrast, for urban women, work participation shows a skewed v-shape, declining as economic status improves, but rises again with the highest consumption decile. The latter reflects on higher educational attainments of women associated with higher incomes, and the greater availability of employment opportunities in urban areas.

Figure 4: WFR across MPCE deciles by sector and sex (15-59 years), 2004-05



Note: RM – Rural Male, RF – Rural Female, UM- Urban Male, UF- Urban Female

Source: Computed from NSS Employment-Unemployment Survey 2004-05, unit data

To conclude, women’s participation in gainful work is lower compared to men; it is higher for scheduled caste and scheduled tribe women who are less restricted by social norms; among religious groups, work participation is lowest for Muslim women; education impacts differentially for men and women, with level of participation increasing with educational levels for men, but declining for rural women; as economic status improves, work participation declines for rural women suggesting that when there are no compelling economic reasons to earn, social taboos on women’s mobility and participation in work exercise a strong influence. In general, while the gaps in work participation between men and women are clear and well recognised, the gaps between different classes of women hailing from different social and economic backgrounds are less well known and need to be understood for effective policy measures.

3. Women’s Employment in the Agricultural and Non-Agricultural Sectors by Employment Status

Within rural areas, work may be classified along two dimensions; a) by sector, viz., agriculture or non-agriculture, and b) by employment status, that is whether a person is in regular employment, is self employed or is casually employed. An analysis of women’s employment by sector and employment status can tell us a great deal about the outcomes for women and if the work they do promotes their well being or is low-end, low paying and driven by distress. Table 3 shows the distribution of workers by these cross cutting categories.

Table 3. Percentage Distribution of Workers by Employment Status, 2004-05						
Employment Status / Sector	Rural			Urban		
	Male	Female	Persons	Male	Female	Persons
<i>Agriculture</i>						
Self Employed	63.8	64.5	64.1	70	62.8	66.9
Regular/salaried	1.3	0.5	1	5.3	1.9	3.8
Casual labour	34.9	35	34.9	24.7	35.3	29.4
<i>Non-agriculture</i>						
Self Employed	47	59.6	49.7	43.1	44.4	43.4
Regular/salaried	24.2	19.8	23.2	42.9	43	43
Casual labour	28.9	20.6	27.1	13.9	12.6	13.7
<i>All workers</i>						
Self Employed	58.1	63.7	60.1	44.8	47.7	45.4
Regular/salaried	9	3.7	7.1	40.6	35.6	39.6
Casual labour	32.9	32.6	32.8	14.6	16.7	15
Total	100	100	100	100	100	100

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

What is the significance of this classification and what does it tell us about the nature and disparities in women's employment? This becomes clear from Table 4 that provides the percentage distribution of male and female workers in agriculture and non agriculture by employment status as well as the wages per day. It illustrates vividly the more disadvantaged position of women in the rural labour market.

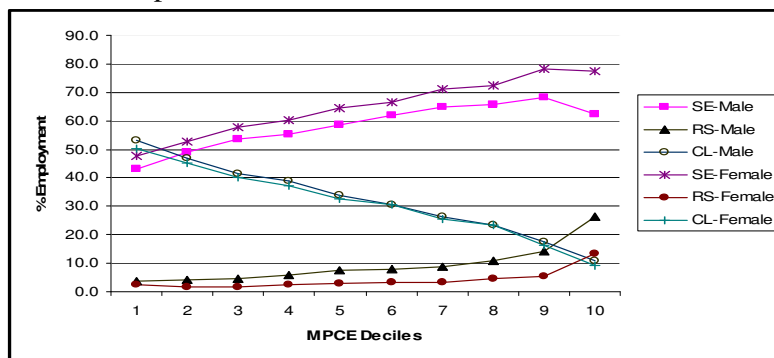
Firstly, wages are higher for men in all categories of employment. The disparity is highest for regular workers in non-agriculture (where ratio of female to male wages is 0.57). Second, women are concentrated in agriculture where the wages are lowest. Thus 90 percent women are in agriculture and only 10 percent are in non-agriculture (compared to 71 percent and 29 percent for men) among casual labourers. Thirdly, there is a very low proportion of women in regular work where the wage rates are the highest, employment is more secure and working conditions are relatively better. This is the case both in agriculture and in non-agriculture.

Table 4. Wages and Percentage Distribution of Workers by Agriculture and Non-agriculture and by Employment Status -2004-05

Casual Labour						
Industry	% distribution		Wages (Rs. Per day)			F/M Wages
	Male	Female	Male	Female	Persons	
Agriculture	70.6	89.5	47.9	33.2	42.5	0.69
Non-Agriculture	29.4	10.5	67.5	44	63.8	0.65
Total	100	100	54.6	34.7	48.5	0.64
Regular Workers						
Industry	% distribution		Wages (Rs) per day			F/M wages
	Male	Female	Male	Female	Persons	
Agriculture	9.9	11	68.1	53.7	65.2	0.79
Non-Agriculture	90.1	89	151.1	86.3	139.1	0.57
Total	100	100	143	82.9	131.8	0.58

How does economic status relate to the nature of work that men and women do? Fig 5 makes this very clear. Along expected lines, the percentage of casual labourers among both male and female workers declines sharply with rising household MPCE deciles. The percentage of self-employed among workers shows an increasing trend with MPCE deciles, except for the highest deciles, where it dips. The share of regular workers is low throughout showing the scarcity of regular work; is negligible in the lower consumption deciles but rises in the highest deciles. For rural female workers, the share of the self-employed remains higher for each MPCE decile compared to male workers. On the other hand women remain disadvantaged when it comes to regular work and as figure 5 shows their access to regular work remains lower even as the economic status of households improves.

Figure 5: Percentage Distribution of Male and Female Workers by Employment Status across Consumption Deciles, 2004-05



Note: SE – Self-employed; RS – Regular/Salaried; CL – Casual Labour; MPCE – Monthly per capita expenditure

Source: Computed from NSS Employment-Unemployment Survey 2004-05, unit data

Although the structure of employment by employment status has been remarkably constant across the years, previous NSS surveys (till 1999-00) showed some increase in casual labour in the rural male and female workforce and a decline in the share of the self-employed. But during 1999/00-2004/05, there was a change in the trend; the share of self-employed workers increased among both female and male workers, while the share of casual work declined. Why this has happened is difficult to say, but it is likely that the overall stagnation in agriculture and the rural economy may have led to this shift. The growth rate in agriculture and allied sectors was only little more than 2 percent per annum in this period, registering a negative growth in some years. This may have led to shrinking availability of wage work and compelled workers to eke out subsistence from self employment.

The next section discusses women’s employment in agriculture, while the subsequent section takes up women’s employment in non-agriculture. In each, the three broad status of employment are analysed.

3.1 Agriculture

In rural areas, nearly 84 percent women workers are engaged in agriculture, either as cultivators or labourers as compared to 67 percent male workers. Table 5 shows the decline in the proportion of men as well as women in agriculture; but the decline is much sharper for men.

	1972-73	1977-78	1983	1987-88	1993-94	1999-00	2004-05
Male	83.2	80.7	77.8	74.6	74.1	71.3	66.5
Female	89.7	88.2	87.8	84.8	86.1	85.2	83.2

Source: NSSO Employment-Unemployment Surveys, Various Years.

There has been a kind of ‘creeping feminisation’ of agriculture; male workers have steadily moved out of agriculture (and also out of rural areas) while for women workers, this movement has been extremely tardy. Men have entered into more diversified occupations in non-agriculture, while women have largely tended to remain in agriculture that has been largely stagnant. In 1972-93, 83.2 percent male workers and 89.7 percent female workers were engaged in agriculture. By 2004-05, only 66.5 percent male workers were in agriculture compared to 83.3 percent female workers. This has to be seen in the context of the fact that returns to labour are, on average, higher in non-agriculture than in agriculture, although the size of assets operated and type of employment, among other factors, are also relevant.

One implication of the above slow change is that a significant proportion of the incremental female workforce gets engaged in agriculture. Between 1983 and 2004-05, nearly 72 percent of the incremental rural female workforce was absorbed in agriculture, compared to 40 percent for the male workforce.

3.1.1 Agriculture: Casual Workers

Compared to 23.2 percent male rural workers, 29.2 percent female rural workers were engaged as casual agricultural labourers in 2004-05. There is a disproportionate concentration of the most deprived social groups in this form of labour. Half of the female casual labourers and 43 percent of male casual labourers in India belong to SCs and STs, nearly twice their share in population.

Operation	Male	Female	Total	Male	Female
Ploughing	91.5	8.5	100	9.4	1.8
Sowing	64.5	35.5	100	3.4	3.8
Transplanting	56.4	43.6	100	3.2	5
Weeding	51.7	48.3	100	7.2	13.7
Harvesting	64.5	35.5	100	16.1	18.2
Other cultivation activities	70.5	29.5	100	36.8	31.5
Forestry	58.7	41.3	100	0.6	0.8
Plantation	69.1	30.9	100	1.7	1.6
Animal husbandry	49.6	50.4	100	5.9	12.3
Fisheries	88.8	11.2	100	0.5	0.1
Other agricultural activities	71.7	28.3	100	12.9	10.4
Non-manual labour in cultivation	84.8	15.2		2.4	0.9
Total	67	33	100	100	100

Source: Computed From Employment-Unemployment Survey NSSO 1999-00, Unit Level Data.

Women agricultural casual workers form a distinct category: they are disadvantaged in many ways. As table 6 shows, there is significant gender segmentation of operations in agriculture. While men predominate in activities such as ploughing and harvesting, women predominate in weeding, transplanting and inter-culture. The wages are uniformly lower in all female dominant operations. Overall women's wages are estimated at 69 percent of male wages in 2004-05 (Table 4). Moreover, women also get fewer days of work. Further, women workers rarely get the minimum wages stipulated by the government: more than 95 percent of female agricultural wage workers received wages lower than the minimum wage (NCEUS, 2007). The deprivation of casual workers is aggravated by the fact that not only are their lower than wages in non-agriculture (about two-third of that level); they have also grown at a lower rate in the recent period, thereby increasing the gap.

Moreover, as already pointed out, women workers who work as casual labourers are able to get work for only part of the year – their estimated employment days was only 184 (compared to an already low of 227 for male agricultural labourers). Women agricultural labourers are also unemployed for more days a year than their male counterparts. The unemployment rate for agricultural labourers is quite high in rural areas by any standard; 16

per cent for men and 17 per cent for women for 2004-05 by the Current Daily Status criterion and this increased over 1993/94-2004/05 (NCEUS, *ibid.*).

3.1.2 Agriculture: Self Employed Workers (Farmers)

As noted earlier, women workers are increasingly engaged as self-employed in agriculture. There has been a steady increase in the numbers of both women and men farmers over all years since 1983 except 1999-00. The sharpest increase has taken place in the recent quinquennium when the share of women farmers increased to 41.8 percent (Table 7), the highest in 32 years. These results attest to the large role played by women farmers although they do not confirm a systematic trend towards feminization.

Table 7. Number and Percentage of Farmers among Agricultural Workers					
	1983	1987-88	1993-1994	1999-2000	2004-2005
Numbers (Million)					
Male	79.5	83.4	88	85.3	96.8
Female	52	54.7	55.2	51.9	69.4
Persons	131.5	138	143.2	137.3	166.2
Percentage to Total Farmers					
Male	60.5	60.4	61.5	62.1	58.2
Female	39.5	39.6	38.5	37.8	41.8
Persons	100	100	100	100	100
Percentage to Total Agricultural Workers					
Male	64.2	65.6	61.1	58.6	64
Female	62.6	66.4	58.6	56.4	64.4
Persons	63.5	65.9	60.1	57.8	64.2

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

Such a large presence of women farmers requires systematic public support to them, which is lacking mainly because women are not seen as principal producers in agriculture and because they do not have ownership or control over the assets on which they work. The poor support to women farmers has been highlighted in several studies and reports, notably Planning Commission (2007 and 2008) and NCEUS (2008). Srivastava et al., 2007, have shown that despite legislative changes few women have control over land. However, the Agricultural Census provides information on operational holdings, that is, agricultural holdings operated and controlled by men and women, whether or not they are owned by them.

According to the Agricultural Census 2000-01, only 11.6 percent of cultivated agricultural land holdings covering 9.1 percent area were operated by women. There is a systematic decline in the percentage of land holdings and area controlled by women as the size of holding increases. In the smallest size class (below 0.5 hectares) the percentage of land holdings operated by women was 13.4 whereas the area operated by them was 12

percent. In large holdings (greater than 10 hectares), the corresponding percentages declined to 5.7 and 5.6 respectively. These figures could partly be explained by the pattern of outmigration since it is in smaller holdings where male outmigration is also likely to be higher. However, cultural and social factors are also very important in explaining the fact that a miniscule proportion of women have control on this critical resource.

This is brought out by the regional pattern of women's control over land holdings. The percentage of such holdings was much higher in the more progressive Southern states and in some of the North-eastern states. In Kerala women operated 21 percent of the land holdings and 18 percent of area. In Andhra Pradesh the corresponding figures were 20 percent and 17 percent respectively while in Tamil Nadu they were 18.1 percent and 15.1 percent respectively. In the absence of land titles, women farmers have much smaller access to institutional credit compared to male farmers, and receive a much lower degree of institutional support.

3.2 Non-Agriculture

3.2.1 Non-Agriculture: Casual Workers

Wages of casual workers estimated from the 2004-05 NSSO Survey show that female wages are lower than male wages across all industry groups. The relative male-female wage gap is larger in non-agriculture where female casual workers earn 65 percent of male wages. In manufacturing, female wages are only 59 percent of male wages (Table 8).

The low wages of female workers are principally due to the undervaluation of work and skills in activities in which women predominate. Thus the segmentation of women workers in certain types of activities largely determines the gender gap which exists. A number of national and international studies have documented the sex-typing of occupations (e.g. Anker 1998). In India, this has been noted in a number of industries such as knitwear and garments (Vijayabaskar 2002; Singh and Sapra 2007). These jobs provided limited opportunity for upward mobility (Neetha 2002). Such segregation can also be found in the services sector. In the health and education sectors (which also involves regular workers discussed separately below), women are concentrated at the lower end as paramedics, teachers in lower grades, or support staff (NCEUS, 2007). The hierarchy of jobs within manufacturing or services is then used to value the jobs where women are concentrated as low skilled workers even if it involves exceptional talent and years of informal training.

Table 8. Percentage Distribution of Rural Male and Female Casual Workers and Wages by Industry Divisions -2004-05

Industry	% distribution		Wages (Rs. Per day)			F/M Wages
	Male	Female	Male	Female	Persons	
Agriculture, Forestry Fishing	70.6	89.5	47.9	33.2	42.5	0.69
Mining & Quarrying	1.4	0.8	68.6	45.7	63.9	0.67
Manufacturing	5.8	3.8	63.8	37.6	57.6	0.59
Elec Gas & Water	0	0	77.4	26.4	74.2	0.34
Construction	16.7	4.4	69.5	49.8	66.9	0.72
Wholesale & Retail Trade	1.3	0.1	57.6	36.3	57	0.63
Hotels & Restaurant	0.4	0	65.1	46.7	64.4	0.72
Transport Storage & Commu	2.5	0.1	70	41.6	69.3	0.59
Financial Intermediation	0	0	144.5	-	144.5	
Real Estate, Renting, Business	0.1	0	90.2	139.5	90.8	1.55
Public Admin	0.1	0.1	61.3	40.5	56.3	0.66
Education	0	0.1	56.5	48.6	52.5	0.86
Health & Social Work	0	0.1	86.7	52.8	68.5	0.61
Community Social & Personal Service	0.5	0.2	56.6	34.9	53.3	0.62
Private Households	0.5	0.9	61.7	40.4	51.3	0.66
Extra Territorial			42.9	-	42.9	
Non-Agriculture	29.4	10.5	67.5	44	63.8	0.65
Total	100	100	54.6	34.7	48.5	0.64

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

3.2.2. Non-agriculture: Self-employed Workers

As we have noted earlier, the self-employed workers are not a homogeneous group. They fall into three sub-groups. The first are the 'employers'. The second are the 'own account workers', and the third group is constituted by the 'helpers' who assisted the main family workers in an unpaid capacity. A significant percentage of self-employed women workers (49.1 percent) are classified as helpers i.e., they are recognised only as auxiliary workers and this percentage is much larger than among male self-employed workers in non-agriculture among whom 15.2 percent are classified as unpaid workers. Further, while one of the stated advantages of self-employment for women is that this work can be done based at home and women can work at their pace and convenience, this results in multiple disadvantages in the form of limited opportunities, seclusion, and lower earnings.

Female Proprietary Enterprises

The NSSO informal enterprises survey, 1999-2000, provides a profile of female and male proprietary enterprises. The survey found that about 12 per cent of proprietary enterprises were operated by women and these were mainly own account enterprises (OAEs)² (Table 9). Approximately 10 per cent of the workers in proprietary enterprises were engaged in the female proprietary enterprises. A distinction is made between Own Account Enterprises (OAEs) employing no hired labour and Establishments which hire one or more labourers. In general, urban enterprises are larger in size, and for the same category, female proprietary enterprises are smaller than male proprietary enterprises. In rural areas, female proprietary enterprises are very small in size, with an average fixed investment of less than Rs. 8000 (\$164—or about one-third that of own account male proprietary enterprises), while female establishments had a total fixed asset base of Rs. 123,786 (\$2525)³. The gross value added per worker was less than Rs 7000 (\$143) per annum, while in the latter it was slightly more than Rs. 26,000 (\$530) per year. Among rural female OAEs, about 34 per cent of them have value of fixed assets of less than Rs.1000 (\$20), while only 7 percent had value of assets greater than Rs.25000 (\$510). Not only are few women involved in running non-agricultural enterprises of any kind, the scale of operation of women operated units is distinctly very tiny particularly in rural areas. Compared to the National Minimum Wage, 89 percent of female OAEs and 42 percent of male OAEs gave lower imputed daily returns.

Table 9. Characteristics of Informal Sector Proprietary Enterprises by Sex of Proprietor, 1999-00

	Rural				Urban			
	OAE		Establishments		OAE		Establishments	
	Male	Female	Male	Female	Male	Female	Male	Female
% of Enterprises	81.5	5.4	12.9	0.2	70	19.1	9.7	1.2
% of Workers	76.8	11.5	11.2	0.5	53.7	36.6	7.3	2.4
Fixed Asset per Enterprise (Rs)	21344	7930	124055	123786	71862	30945	337449	331730
Gross Value Added/Enterprise (Rs)	15372	6996	26194	18115	27416	12287	41137	40211

Note: OAE: Enterprises with no hired worker. Establishments: Enterprises with one or more hired workers.

Source: Computed using unit level data on NSS 55th Round, Informal Sector Enterprises, 1999-00.

Home workers

Nearly 81 percent of rural female enterprises and 39.5 percent of male enterprises operated from home in 1999-00 i.e. they were home based enterprises. About 40 percent of these enterprises in rural areas work on sub-contracted basis i.e. their workers were home-workers as defined by the ILO. Home-workers work at the lowest end of a value chain, usually dealing with petty contractors, on whom they depend for supply of work, raw

material and sale of finished goods. This dependence on the contractor together with the isolation undermines their ability to bargain for higher piece-rates, timely payments or overtime pay. The annual gross value addition of the rural female home-workers is, on average, Rs.5270 (\$108, Table 10), much lower than even the Rs 9000 (\$184) that accrues in female OAEs. The average value of fixed assets engaged by them is also very low at Rs.3800 (\$78).

	Gross Value Added Per Worker (Rs.)		Fixed Assets Per Enterprise (Rs.)	
	Male Proprietary	Female Proprietary	Male Proprietary	Female Proprietary
Rural	8826	5270	13917	3800
Urban	13409	6343	39131	13914
Total	10435	5544	22341	6229

Note: OAEs located at home and working solely/ mainly on contract are considered home based enterprises

Source: NCEUS (2007).

About 79 per cent of the women and 63 per cent of the male home workers were paid on a piece-rate basis (NSSO 2001a, Table 16). This wage has many hidden costs, including use of the house and electricity, delayed payments, and arbitrary cuts in wages on the pretext of poor quality. (Homenet South Asia and ISST 2006).

3.2.3 Non-Agriculture: Regular Workers

Female regular workers in rural areas form a very small part of the female workforce as also of the total proportion of regular workers in rural areas. Table 11 shows that outside of agriculture, they are mainly concentrated in education (37.8 percent), manufacturing (18 percent), private households (10.3 percent), health and social work (8.9 percent) and public administration (5.9 percent). Work in private household (mainly as domestic help) earns women the lowest wages of Rs. 39 per day (\$0.8), followed by employment in hotels and restaurants, manufacturing, and agriculture. While the sectors with the highest daily remuneration, such as electricity gas and water, transport; financial intermediation; and real estate employ very few women on a regular basis, among the sectors where a larger proportion of women take up employment, education and health sectors afford reasonable daily earnings.

Table 11. Percentage Distribution of Regular Workers by Industry and Wages Per Day, 2004-05

Industry	% Share in Employment		Wages (Rs) per day			F/M wages
	Male	Female	Male	Female	Persons	
Agriculture, Forestry Fishing	9.9	11	68.1	53.7	65.2	0.79
Mining & Quarrying	1.4	0.5	246.1	74.6	230.9	0.3
Manufacturing	20.6	18	118.4	40.8	105.4	0.35
Elec Gas & Water	2.4	0.3	242.4	253.9	242.6	1.05
Construction	2.1	0.3	106	92.5	105.6	0.87
Wholesale & Retail Trade	10.7	1.8	72.3	55.6	71.7	0.77
Hotels & Restaurant	1.7	1.1	85.2	41.4	79.3	0.49
Transport Storage & Communication	14.5	1.8	126.5	127.5	126.5	1.01
Financial Intermediation	2.2	0.9	257.1	138.2	246.6	0.54
Real Estate, Renting, Business	1.2	0.6	101.9	133.7	105.1	1.31
Public Admin	12.6	5.9	199.6	81.3	187.4	0.41
Education	15.4	37.8	222.4	115.4	183.8	0.52
Health & Social Work	2.5	8.9	178.5	123	154.7	0.69
Community Social & Personal Service	1.8	0.9	80.8	53.6	78.1	0.66
Private Households	1	10.3	64	29.6	39.5	0.46
Extra Territorial			250	-	250	-
Non-Agriculture	90.1	89	151.1	86.3	139.1	0.57
Total	100	100	143	82.9	131.8	0.58

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

As noted in table 4 earlier, the daily earnings of women regular/salaried workers are more than twice as high as women casual workers. However, within regular work, as with casual work, there is a large gap in male-female earnings across most sectors (with the exception of electricity and transport), ranging from a female-male earning ratio of 0.3 in mining to 0.87 in construction. Even in the social sectors, there is a large gap in earnings, with this ratio being as low as 0.59 in education and 0.69 in health and social work (Table 11). Women workers in these sectors tend to be concentrated in the lower segments – as paramedics, support staff, contract teachers or teachers in low grades.

4. Correlates of Poverty and Vulnerability for Women Workers

So far, this paper has discussed various dimensions of employment of rural women without relating them to the poverty status of the women workers. We now briefly draw attention to the characteristics of women workers and poverty levels in rural India. We have used the official poverty line (PL) as a benchmark, but have categorised the population into six groups following the methodology adopted by NCEUS (2007).

Consumption characteristics and social development levels, of households have been divided as follows: 1. Extremely Poor: up to 0.75 PL; 2. Poor: Between 0.75PL and PL; 3. Marginal Poor: Between PL and 1.25 PL; 4. Vulnerable: between 1.25 PL and 2 PL; 5. Middle: Between 2 PL and 4PL; 6. Higher Income: Above 4 PL. The four lower categories have together been characterised as “Poor and Vulnerable”.

Table 12. Percentage Distribution of Women Workers by Poverty and Other Correlates, 2004-05							
	ECONOMIC CATEGORY						
	Extremely poor	Poor	Marginal	Vulnerable	Middle	Higher income	All
Activity Status							
Self-employed	45.3	50.2	57.0	67.3	76.9	71.0	63.1
Regular wage employee	2.5	2.1	2.0	3.4	6.6	22.2	3.8
Casual worker	52.1	47.7	40.9	29.3	16.5	6.7	33.1
Total	100	100	100	100	100	100	100
Industry							
Agriculture	84.5	85.0	84.9	83.7	80.2	63.5	83.2
Mining, Manufacturing & Electricity	9.8	9.2	8.7	9.2	7.9	7.2	8.9
Construction	1.9	2.0	1.8	1.4	1.0	0.3	1.5
Trade, Hotels & Transport	1.8	1.6	1.8	2.6	4.1	5.7	2.6
Finance & Real estate	0.0	0.0	0.0	0.0	0.2	1.6	0.1
Administration	0.0	0.1	0.1	0.2	0.5	1.6	0.3
Education	0.2	0.5	0.7	1.3	3.9	15.2	1.7
Health	0.1	0.0	0.2	0.3	1.0	3.3	0.4
Community, Household & Extra	1.7	1.5	1.8	1.3	0.9	1.8	1.4
Total	100	100	100	100	100	100	100
Education							
Illiterate	81.2	77.5	71.7	62.9	47.5	24.8	64.5
Primary & below primary	13.7	15.6	17.7	21.5	23.3	22.6	19.7
Middle	3.9	4.8	7.6	9.9	14.0	16.6	9.2
Secondary & above but below graduate	1.2	1.9	2.7	5.2	12.8	23.5	5.7
Graduate & above	0.0	0.1	0.2	0.5	2.4	12.5	0.9
Total	100	100	100	100	100	100	100

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

Table 12 shows that while the percentage of casual workers declines rapidly with improving economic status, the percentage of regular workers is only high in the last category. The Self-employed have a presence in all economic categories, but are more predominant as economic well being improves. In terms of industrial composition, it can be seen that while agricultural workers are present in all categories in a large proportion, their weight declines in the highest while that of tertiary sector workers increases. It can also be seen that workers with higher levels of education are almost entirely present in the higher economic categories. Since education plays a critical role, this has been analysed in greater detail below.

One of the major attributes of women engaged in agriculture is their low level of educational attainment. With the ongoing commercialisation of agriculture, crop diversification, introduction of new technologies and the imperative for better information processing, education has to be reckoned as a key input in any attempt at overall development and modernization of agriculture. However, the grim picture is that about 86 per cent of female agricultural labourers and 74 per cent of female farmers are either illiterate or have education below the primary level (Table 13). Shocking as it may seem, the average education of a female agricultural labourer was less than one year in 2004-05.

Table 13: Percentage Distribution of Rural Agricultural Workers by Educational Attainment, 2004-05

Education Level	Agricultural Labourers			Farmers		
	Male	Female	Total	Male	Female	Total
Illiterate & Below Primary	65.9	85.5	74.1	45.7	74	57.5
Primary	15.7	7.5	12.3	16.2	10.8	14
Middle	13.3	5.3	10	18.9	9.5	15
Secondary	3.7	1.2	2.6	10.3	3.9	7.6
HS & Above	1.5	0.4	1	8.9	1.9	6
Total	100	100	100	100	100	100

Source: Computed From Employment-Unemployment Survey NSSO 2004-05, Unit Level Data.

5. Determinants of Women's Workforce Participation

In this section the determinants of participation of rural women in employment is analysed by use of regression analysis. In the absence of a single data set containing all the relevant variables, this paper first does a Logistic Regression based on unit records of the NSS Employment-Unemployment Survey of 2004-05; this is followed by a similar analysis using the unit data records of another large-scale survey, viz. the National Family Health Survey of 2005-06 which also has information on women's autonomy using certain indicators. As both these analyses confirm significant differences across states/regions, an analysis using state level variables is also carried out.

5.1 Determinants of Participation in Employment using NSS data (2004-05)

The analysis attempts an explanation not only of why women participate in the workforce, but also why they participate in specific types of employment (as cultivators, casual workers in agriculture, and in various types of employment in non-agriculture). The independent variables used are: age group, marital status, education status, caste group, religion, presence of children under 5 years, land holding size category, monthly per capita consumption quintile, and region.

As mentioned earlier, Logistic Regression is used since the model does not make distributional assumptions on the predictors, which can be both continuous and discrete. The results are presented in Appendix Table 1 in the form of Odds Ratios and their significance level, and are briefly discussed here:

5.1.1 Agriculture: Determinants of work participation

As one would expect, possession of land has a very important influence on a woman's participation in employment. Controlling for land, the household's consumption level has a negative influence. Among the individual characteristics, it is seen that compared to women in the age group 15-29, older women have a higher probability of participating in work and women in the age group 30-44 have the highest odds ratio (2.23). Compared to never married women, married, divorced and separated women have a higher probability of participating in work, with divorced or separated women having the highest odds ratio (3.39). Compared to illiterate women, women with higher levels of education have a lower probability of being in the workforce. The odds ratio declines with rising levels of education, recouping somewhat only for women who are diploma holders or graduates. Compared to scheduled tribes, all other caste groups have lower probability of participating in work, with higher castes having the lowest probability. Muslim women have a much lower probability of being in the workforce compared to Hindu women. Finally women in all other regions have significantly higher probability are being in the workforce compared to those in the eastern region.

a) Agriculture: Casual Workers

In this case, younger women workers have the highest probability of working as casual agricultural labourers. The marital status variable is not significant. Scheduled caste women workers have a significantly higher odds ratio of being an agricultural labourer and this probability declines steeply with rising levels of education, for Muslims and for women workers with young children. Casual agriculture wage status for workers is much less probable for women workers possessing larger holdings and in higher consumption quintiles.

b) Agriculture: Self-employed workers

The highest proportion of women workers are engaged as self-employed in agriculture. The probability of a woman worker being self-employed in agriculture is highest for the high age group (45-59) and for currently married women. The odds ratio are lower for divorced or separated women indicating that these women no longer have access to land. The odds ratio declines with increasing levels for education and is the lowest for women workers who are graduates or diploma holders. SC women workers who have the lowest access to land also have the lowest probability of being self-employed in agriculture. Muslim women workers again are less likely to be engaged in farming. As one may expect the probability of engaging in agriculture increases sharply with bigger landholdings and also with higher levels of household consumption. Women workers in the Northern region have the highest probability of being engaged in agriculture as self-employed (relative to those in the East), while women workers in the Southern region have the lowest probability of being so engaged.

5.1.2 Non-agriculture: Determinants of Work Participation

Since female workers have largely remained confined to agriculture, the characteristics of workers who have moved out of agriculture are of great interest. Any type of worker in non-agriculture is taken up first. The probability of being a non-agricultural worker is highest for women in the age group 30-44 (odds ratio: 1.135) than for workers in the youngest age group and is lower for currently married women. It rises sharply with increasing levels of education. Compared to illiterate women workers, those with secondary education have an odds ratio of 4.787 while those with graduate or vocational education have an odds ratio exceeding 30. Compared to ST women workers, all other social groups have significantly higher odds ratios, the highest being for “other” caste women. Muslim workers are more than twice as likely to participate in non-agricultural work. The odds ratio declines with increasing size of land holding and is significantly higher than one for women workers belonging to the highest consumption quintile.

a) Non-agriculture: Wage workers

Non agricultural wage workers are younger and either unmarried or divorced women. The odds ratio is 0.58 for the highest age group and 0.61 for currently married women workers. The odds ratio steadily declines with higher levels of education. While there is no significant difference across social groups, Muslims have a significantly lower than 1 odds ratio. These ratios also decline dramatically with higher land holdings. The consumption level has a smaller influence on this variable but the odds ratio is significantly lower than one (0.73) for the highest quintile. Compared to the reference region, the West and the North both have significantly lower odds ratios.

b) Non-agriculture: Self employed workers

The probability of being self-employed is higher among young women workers and those who have never married. The odds ratio is significantly lower among currently married and widowed women workers. Education of the worker increases the probability of taking up self-employment, but the highest odds ratio are for those with secondary or higher secondary level of education. All social groups have higher odds ratio compared to the reference group (ST) and for the Muslim women workers, the odds ratio is more than twice as high as Hindu workers. This is principally due to the hereditary involvement of these workers' households in artisanal activities. Odds ratio declines steadily with increasing possession of land and is significantly higher than one only for the second quintile in terms of household MPCE. Women workers in the Eastern region (the reference group) have the highest probability of being so employed.

c) Non-agriculture: Regular workers

This is the smallest segment of workers among rural women. Compared to the reference groups, the odds ratio is higher for higher aged women and for widowed/separated women (it is lower than one for currently married women). It increases dramatically with increasingly levels of education. Among social groups it is significantly lower than 1 for OBC and upper caste women workers. The odds ratio falls with increasing size of holding (it is 0.166 for medium-large holdings) and is significantly higher than one (1.88) for the highest quintile.

Discussion of results:

The regressions bring out a number of interesting relationships between individual, household and regional characteristics in rural India. First, possession of land is naturally a very strong determinant of the participation of women in work and particularly their employment as women farmers. Controlling for land, the household's consumption status raises the possibility of a woman worker being self-employed either in agriculture or non-agriculture, but reduces this possibility in all other cases. It may be noted that these cases would require the worker to be employed outside the home where cultural and social roles begin to play a bigger role. Muslim women not only have a significantly lower than one odds ratio overall, this also holds for all types of employment except non-agricultural self-employment (which then gets reflected in their participation in overall non-agricultural employment). As far as social/caste groups are concerned, our reference is the Scheduled Tribes among whom access to land and common property resources is much higher than that for SCs (who have the least access to land) which accounts for their high WPR, the odds ratio for this being the lowest among upper castes. For the same reason, SCs have the highest odds ratio for participating in agricultural wage employment, as one might expect. In non-agriculture, overall STs have the lowest probability of participation, followed by SCs, OBC and upper castes. The surprising result is that among workers, upper castes and OBCs have a lower likelihood of participation in regular work than SC/ST, controlling for all the other factors.

Considering the three demographic variables (age, marital status and presence of young children), the last has the smallest influence of participation in any/all type of work. Currently married women have a lower likelihood of working outside of homes, while single women are likelier to participate in self-employment. Other than this widowed and separated women have a higher likelihood of participating in most types of work. Other than land, education appears to be the most important determinant of employment status. Participation in the workforce as well as participation in wage employment (both agricultural and non-agricultural) declines with level of education, while the likelihood of participation in non-agricultural work as a whole, as well in self-employment or regular work increases with rising levels of education. From these regressions, it is apparent that while the level of education may not positively influence a woman's participation in work, for women who are in the workforce, education is indicated as the most important determinant of better quality non-agricultural work.

It must be emphasised again that we are examining the outcome of social, cultural and economic processes. The potential availability of work is highest in rural areas for women whose households possess a measure of adequate landholdings. But even here, actual participation may be determined by socio-cultural factors as is evident from our results. The absence of education relegates women workers to wage work, whereas having education improves their chances of being in non-agricultural self-employment or regular work, with the latter mainly requiring higher education qualifications. Participation in wage work or non-agriculture also requires a greater measure of autonomy for women, confining the rest principally to self-employment in agriculture.

5.2 Determinants of Participation in Employment using NFHS, 2005-06 data

The National Family Health Survey (NFHS) has been carried out in India periodically since 1992-93. The latest round of results are available from the third round (NFHS-3) carried out in 2005-06. The NFHS collects detailed information on socioeconomic, reproductive and health characteristics of women in the age group 15-49, along with certain health and other characteristics of young children and the spouses of the women interviewed. Since the focus of the survey is on women in the reproductive age group, compared to the NSS, which covers the entire population, the NFHS gives the characteristics of a truncated age group of women (15-49 years).

The employment characteristics of these women are captured in the survey but not in the same manner or depth as the NSS. The survey enquires whether women are currently working (in the last 7 days) or have worked in the last year. It also asks whether they work for family production or paid. The women workers are classified as per their occupational categories. Logistic regression is used to estimate the influence of several variables on participation in employment, by status (self-employment or paid) and industry (agriculture-non-agriculture) so that the types of employment participation considered are similar to those in the NSS analysis. But it should be noted that the NFHS does not distinguish between paid casual and regular/salaried employment which are clubbed together.

The main distinguishing feature of the NFHS, because of which this data set has been analysed in this paper, is that it collects information on women's autonomy using a number of indicators. Among these indicators, it used a set of three indicators to capture women's freedom of mobility which in our view is central to their participation in the labour market. The three indicators of women's mobility are if they are allowed to go alone to the market/ health facility/ or outside the village or community.

The variables are similar to those used in earlier analysis, but with the following significant differences. First, this data has a younger age cohort. Second, as mentioned earlier, employment has been measured differently in this survey. Third, the NSS does not provide information on how many children a woman has, though it does give the number of children in a household. With NFHS data it is possible to identify the mothers with young children. Fourthly, this paper uses the synthetic wealth indicator given by NFHS which is built on a factor analytic score based on 33 assets. Finally, the NFHS does not allow us to estimate consumption expenditure as in the case of the NSSO and hence this variable has been dropped from the analysis.

The results of the Logit analysis are summarised in Appendix Table 2. These results are similar to the earlier results in many basic ways and are not discussed here. Attention is drawn only to fresh findings. Three main conclusions emerge sharply from the above analysis.

First, the role of education is delineated more sharply among this (younger) age cohort of women. Increasing levels of education increases the possibility of women being in non-agricultural vocations. This result holds separately, both for self-employment (where, however, a secondary or higher-secondary level of education leads to modal participation rates) as well as for paid work.

Second, women's autonomy, proxied here by their ability to make mobility decisions autonomously, significantly increases the probability of their participation in all types of employment, except agricultural self-employment. The reason for this is that whether it is in low paid work as casual labour or better paid work as regular workers, both take women out of the confines of the house and therefore require women to have freedom of mobility. However, where women do not have this freedom and are constrained by social norms to the home, but still need to work, self employment provides the answer.

Third, women with young children are most likely to be working as self employed in agriculture and least likely to be employed as paid workers or in non-agriculture. This suggests the urgent need to provide early child care and crèche facilities for rural women.

5.3 Determinants of State level Variations in Employment Participation

The large state-wise and regional difference in rural female employment participation in India has been alluded to earlier. The logit regressions in section 5 confirm these differences but the NSSO data set gives very limited measures of socio-cultural differences. We therefore explore the impact of additional variables, gleaned from other data sources such as the National Family Health Survey, the Agricultural Census, the Central Statistical Organisation, and the National Bank for Rural Development on state-level variations in female employment. A list of the variables considered for this analysis is given in Table 1.

Table 14: List of Variables and Variable Description

Variable	Description	Source
WPR_total	Workforce participation rate – Rural women 15-59 years	NSSO, 2004-05
WPR_nag	Workforce participation rate - non agriculture rural women workers	Same as above
WPR_naglab	Workforce participation rate - non agricultural female labour (Regular+Casual)	Same as above
WPR_RS	Workforce participation rate of Regular / salaried rural female workers	Same as above
WPR_SE	Workforce participation rate of Self Employed non agricultural rural female workers	Same as above
MYrSch_all	Mean years of schooling of all rural women	Same as above
FCwage_nag	Wage rate of rural female non agriculture casual labour	Same as above
Fwage_nag	Wage rate of rural female non agriculture labour (Regular+Casual)	Same as above
avg mpce	average rural Monthly Per Capita Consumption Expenditure	Same as above
Sh_R_ST/SC	Share of rural ST/SC population	Population Census 2001
Per_any_mob	Percentage share of women 15-49 years who can go alone to one of the following three places, market, health facility, outside village	NFHS 2005-06
Sh_Fholdarea	Share of Area in female holdings to total area of holdings	Agriculture Census 2000-01
SHG_RuHh	Total Self Help Groups per 100 rural households	NABARD
RD_exp_cap	Revenue Expenditure on Rural Development per capita (Rs.)	RBI State Finance
SGDP_cap	State Gross Domestic Product per capita (Rs.)	Central State Organisation

Note: Based on computations carried out by the authors.

Appendix Table 3 presents the total and sectoral workforce participation rates across twenty states in 2004-05. The WPRs by employment status and sector are also presented. Total WPRs are high in some of the Southern (Andhra Pradesh, Tamil Nadu and Karnataka), Western (Maharashtra, Gujarat, Rajasthan) and Hill (Himachal, Uttaranchal)

states. They are the lowest in the Eastern states (West Bengal, Assam, Bihar). There are important sectoral differences. For example, states such as Kerala, West Bengal and Orissa which have low total WPRs show a high participation of women in non-agriculture and the highest participation rate of women in regular work is in Kerala. The state level values of the other variables, as well the correlation between the variables is given in Appendix Tables 4 and 5 respectively.

It is anticipated that these differences could be a result of supply related characteristics such as (i) the percentage of SC/ST households in a state; (ii) mean years of education of women, (iii) variables which could proxy women's autonomy to undertake economic activity (independent mobility; control of land holdings, participation in Self-help groups); and (iv) rural wages; or (v) employment demand (mean rural income proxied by per capita consumption expenditure, per capita State Domestic Product, or expenditure on rural development programmes).

Since our objective is to understand not only total work force participation rates, but also women's participation in specific types of work, especially in non-agriculture, these rates are regressed for 20 states across the above mentioned variables, selecting only one variable in (iii) and (v) above. The 'best' fits are presented below. Some of the independent variables that were considered were found to be highly correlated, in particular with Mean Years of Education and were dropped from the analysis. Fewer numbers of variables have therefore been tested and used in the regression analysis.

The results of the regression are presented in Table 15. These are briefly discussed below.

Total WPR: The share of SC/ST in the total population is highly significant variable. A one percent increase in the share of SC/ST in the population would increase total WPR by one percent. Share of women operated holdings in total is also marginally significant (at 6% level). The Mean Years of education of the population is not significant.

WPR in non-agriculture: The Mean Years of Education of the female population and the density of Self-help Groups (per 100 population) are both significant variables. Increase in Mean Years of Education would increase the WPR of women in non-agricultural vocations by 1.35.

WPR in non-farm self-employment. The only variable significant in this case is the state Density of Self-help groups. The Mean Educational attainment of women in a state is not a significant determinant of state level variation of WPR in non-farm self-employment.

WPR in non-agricultural wage work: Mean Years of education and Share of area operated by women are both significant variables (at 5% level). A one level increase in education would increase the WPR in non-agricultural wage work by 0.81. The coefficient of share of area operated by women is 0.21.

WPR in non-agricultural regular/salaried work. Mean Years of education is a highly significant variable; one level increase in education would increase the WPR in regular/salaried work by 0.82. The share of area in holdings operated by women is also significant but only at 10 percent level of significance. The coefficient of this variable is quite low (0.09).

Table 15: Regression Equations for State level Determinants of Workforce Participation of Rural Women

1	WPR_total = 3.848 - 2.299 MYrSch_all + 0.841 Sh_R_STSC**** + 1.436 Sh_Fholdarea**** + 0.001 GDP_cap
	R ² = 0.495; Adj. R ² = 0.360 F = 3.671**
2	WPR_nag = 0.519 + 1.135 MYrSch_all**** + 1.854 SHG_RuHh*
	R ² = 0.494 Adj. R ² = 0.431 F=7.811*
3	WPR_SE = 1.214 + 0.106 MYrSch_all + 1.268 SHG_RuHh*
	R ² = 0.461 Adj. R ² = 0.394 F = 3.847*
4	WPR_naglab = -0.469 + 0.815 MYrSch_all** + 0.215 Sh_Fholdarea**
	R ² = 0.515 Adj. R ² = 0.458 F = 9.037*n
5	WPR_RS = -1.124 + 0.823 MYrSch_all* + 0.086 Sh_Fholdarea****
	R ² = 0.686 Adj. R ² = 0.649 F = 18.604*
*	significance at 1 percent level
**	significance at 5 percent level
***	significance at 10 percent level

Discussion: The share of SC/ST in the population emerges as the only significant variable in explaining inter-state variation in total rural female WPR. However, interstate variations in WPR in non-agriculture as a whole, as well as participation in non-agricultural wage labour are determined by the average educational level of the female population and by variables which reflect women's economic autonomy and control over resources (density of self-help groups or control over land holdings). However, education is not a significant variable in explaining the inter-state variations in participation by women in non-agricultural self-employment, but here also their autonomous participation in self-help groups is an important determinant. It has already been noted that the above regression analysis has been able to incorporate demand side factors to a very limited extent. This probably accounts for the fact the adjusted Coefficient of Determinations are on the low side. Nevertheless, these results which focus on state level variation reinforce the results in sections 5.1 and 5.2 and bring out the role of education and women's autonomy in promoting women's employment outside agriculture.

6. Conclusion and Policy Implications

While women workers in general constitute a marginalised category within the class of workers, rural women workers occupy a lower position compared to their urban counterparts, and the lowest layer among them is constituted by those belonging to the bottom strata of the society i.e. SCs and STs.

Women's time use in economic activities that give them a return is limited but their participation in household activities that indirectly contribute to the economic output of the household (called extended SNA) far exceeds that of men. But women have lower work participation rates in SNA activities. For rural women these are higher than urban women but also closer to men. These rates are also higher for women belonging to SCs/STs than the other women. A significant percentage of rural women workers are engaged in subsidiary status work.

An important argument in this paper is that higher work participation rates *per se* do not indicate a higher level of welfare. Only when higher work participation rates are accompanied by higher educational capabilities and/or asset and income, higher work participation rates become meaningful from a welfare and, especially, income point of view. We show that rural women workers are concentrated in agriculture to a much larger extent than men. On the other hand, a much smaller proportion among them work in non-agricultural jobs, particularly the more valued regular/salaried jobs. The conditions of work, especially of women wage worker, are quite dismal. Women workers are also subjected to various forms of discrimination including job-typing which gives them a lower wage compared to men. Among the women wage workers, a proportion of those who report regular employment also work in poor conditions, receiving low wages with long hours of work, no social security and very few holidays. The position of self-employed women in non-agriculture is also poor. Their capital base is low and consequently their value addition is also low. One third of them operate from their own homes.

The overall picture that emerges is one of greater disadvantage for women workers in general and those belonging to rural as well as SCs/STs in particular. Apart from inherited social disadvantages in a patriarchal structure, the other important contributory factors are a limited access to assets and other resources, and low level of education and skills. We show that women with low levels of education and autonomous mobility whose households operate land are concentrated in agriculture as self-employed. Poorer women who lack land but have some degree of mobility are concentrated in agricultural wage work which pays most poorly. All types of non-agricultural work require, on average, relatively more education and some degree of autonomy. The more valued jobs require a greater quantum of these. We show that these variables also determine the variations in women's participation in the more valued jobs outside agriculture. The poor status of rural women in terms of their autonomy and control over assets (a picture which is regionally somewhat differentiated), and low level of education and employable skills calls for interventions of a

promotional nature from different entry points. In this concluding section we draw attention to some of the major issues which emerge from our analysis;

1. A higher level of education and employable skills for women workers is a *sine qua nom* for improving their levels of productivity and enabling them to move into non-agricultural vocations. The emphasis on universalising elementary education has undoubtedly narrowed the enrolment gap between men and women, but given the low levels of education and employable skills and the gap between men and women workers, initiatives should also focus on the exiting workforce. Further, as the results of this paper and the evidence from other studies shows, break point occurs when women and men acquire a higher secondary level of education, enabling them to enter higher quality jobs (Srivastava 2008).
2. Women's autonomy, measured here in terms of access to land and control over its operation, mobility, and willingness to join self-help groups affects their ability to access resources and improve productivity, and also to move into non-agricultural vocations. Such autonomy responds to a complex set of social factors. But policy initiatives can move the frontier outwards and can improve women's access to knowledge, technology and resources, empowering them as economic agents. Fostering a group approach, drawing upon some of the existing experiences documented by FAO and Indian experiences can help to overcome many of the existing asymmetries (Rouse 1996, NCEUS 2008).
3. The bulk of women workers remain in agriculture as farmers and the most recent figures indicate an increase in their proportion among farmers. As shown by a Planning Commission Sub-group (Planning Commission 2007) and by NCEUS (2008), they are regarded as peripheral producers and are marginal recipients of benefits of government programmes and from development and credit institutions. There is a strong need for a gender sensitive agricultural strategy which strengthens the role of women workers in all aspects of agriculture.
4. Labour market segmentation and discrimination has kept the returns to women workers low, in most cases well below the legal minimum. The analysis in this paper supports the creation of a body which can examine the issue of valuation of women's work in those activities in which women predominate in fixing minimum wages in casual wage work as well as home based work. This is in line with a recent proposal made by the National Commission for Enterprises in the Unorganised Sector which has asked for the creation of a Skill Certification Council (NCEUS 2007). The Commission has also recommended a tri-partite dispute settlement framework which can help to enforce non-discriminatory practices in the informal labour market in India.
5. Finally, rural women workers, especially agricultural labourers, have high rates of unemployment and underemployment among women workers. These workers also receive abysmally low wages for a variety of reasons. The National Rural

Employment Guarantee Programme which has been initiated in 2006 and which has now been extended to all rural areas can play a major role in improving demand for women's labour, increasing reservation wages, and setting labour standards in rural areas. While some impact has already been felt in a number of areas, much more needs to be done to implement this scheme effectively and to increase opportunities for quality and decent work in rural areas. In our view this programme constitutes the axis around which the employment conditions of the poorest women workers can improve in rural India.

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APPENDIX

Appendix Table 1: Results (Odds Ratios) of Logistic Regression for Women/Women Workers, 15-59 Years, 2004-5 (NSSO)

	1 = Employed; 0 = Unemp./ Not in Labour Force	1 = Agricultu re Self- employed; 0 = Other Workers	1 = Agriculture Wage Workers; 0 = Other Workers)	1 = Non- agriculture; 0 = Other Workers)	1 = Non- agriculture: Self- employed; 0 = Other Workers)	1 = Non- agriculture: Regular Workers; 0 = Other Workers)	1 = Non- agriculture: Wage Workers; 0 = Other Workers)
	1	2	3	4	5	6	7
Age (Ref: 15-29)							
30 – 44	1.806*	0.985	0.870*	1.135*	0.965	1.959*	0.873
45 – 59	1.194*	1.340*	0.744*	0.91	0.806*	2.102*	0.581*
Marital Status (Ref: Never Married)							
Currently Married	1.479*	1.585*	0.913	0.643*	0.688*	0.730*	0.607*
Widowed	2.233*	0.807*	1.184	1.061	0.739*	2.280*	1.174
Divorced/ Separated	3.387*	0.554*	1.28	1.308	0.771	2.740*	1.394
Education (Ref: Illiterate)							
Below Primary	0.707*	0.861*	0.908	1.377*	1.338*	2.203*	0.891
Primary & Middle	0.514*	0.951	0.517*	1.850*	1.637*	4.703*	0.791*
Secondary & HS	0.341*	0.430*	0.225*	4.787*	1.740*	32.724*	0.436*
Graduate & Above (Diploma)	0.588*	0.053*	0.054*	30.184*	1.480*	178.236*	0.279*
Social Group (Ref: ST)							
SC	0.419*	0.516*	1.575*	1.429*	1.529*	1.269	1.167
OBC	0.425*	0.925	0.849*	1.442*	2.116*	0.677*	0.835
Others	0.335*	0.987	0.660*	1.503*	2.152*	0.741*	0.886
Religion (Ref: Hindu)							
Muslims	0.443*	0.689*	0.608*	2.074*	2.065*	1.198	1.318
Other Religions	1.259*	1.365*	0.739*	0.933	1.063	0.862	0.642*
Households with Children aged <= 5 (Ref: No)							
Yes	0.955	1.123*	0.867*	0.983	1.012	1.031	0.871
Land Possessed (Ref: Landless)							
Sub-marginal & Marginal	1.288*	9.366*	0.402*	0.500*	0.634*	0.450*	0.595*
Small	1.764*	44.659*	0.105*	0.154*	0.226*	0.220*	0.154*
Medium-Large	1.761*	106.512*	0.025*	0.091*	0.127*	0.166*	0.092*
MPCE Quintile (Ref: Lowest Quintile)							
Fourth Quintile	0.864*	1.542*	0.697*	0.941	0.939	0.938	0.987
Third Quintile	0.759*	1.937*	0.548*	0.936	0.941	1.206	0.842
Second Quintile	0.724*	2.262*	0.369*	1.092	1.176*	1.264	0.773
First/ Highest Quintile	0.646*	2.327*	0.226*	1.299*	1.17	1.881*	0.735*
State (Ref: Eastern)							
Western	4.576*	1.079	2.282*	0.397*	0.333*	0.508*	1.179
Central	1.845*	1.530*	1.07	0.551*	0.520*	0.979	0.679*
North-east	1.610*	1.510*	0.755*	0.577*	0.586*	0.638*	0.999
North	4.786*	8.740*	0.239*	0.120*	0.117*	0.309*	0.300*
South	3.904*	0.429*	2.962*	0.878*	0.785*	1.002	1.213

* Denotes Significance at 0.001 %

Note: Total number of observations (women): 113,877. Total number of women workers in sample: 55,234

Source- Computed from National Sample Survey, 2004-05, unit level data, Sch. 10-10.1

Appendix Table 2: Results (Odds Ratios) of Logistic Regression for Rural Women Workers, 15-49 Years, 2005-6 (NFHS)

	0 = Unemployed /Not in Labour Force; 1= Employed	1 = Other Workers; 2 = Self-Employed in Agriculture	1 = Other Workers; 2= Employed in Agriculture Wage Workers	1 = Other Workers; 2 = Employed in Non-Agriculture	1 = Other Workers; 2 = Employed as Self-empl. In Non-agric.	1 = Other Workers; 2 = Employed as Paid Non-agric. Wage Workers
	1	2	3	4	5	6
Constant	5.179*	0.456	0.866	0.286	0.061	0.201
Age (Ref: 15-29)						
30 – 44	1.646*	1.039	0.906	1.031	1.057	0.984
45 – 59	1.422*	1.294*	0.703*	0.981	1.092	0.893
Marital Status (Ref: Never Married)						
Currently Married	0.750*	1.355*	1.045	0.671*	0.712*	0.798*
Widowed	1.318*	0.681*	1.111	1.357*	1.049	1.545*
Divorced/ Separated	1.798*	0.557*	1.383	1.295	1.013	1.483*
Education (Ref: Illiterate)						
Below Primary	0.789*	0.922	0.934	1.227*	1.163	1.259*
Primary & Middle	0.562*	0.938	0.673*	1.489*	1.451*	1.381*
Secondary & HS	0.508*	0.485*	0.312*	3.463*	2.543*	2.301*
Graduate & Above (Diploma)	1.287*	0.100*	0.098*	15.870*	2.502*	4.832*
Social Group (Ref: ST)						
SC	0.448*	0.339*	2.201*	1.822*	1.684*	1.540*
BC	0.541*	0.893	1.193*	1.044	1.363*	0.841*
Others	0.397*	0.647*	1.087	1.597*	1.662*	1.279*
Religion (Ref: Hindu)						
Muslims	0.468*	0.537*	0.780*	2.413*	1.580*	2.318*
Other Religions	0.960	1.465*	0.842	0.736*	0.850	0.871
Women with Children aged <= 5 (Ref: No)						
Yes	0.880*	1.317*	0.843*	0.812*	0.912	0.806*
Mobility of Women (Ref: None of the three types)						
At Least one of three types	1.505*	0.648*	1.248*	1.442*	1.323*	1.350*
Wealth Index (Ref: Poorest)						
Poorer	0.741*	1.447*	0.725*	0.850*	0.968	0.820*
Middle	0.556*	1.644*	0.498*	1.022	1.324*	0.833*
Richer	0.364*	1.409*	0.270*	1.644*	2.076*	1.058
Richest	0.214*	0.719*	0.073*	3.763*	3.521*	1.470*
State (Ref: East)						
North	1.200*	1.747*	1.229*	0.410*	0.414*	0.675*
West	3.024*	1.364*	1.338*	0.493*	0.490*	0.670*
Central	1.454*	1.132	1.136*	0.750*	0.472*	1.193
North-east	1.194	0.621*	0.881*	1.545*	1.591*	0.951
South	2.000*	0.368*	3.484*	0.995	0.589*	1.534*

* Denotes significance at 0.001 %

Note: Total number of observations (rural women, aged 15-49); 63,896. Total number of women workers: 31,044

Source- Computed from National family Health Survey, 2005-06 Unit Level Records.

Appendix Table 3: Rural Female Workforce Participation Rate (UPSS), 15-59 Years, 2004-05

State	Total WPR	In: Agriculture				In: Non-agriculture			
		Self Employed	Regular/ Salaried	Casual Labour	Total	Self Employed	Regular/ Salaried	Casual Labour	Total
Andhra Pradesh	70.5	23.0	0.0	32.3	55.3	10.3	2.8	2.0	15.2
Assam	33.1	21.7	2.0	5.6	29.3	1.4	0.9	1.5	3.8
Bihar	23.8	9.5	0.1	10.9	20.5	2.8	0.3	0.2	3.3
Chhatisgarh	75.2	38.5	0.1	31.7	70.2	2.2	1.0	1.8	5.1
Gujarat	67.0	36.7	0.0	22.8	59.5	3.1	1.8	2.6	7.4
Haryana	52.2	41.7	0.1	5.6	47.4	2.4	1.2	1.2	4.8
Himachal Pradesh	73.5	65.9	0.0	0.6	66.4	2.0	4.2	0.9	7.1
J&K	40.8	35.3	0.0	0.1	35.3	3.2	1.4	1.0	5.5
Jharkhand	51.2	36.7	0.1	7.0	43.7	3.4	0.9	3.1	7.4
Karnataka	65.9	25.7	0.1	30.6	56.3	6.1	2.0	1.4	9.5
Kerala	36.0	11.8	0.5	5.5	17.8	6.3	7.0	4.8	18.1
Madhya Pradesh	60.9	32.1	0.2	21.4	53.6	3.1	1.9	2.3	7.3
Maharashtra	70.7	32.8	0.1	30.9	63.9	3.5	1.8	1.5	6.8
Orissa	48.3	21.0	0.0	15.3	36.3	8.5	1.1	2.5	12.1
Punjab	48.5	40.8	0.1	2.6	43.5	2.3	2.3	0.5	5.0
Rajasthan	67.7	55.8	0.1	4.6	60.4	2.9	0.9	3.5	7.3
Tamilnadu	66.6	20.5	0.1	28.2	48.8	9.8	4.5	3.6	17.8
Uttaranchal	67.3	60.8	0.0	3.5	64.3	0.9	1.3	0.7	3.0
Uttar Pradesh	40.5	30.2	0.1	4.9	35.2	4.0	0.7	0.7	5.3
West Bengal	27.7	8.7	0.9	7.0	16.5	8.2	1.5	1.5	11.1
Total	51.1	27.3	0.2	15.0	42.6	5.0	1.7	1.8	8.5

Source- Computed from National Sample Survey, 2004-05, unit level data, Sch. 10-10.1

Appendix Table 4: Indicators of Socio-economic Characteristics and Women's Autonomy across States, 2004-05/2005-06

State	MYrSch_a ll	FCwage_na g	Fwage_nag	Sh_R_ST/S C	Per_any_mo b	Sh_Fholdare a	SHG_RuH h	avg mpce	Rd_exp _cap
Andhra Pradesh	2.20	41.0	50.6	27.4	51.8	16.6	6.74	587	309.7
Assam	3.48	49.7	81.0	28.2	68.9	1.8	2.92	551	285.7
Bihar	1.64	33.6	84.1	24.3	41.7	8.9	0.75	432	185.4
Chhatisgarh	2.10	40.6	51.7	52.1	47.5	8.0	1.85	435	433.2
Gujarat	3.08	55.0	82.2	33.7	63.2	10.4	1.67	621	201.0
Haryana	3.65	61.6	84.9	27.3	50.1	9.3	0.39	860	245.4
Himachal Pradesh	5.24	60.1	139.8	33.6	80.7	4.8	1.91	777	150.1
J&K	3.18	53.4	89.1	14.4	67.3	5.8	-	723	118.6
Jharkhand	1.49	42.9	61.3	42.6	49.7	8.9	1	444	265.8
Karnataka	3.05	35.6	57.2	30.3	48.7	13.2	2.73	517	185.2
Kerala	7.44	58.6	100.8	13.6	62.0	16.2	2.05	926	79.6
Madhya Pradesh	1.69	41.5	37.2	43.0	43.5	5.1	3.2	446	310.7
Maharashtra	4.14	35.5	78.9	26.9	62.2	13.6	1.46	569	143.4
Orissa	2.86	35.2	57.4	44.7	29.2	2.8	3.47	393	239.0
Punjab	4.72	48.7	117.8	41.7	54.0	0.6	0.2	834	94.7
Rajasthan	1.38	51.7	60.4	37.8	45.7	3.4	1.07	583	237.1
Tamilnadu	3.56	46.0	63.0	27.1	84.6	15.1	4.72	563	116.9
Uttaranchal	3.96	82.2	128.2	27.1	55.8	6.4	2.58	611	410.2
Uttar Pradesh	2.29	44.6	74.8	26.1	39.1	4.7	1.96	506	159.4
West Bengal	2.85	37.2	49.3	35.3	48.4	2.1	1.67	537	217.6

Note: Refer Table 15 for Variable Details and Sources

Appendix Table 5: Correlation Matrix

Variable	WPR_tot	WPR_nag	WPR_naglab	WPR_RS	WPR_SE	MYrSch_all	FCwage_nag	Fwage_nag	Sh_R_S T/SC	Per_any_mob	Sh_Fholdarea	SHG_RuHh	avgmpce	Rdexp_cap	GDP_cap
WPR_tot	1	0.07	0.16	-0.01	-0.03	-0.05	0.18	-0.01	0.35	0.24	0.33	0.29	0.04	0.32	0.38
WPR_nag	0.07	1	.83(**)	.70(**)	.87(**)	0.31	-0.20	-0.30	-0.19	0.20	.57(**)	.60(**)	0.12	-0.32	0.23
WPR_naglab	0.16	.83(**)	1	.88(**)	.45(*)	.58(**)	0.15	0.03	-0.23	0.43	.54(*)	0.31	0.41	-0.35	0.37
WPR_RS	-0.01	.70(**)	.88(**)	1	0.35	.79(**)	0.22	0.27	-0.39	.60(**)	0.42	0.29	.56(*)	-0.43	0.44
WPR_SE	-0.03	.87(**)	.45(*)	0.35	1	-0.01	-0.44	-.50(*)	-0.10	-0.05	0.44	.68(**)	0.16	-0.22	0.05
MYrSch_all	-0.05	0.31	.58(**)	.79(**)	-0.01	1	.46(*)	.67(**)	-.46(*)	.53(*)	0.21	-0.09	.78(*)	-.49(*)	.65(**)
FCwage_nag	0.18	-0.20	0.15	0.22	-0.44	.46(*)	1	.70(**)	-0.31	0.39	-0.07	-0.13	.61(*)	0.13	0.36
Fwage_nag	-0.01	-0.30	0.03	0.27	.50(*)	.67(**)	.70(**)	1	-0.36	.46(*)	-0.15	-0.35	.66(*)	-0.29	0.42
Sh_R_S T/SC	0.35	-0.19	-0.23	-0.39	-0.10	-.46(*)	-0.31	-0.36	1	-0.40	-0.43	-0.13	.49(*)	.50(*)	-0.15
Per_any_mob	0.24	0.20	0.43	.60(**)	-0.05	.53(*)	0.39	.46(*)	-0.40	1	0.28	0.16	.48(*)	-0.35	.50(*)
Sh_Fholdarea	0.33	.57(**)	.54(*)	0.42	0.44	0.21	-0.07	-0.15	-0.43	0.28	1	0.41	0.12	-0.14	0.33
SHG_RuHh	0.29	.60(**)	0.31	0.29	.68(**)	-0.09	-0.13	-0.35	-0.13	0.16	0.41	1	0.25	0.22	-0.11
avgmpce	-0.04	0.12	0.41	.56(**)	-0.16	.78(**)	.61(**)	.66(**)	-.49(*)	.48(*)	0.12	-0.25	1	-.48(*)	.71(**)
Rdexp_cap	0.32	-0.32	-0.35	-0.43	-0.22	-.49(*)	0.13	-0.29	.50(*)	-0.35	-0.14	0.22	.48(*)	1	-0.34
GDP_cap	0.38	0.23	0.37	0.44	0.05	.65(**)	0.36	0.42	-0.15	.50(*)	0.33	-0.11	.71(*)	-0.34	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Note: Refer Table 15 for Variable Details and Sources

Notes

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¹ If a person is not in the labour force (neither employed nor employed), she could be engaged in other types of activities including domestic duties. The Central Statistical Organisation of the Government of India provided official visibility to the double burden of work through a pilot study of utilization of time by men and women in six states in 1998 (CSO 2000). The report classified the activities based on the 1993 System of National Accounts (SNA) into three categories: (i) Economic activities that are included in the SNA; (ii) Activities not currently included in the SNA but are characterised as 'extended SNA', which include household maintenance and care for the children, old and the sick in the household; and (iii) Non-SNA consisting of the social and cultural activities, leisure and personal care. The study confirmed that women spend a disproportionate amount of time in what is called 'extended SNA'. On the other hand men spend a much greater time in SNA activities than women. As for non-SNA activities, the difference was not as striking. In short women spent 17 per cent more time in SNA plus extended SNA activities compared to men.

² For definitions of these terms see NCEUS (2007).

³ The currency reference is the US dollar.