

Changes in the Rural Labour Market and Their Implications for Agriculture

RAMESH CHAND, S K SRIVASTAVA

The rural labour market is undergoing significant changes mainly due to rising employment opportunities outside agriculture. The real wage rate for farm as well as non-farm rural labour is moving upwards. This has serious implications for the farm sector. This study examines the trend and pattern of rural labour diversification and identifies the underlying factors for this change. The movement of workers outside the agriculture sector was found to be influenced by a complex set of factors such as the pattern of economic growth, inter-sectoral differences in the wage rate and worker productivity, government programmes, education, and sociocultural factors prevailing in rural India.

The Indian economy is undergoing a structural transformation from traditional (agriculture or informal) sectors towards the modern (industrial or formal) sectors. This transformation has been relatively slow in labour employment than in output. However, the labour market has recently also started catching up with the changes in the sectoral composition of output. This is more visible from the changes in rural wage rate than in the employment share of various sectors. Between 1993-94 and 2009-10, the share of the agriculture sector in rural employment declined from 78.43% to 67.96%, while agricultural wage rates (for male workers) followed an increase of 2.69% per year in real terms compared to a 1.75% increase in wage rate of non-agriculture labour in rural India.

This has serious implications for the farm sector. Across the country farmers are complaining about scarcity, and even non-availability, of hired labour for various farm operations (Gulati et al 2013). The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is often blamed for this situation. Similarly, strong concerns are expressed about the diminishing interest of members of farm families to stay and work in agriculture. There is particular concern about youth leaving agriculture and its effect on feminisation of the sector. The available literature on the labour market does not provide clear evidence on these perceptions and there is hardly any discussion on preparing the agriculture sector to adjust to emerging changes in the rural labour market. Against this background, this paper examines the changes taking place in the structure of the rural workforce and analyses the underlying factors for these changes. It examines the long-term changes in total and agricultural workforce and occupational diversity for male and female populations in rural India. It also attempts to identify the factors affecting changes in rural labour supply. The paper also discusses the implications of the changes in the rural labour market vis-à-vis the future of agriculture and agricultural research and development (R&D).

The main hypotheses of this paper are: (a) the rural labour market is becoming increasingly competitive and diversified which is leading to a rise in real wages and their convergence across sectors and across gender, a process that has been accelerated by large-scale public employment under MGNREGS; (b) women's participation in agricultural activities is declining; and (c) there is a strong linkage between rise in non-farm rural employment and real wages, and between real wages and agricultural prices.

The authors thank an anonymous referee of the journal for pointing out deficiencies in the original version of the paper and for suggestions for revision. However, the final paper is entirely that of the authors.

Ramesh Chand (rc@ncap.res.in) and S K Srivastava (sksrivastava@ncap.res.in) are with the National Centre for Agricultural Economics and Policy Research, New Delhi.

Data and Methodology

Changes in the rural labour market were studied using National Sample Survey Office (NSSO) data on employment and unemployment (E&U) pertaining to the years 1993-94 and 2009-10. Most of the studies on rural labour have compared changes in number of workers and labour composition between successive NSSO rounds, for example, 1999-2000, 2004-05 and 2009-10. These studies found opposite trends in labour use, in particular female labour employment in rural areas, between 1999-2000 and 2004-05 and between 2004-05 and 2009-10. For instance, the period from 1999-2000 to 2004-05 shows rising feminisation and 2004-05 to 2009-10 shows reduced share of women workers in rural labour. Based on these changes, which show a contradictory trend, inferences have been drawn by well-known studies. It is also admitted by some researchers that short-term employment trends are puzzling (Hirway 2012: 67). Our contention is that short-run fluctuations in rural labour use could be due to several factors and may not represent the underlying trend. Moreover, there were some serious issues related to recall or reference period in the NSSO 1999-2000 round.¹ Further, 2009-10 was a drought year and its comparison with the year 2004-05, covering a period of only five years, will show the strong effects of the drought. This type of effect gets diluted when a comparison is made over a longer period. Therefore, this paper compares changes between 1993-94 and 2009-10. These changes help us in drawing reliable inferences about developments in the rural labour market.

Changes in the sectoral composition of rural output were examined using data on net domestic product (NDP) taken from the National Accounts Statistics published by the Ministry of Statistics and Programme Implementation (MOSPI). Information on various aspects of MGNREGS was taken from the Ministry of Rural Development (www.nrega.nic.in) as well as the recent National Sample Survey (NSS) report on E&U. The effect of MGNREGS on wage rate was examined by studying gender- and sector-wise growth in wage rate during six years before (from 1995-96 to 2005-06) and after (from 2005-06 to 2011-12) the launch of the scheme. For this purpose, time series data (from 1995-96 to 2011-12) on daily wage rate have been collected from *Agricultural Wages in India* published by the Directorate of Economics and Statistics (DES). Nominal wage rates for agriculture and non-agricultural sectors were expressed in real terms (at 1986-87 prices) by using the consumer price index for agricultural labourers (CPIAL) and consumer price index for rural labourers (CPIRL) as deflators, respectively. Lastly, the implications of changes taking place in the rural labour market on agriculture were studied by testing the causal relationship between real wage rate and agricultural prices by applying the Granger Causality Test (Gujarati 2004: 696-703). The test involves estimating the following pair of regressions:

$$WPIAGRI_t = \sum_{i=1}^n \alpha_i WAGERATE_{t-i} + \sum_{j=1}^n \beta_j WPIAGRI_{t-j} + U_{1t} \quad \dots(1)$$

$$WAGERATE_t = \sum_{i=1}^n \gamma_i WPIAGRI_{t-i} + \sum_{j=1}^n \delta_j WAGERATE_{t-j} + U_{2t} \quad \dots(2)$$

where *WPIAGRI* is wholesale price index for agricultural commodities and *WAGERATE* is real wage rate, that is, nominal

wage rate deflated by CPIAL with 1986-87 base. Equation 1 postulates that the current *WPIAGRI* is related to past values of itself as well as that of *WAGERATE*, and equation 2 postulates similar behaviour for wages.

Granger causality requires the data series to be stationary. An augmented Dickey-Fuller test revealed that both the series (*WAGERATE* and *WPIAGRI*) in our data set were non-stationary even when they were expressed in log form. Therefore, first differencing of logarithmic transformation was taken which made the series stationary. Further, the number of lags included in the regression was found using Akaike information criteria (AIC) and Schwarz information criteria. After these requirements were satisfied, the Granger causality tests were applied and significance level was tested using the F-test.

Results and Discussion

Trend in Rural Employment Based on Usual Status

According to NSSO data pertaining to the year 2009-10, about 73% of the total workforce, numbering 460 million, based on usual status were employed in rural areas. Changes in the number of workers and worker population ratio (WPR) between 1993-94 and 2009-10 are presented in Table 1. The total workforce in rural India increased annually only by 2.7 million as against an annual increase of 10.36 million in total rural population. The number of male workers increased from 187.7 million to 231.8 million, showing an increase of 23.5% over a 16-year period. In contrast, the number of female workers remained at the level of about 105 million. As a result, the WPR for the female population declined from around 33% to 26.10% and their share in the rural workforce declined from 35.81% to 31.09% between 1993-94 and 2009-10. This pulled down the total WPR for rural India from 44.40% to 40.80% with a marginal decline in male WPR. This trend is not in conformity with the oft-repeated phenomenon of a demographic dividend in India as revealed by a rise in the share of population in the age group of 15-59 in the total population.² This is a pointer to the fact that India is not fully reaping the benefits of demographic transition by suitably employing its younger population.

Table 1: Trends in Employment in Rural India Based on Usual Status

Year	Workforce (million)			Worker Population Ratio (%)		
	Male	Female	Person	Male	Female	Person
1993-94	187.8	104.8	292.6	55.3	32.8	44.4
2009-10	231.9	104.6	336.5	54.7	26.1	40.8
Change	44.1	-0.1	43.9	-0.6	-6.7	-3.6

Workforce was estimated by multiplying the rural population with WPR. Source: Gol (2011: 76).

The WPR of females based on the usual status was 60% of the WPR of males in 1993-94. Rather than moving closer to the WPR of males over time, it further declined to less than half of the male WPR. The underlying reason for the decline in WPR can be either a higher rate of population growth than the workforce (Table 2, p 49) or withdrawal by some from the workforce (Hirway 2012; Kannan and Raveendran 2012) or both. Decline in WPR for the male workers, though very small, was due to a comparatively higher rate of growth in the male population as compared to the workforce. As can be seen from Table 2, the

male population increased at an annual rate of 1.40%, whereas the male workforce increased by 1.30% a year. In the case of females, there was a decline even in the absolute number of workers between 1993-94 and 2009-10, as per NSSO data. Thus a decline in WPR was obvious and this happened due to the decline in female employment in the agriculture sector.

The trend in sectoral employment in rural India shows that the overall employment in agriculture declined by 0.02% a year. Male employment in agriculture showed a small increase but female employment declined by half a per cent per year. The withdrawal of female labour from agriculture could result from two sets of reasons – one related to distress and the other to development. It has been observed that women, particularly of landowning households, work in agriculture under distress and they are withdrawn from farm work once the economic conditions of the household improve. They, in turn, can then be confined to household activities or studies. In rural India, both these factors operate (Rangarajan et al 2011). The net effect of these changes on the welfare of women needs further investigation.

Table 2: Structure of Employment and Population by Gender in Rural India (in million)

Sector	Male			Female			Persons		
	1993-94	2009-10	CGR	1993-94	2009-10	CGR	1993-94	2009-10	CGR
Agriculture	139.1	145.6	0.29	90.3	83.2	-0.52	229.4	228.7	-0.02
Industry	13.1	16.2	1.33	7.3	7.9	0.42	20.5	24.1	1.02
Construction	6.0	26.2	9.64	0.9	5.4	11.58	6.9	31.6	9.94
Services	27.6	41.5	2.58	5.9	7.9	1.92	33.5	49.5	2.47
Total workforce	187.8	231.9	1.33	104.8	104.6	-0.01	292.5	336.5	0.88
Total population	339.5	423.9	1.40	319.4	400.8	1.43	658.9	824.7	1.41

The number of workers in each industry was estimated by multiplying male and female populations with WPR and industry-wise employment distribution.

CGR: Compound Growth Rate (% per year) estimated by authors.

Source: Computed by authors using data from the same source as in Table 1.

While female workers moved out of the agriculture sector there was no commensurate increase in their employment in the non-agricultural sector, which resulted in complete stagnation in the number of female workers in rural areas. Among various sectors, employment in construction witnessed a sharp increase, both for male as well as female labour, with an average annual growth rate of more than 9%. However, due to its low base and share in 1993-94, employment opportunities in the construction sector did not show much impact on growth in total employment. The industry sector, which is considered to be an engine of transformation, showed lacklustre performance in raising rural employment. The workforce in the services sector experienced modest growth of 2.47% per year.

Changing Structure of Rural Employment in India

The agriculture sector is the biggest employer in rural India. This sector provided employment to close to 68% of the total rural workforce based on usual status in 2009-10 (Table 3). The rural labour market in India is undergoing a significant change away from agriculture towards non-farm sectors. The share of agriculture in total rural employment declined by 10.47 percentage points (11.30 percentage points for male and 6.80 percentage points for female) between 1993-94 and 2009-10. On the other hand, industry, construction and services

sectors witnessed an increase in share though at varying levels. This indicates increasing diversification in rural employment which needs to be accelerated further for improved livelihood security. The big push for this shift in employment has come from the construction sector. It is a matter of concern that the share of industry in rural employment remained at the same level during the last 16 years. Gender-wise disaggregation revealed a higher concentration of female workers in agriculture as compared to their male counterparts – 79.40% of total female workers and 62.80% of male workers were employed in the agriculture sector in 2009-10. It needs to be mentioned that despite the higher percentage of women working in agriculture as compared to men, women constituted only 36% of the total agriculture workforce while men constituted 64% share of the workforce in 2009-10. It is also important to mention that the share of women in total agricultural workers declined from 39.4% to 36% between 1993-94 and 2009-10. This indicates that Indian agriculture is heading towards (de)feminisation in the workforce.

Table 3: The Share of Different Sectors in Total Rural Employment (in %)

Sector	Male			Female			Persons		
	1993-94	2009-10	Change	1993-94	2009-10	Change	1993-94	2009-10	Change
Agriculture	74.10	62.80	-11.30	86.20	79.40	-6.80	78.43	67.96	-10.47
Industry	7.00	7.00	0.00	7.00	7.50	0.50	7.00	7.16	0.16
Construction	3.20	11.30	8.10	0.90	5.20	4.30	2.38	9.40	7.03
Services	14.70	17.90	3.20	5.60	7.60	2.00	11.44	14.70	3.26
Total	100	100	–	100	100	–	100	100	–
	(187.8)	(231.9)		(104.8)	(104.6)		(292.5)	(336.5)	

Figures within parentheses refer to total workforce (million) in rural sector.

Source: Estimated from the data in Table 2.

Drivers of Changes in the Rural Labour Market

Changes in the rural labour market are driven by several inter-related factors like the pattern of economic growth, wage rate, worker productivity, education, government programmes and sociocultural factors. These factors were critically analysed and the results are given below.

Economic Growth: The rural economy has grown at an annual rate of 5.74% during 1993-94 and 2009-10 (Table 4, p 50). Among all the sectors, agriculture has grown at the lowest rate – which is exactly half of the growth in the total rural economy. The highest growth is reported in the construction sector which witnessed close to double-digit annual growth. Industry and services have achieved about 8% annual growth.

Consequently, the share of agriculture in total NDP in the rural sector has declined from 56.10% in 1993-94 to 36.16% in 2009-10 and the shares of industry, construction and services have gone up by 3.06, 3.67 and 11.03 percentage points, respectively. It is pertinent to mention that the services sector has surpassed the agriculture sector and emerged as a top contributor (38.93%) in rural NDP since 2004-05.³ The effect of this structural transformation in rural output from 1993-94 to 2009-10 is reflected in the rural labour market but it is subdued. The employment share of agriculture declined by 10.47 percentage points compared to a decline of 19.94 percentage points in its share in rural NDP. This has resulted in a widening gap between employment and output shares of agriculture, and

also increased disparities in per worker income in agriculture and non-agriculture in the countryside. This also indicates the presence of an excess workforce in the agriculture sector. Although the excess workforce in the sector is withdrawing it is doing so at a very slow pace and only by female workers (Table 2). The movement of excess workers from the agriculture sector can be triggered by the “push” of technological change in agriculture (which limits labour absorption in that sector) or by the “pull” of non-agricultural activities (Fei and Ranis 1975).

Among the non-agriculture sectors, the construction sector witnessed the highest growth (more than 9% a year in output as well as employment). The construction boom in rural India is evident from the fact that this sector alone constituted 56.02% (24.61 million) of the new jobs (43.93 million) that were created between 1993-94 and 2009-10. One disquieting aspect of this change in occupation diversity is that the increase in workforce in the construction sector did not match the increase in output.

The services sector contributed 38.93% of the total NDP with 14.70% of the workforce and thereby emerged as the most productive sector in rural India in 2009-10. This sector constituted 36.68% of the 43.93 million new jobs created during the same period. It is worth noting that the growth rate in output of the services sector was more than three times the growth rate in employment during the period under consideration. The poor technical skills and education status might have been a barrier for the entry of largely unskilled and poorly educated workers of rural India into this sector. The improvement in skills and education of the rural labour force would go a long way to boost employment opportunities in this sector.

Table 4: Trend in Sectoral Contribution of Rural Output in India (in %)

Sector	Share in Rural NDP			CGR (at 1986-87 prices)
	1993-94	2009-10	Change	
Agriculture	56.10	36.16	-19.94	2.87
Industry	8.14	11.20	3.06	7.86
Construction	4.52	8.19	3.67	9.74
Services	27.91	38.93	11.03	7.96
Total	100.00 (3849)	100.00 (26369)	-	5.74

Figures within parentheses are NDP in rural sector (estimated using share of 2004-05) at current prices in 2009-10 in billion rupees.

CGR: Compound Growth Rate in rural NDP between 1993-94 and 2009-10.

Source: Computed by the authors using data from National Accounts Statistics, various issues, Central Statistics Office, Government of India.

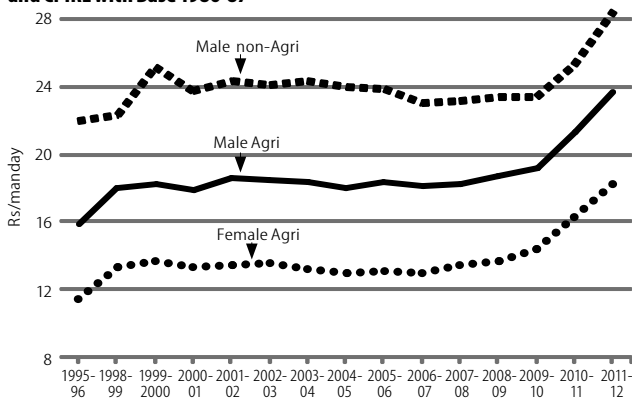
Industry is another sector in rural India which has great potential to provide productive employment to the rural labour force. The total NDP from industry at 1986-97 prices in the rural sector witnessed an impressive growth of 7.86% between 1993-94 and 2009-10. However, the growth rate in industrial NDP in the rural sector could not be gainfully translated into employment generation. Industrial employment in rural India increased only by 1% a year. The share of industry in total rural employment increased by a mere 0.16 percentage points and the sector constituted only 8.5% of the new jobs created between 1993-94 and 2009-10. The industry sector lagged far behind the services and construction sectors in creating employment opportunities in rural India during the one-and-a-half decades after 1993-94.

The overall trend in rural employment indicates that the impact of structural transformation in the rural economy is getting transmitted to the labour market, but at a rather slow pace.

Wage Rate Trends and Differentials: Differential wage rates among the sectors is one of the important drivers of inter-sectoral movement of workers. The wage rate of non-agricultural workers has always been higher than that of agricultural workers in India, including rural India (Figure 1). This should accelerate the movement of workers away from agriculture and towards non-agricultural sectors (to fetch higher income) depending upon the capacity of the non-agriculture sector to draw excess labour from agriculture and absorb them in productive activities. This kind of movement would benefit not only those who moved (through perhaps higher wages in the non-agriculture sector) but also those still left in agriculture due to the inverse relationship between agricultural wages (for a given level of productivity) and labour-to-land ratio (Kotwal et al 2009).

The Indian rural labour market is witnessing the slow effect of this change. The workers are withdrawing from agriculture and the real wage rate in the agriculture sector is increasing (Figure 1). The rate of increase in real wages has been 3.17% per annum for females and 2.69% for males from 1995-96 to 2011-12. In a recent paper, Gulati et al (2013) have identified “push factors” (GDP growth in agriculture and construction sectors) and “pull factors” (MGNREGS) for the rise in rural wages. The “wage push” movement of workers from agriculture to non-agricultural sectors can be accelerated further by improving employment opportunities in the latter till wage differences equalise and excess labour in the former vanishes. It is worth noting that in rural areas agricultural wages (for male workers) have increased at a higher rate (2.69% per annum) than non-agricultural wages (1.75% per annum) in the last one-and-a-half decades. These movements indicate a narrowing of differences in wage rates across sectors and gender.

Figure 1: Trend in Daily Wage Rate in Rural India Deflated by CPIAL and CPIRL with Base 1986-87



Sources: (1) *Agricultural Wages in India*, various issues, Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi.

(2) *Economic Survey*, various issues, Ministry of Finance.

Effect of MGNREGS: Out of several government-aided anti-poverty and employment generation programmes, MGNREGS is an ambitious programme which provides 100 persondays of employment to at least one person (particularly unskilled

worker) from rural households during the lean season in a year, in public works (MORD 2012). These public works potentially have a threefold effect on welfare: (a) they directly effect those employed in the works; (b) they have a labour market effect related to the shift in the labour demand; and (c) they lead to an increase in productivity related to the public goods into which the labour is invested (Ravallion 1990).

Since the inception of MGNREGS, almost 51% of the works have been related to water (water conservation, flood control, irrigation, drought proofing, renovation of traditional water bodies and micro-irrigation) and over 19% of works are related to rural connectivity (Gulati et al 2013). These activities were found to have reduced the vulnerability of agricultural production, water resources and livelihood to uncertain rainfall, water scarcity and poor soil fertility (Tiwari et al 2011; Verma 2011).

MGNREGS is often criticised as a causal factor in labour shortage (Basu 2011) in farm operations and for increasing agricultural wages (Rengasamy and Kumar 2011). The veracity of this argument can be ascertained from the volume of employment offered by MGNREGS and its effect on wage rate. Households benefiting from MGNREGS are divided into five categories. These include: (i) agriculture labour household; (ii) other labour households; (iii) self-employed in agriculture; (iv) self-employed in non-agriculture; and (v) others. A major concern about the effect of MGNREGS on labour availability refers to labour for manual work which primarily comes from labour supply from the first two categories of households. Labour from these two categories of households constitute about 50% of MGNREGS jobs. Accordingly, the extent of employment in MGNREGS and its effect on “labour supply” of all rural households and “labour supply” of rural labour households is as follows.

The latest NSS data shows that 36.3% of total rural labour households and 24.2% of total rural households got jobs under MGNREGS during the year 2009-10. It is also reported that, on an average, a household was provided 36-37 days of employment in a year under MGNREGS. These facts can be used to estimate the share of MGNREGS employment in total rural labour supply, as is done in Table 5.

The number of total rural workers in India during 2009-10, based on usual status, was 336.5 million out of which 131.3 million belonged to rural labour households. Assuming 250 days as full employment, the total supply of rural workers comes to 84,122 million days and that from rural labour households comes to 32,818 million days. Employment in MGNREGS was estimated to be 1,606 million days for all rural households and 947 million days for rural labour households. Based on these estimates, MGNREGS was found to provide work for about 2% of total rural labour supply and about 3% of labour supply from rural labour households. Further calculations show that if a labour household, which got work under MGNREGS, was employed for 100 days, as envisaged in the scheme, then MGNREGS share in labour supply increases to 5.2% for all rural households and 8% for rural labour households. In a scenario where all rural labour households get work under MGNREGS

for 100 days, the supply of labour from rural labour households declines by over 22%.⁴

Table 5: The Share of MGNREGS in Total Rural Labour Employment in 2009-10

S/n	Particulars	Rural Total	Rural Labour
a	Population in million	825.0	319.3 [#]
b	Households in million (a/household size)	179.3*	72.5 [@]
c Households getting employment in MGNREGS			
c1	Per cent	24.2	36.3
c2	Number in million (b*c1/100)	43.4	26.3
d	Average no of days worked in MGNREGS by households that got MGNREGS work	37	36
e Total employment in MGNREGS days in a year			
	in million (c2*d)	1,605.9	946.9
f	Worker to population ratio	40.8	40.8
g	Workers in rural labour households (a*f/100)	336.5	130.3
h Total labour supply of households in million days assuming 250 days as full employment (g*250)			
		84,122.5	32,566.1
i	Share of MGNREGS in total employment with 37/36 days of MGNREGS work (%) (e/h*100)	1.9	2.9
J	Share of MGNREGS in total employment with 100 days of MGNREGS work (%) (i*100/d)	5.2	8.1

[#] 38.7% of total rural population belong to rural labour category (Gol 2011: 32).

* Household size: 4.6 (ibid: 30).

[@] 40.4% of total rural households belong to the rural labour category.

Source: Ibid: 76, A22, C3.

The level of employment under MGNREGS during 2009-10 was found to have a moderate effect on total labour supply in rural India as only one-third of labour households got jobs under MGNREGS and that too for about one-third of the provision of 100 days.

The second indicator of the effect of MGNREGS on the rural labour market is the wage rate. Real daily wages during six years before MGNREGS (from 1999-2000 to 2005-06) and six years after MGNREGS (from 2005-06 to 2011-12) revealed that the real daily wage rates have increased rapidly in the later period (Table 6). Moreover, the wage rates of unskilled workers (the intended beneficiary in the scheme) have increased faster than the wage rates in both agriculture as well as non-agriculture. This indicates at least some role of MGNREGS in raising the real wage rate in the rural sector, though it might be an outcome of several interrelated factors such as improvement in productivity, reservation prices, bargaining power, etc (Gulati et al 2013; Murthy and Indumati 2011). A detailed study by Berg et al (2012) on the impact of MGNREGS on real daily wages found that this scheme boosts the real daily wage rate by 5.3% and it takes six to 11 months for an MGNREGS intensity⁵ shock to feed into higher wages.

Table 6: Compound Growth Rate in Real Rural Wages (in %)

Year	Agricultural Wages			Non-agricultural Wages		Unskilled Workers	
	Male	Female	Persons	Male	Female	Persons	
1999-2000 to 2005-06	0.08	-0.81	-0.29	-0.90	-0.81	-1.62	-1.16
2005-06 to 2011-12	4.34	5.80	4.96	3.03	5.27	5.62	5.42
1999-2000 to 2011-12	2.19	2.44	2.30	1.05	2.19	1.93	2.08

Source: *Agricultural Wages in India*, various issues, Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi.

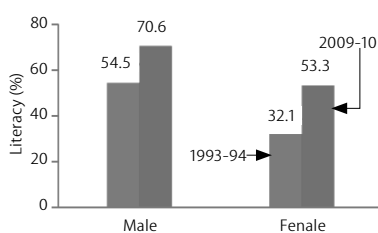
In our view, besides offering an alternative source of work and employment, MGNREGS has affected the labour market in the following ways: (i) by setting a higher benchmark for wage rate;

(ii) through its effect on the work culture; and (iii) by changing the work environment for rural labour. Like most public employment schemes, MGNREGS involves very light and non-strenuous work compared to agricultural activities in private employment. Once a worker gets a particular wage for doing very light work and for working in a leisurely way, he/she would look for the same kind of treatment in private employment in farming or seek higher wages for work requiring hard labour.

Our results at the macro level show that MGNREGS has helped to raise the income of rural labour households through an increase in employment and real wages. This way it contributes towards the goal of inclusive growth. As such the impact of MGNREGS on rural labour supply has been moderate as the scheme could achieve only 13%⁶ of its total reach till 2009-10.

Improvement in Education: Pursuit of education is being perceived as an important factor responsible for lower growth in the workforce, as compared to the population, resulting in declining WPR (Mehrotra et al 2012). The ratio of students to total population has increased from 20.5% in 1993-94 to 26.6% in 2009-10 in India (Thomas 2012). Consequently, the growth in the workforce is moderated by increased participation in education. In rural India, the literacy rate has improved significantly with females witnessing higher growth (21.2 percentage points) than males (16.1 percentage points) between 1993-94 and 2009-10 (Figure 2). This is a welcome change in terms of improvement in skills and the bargaining power of labour. However, the real challenge will be to create employment opportunities for those educated persons who will rejoin the labour force after acquiring an education in the near future. This is particularly important because it is found that those who are illiterate have the lowest rate of unemployment, and the rate of unemployment tends to rise with each level of education (Mehrotra et al 2012).

Figure 2: Gender-wise Literacy Rate in Rural India



Source: Gol (2011).

Table 7: Distribution of Usually Employed Persons of Age 15 and Above by Education Status in Rural India (in %)

Education Status	Male		Female	
	2009-10*	Change between 1993-94 and 2009-10†	2009-10*	Change between 1993-94 and 2009-10†
Not literate	28.00 (64.34)	-15.70 (-18.91)	57.80 (59.50)	-20.70 (-23.76)
Up to primary	28.10 (64.57)	-1.00 (22.21)	22.60 (23.27)	8.40 (64.80)
Middle	19.80 (45.50)	6.10 (82.91)	10.60 (10.91)	6.30 (155.25)
Secondary and above	24.20 (55.61)	10.80 (128.56)	8.90 (9.16)	6.00 (217.78)
Total	100 (230.01)	— (26.81)	100 (102.85)	— (3.55)

* Figures within parentheses are employed for persons of age 15 and above (in million).

† Percentage point change and figures within parenthesis are percentage change between 1993-94 and 2009-10.

Source: Gol (2011).

Although the majority of the usually employed male and female workers in rural India were either illiterate or educated up to the primary level in 2009-10, the number of workers in the category of higher education and their share in total workforce was increasing (Table 7). The attainment of a higher level of education would improve their skills and open the scope for employment in the non-farm sector, particularly services and industry sectors. Thus, efforts to improve the educational level of the workers would accelerate employment diversification in the rural sector.

Inter-sectoral Differences in Worker Productivity: The inter-sectoral variation in worker productivity (income generated per worker) is an important factor influencing labour movement among different sectors of the economy. Worker productivity is the lowest in the agriculture sector, though it has increased by 57.92% at an annualised rate of 2.90% between 1993-94 and 2009-10 (Table 8). Productivity per worker is much higher in the services and industry sectors than the agriculture sector. This should prompt rural labour to move away from agriculture to these sectors. However, this is happening very slowly. The reasons for this are many and include, among others, the following: (a) the requirement of skill and certain education levels, in particular in the services sector and for white collar jobs in industry; (b) the concentration of industrial units at a distance from rural habitation; and (c) the limited capacity of the non-farm sector to ensure productive employment to incoming workers.

Table 8: Sector-wise Worker Productivity (at 1986-87 prices, NDP in Rs/employed worker)

Sector	1993-94	2009-10	CGR
Agriculture	5,349	8,448	2.9
Industry	8,693	24,666	6.7
Construction	14,067	13,821	-0.1
Services	18,302	42,016	5.3
Total	7,476	15,863	4.8

CGR: Compound Growth Rate (%).

Availability of Family Labour for Farm Work: Consequent to an improvement in income due to economic growth and development, the first thing a farm household does is to withdraw its female family labour from farm work. This is evident from the fact that the female workforce in agriculture declined by 8.02% between 1993-94 and 2009-10 (Table 2). Though this decline comprises female workers from labour households as well as farm households, the extent of the withdrawal appears to be much higher among farm households. This decline has affected labour supply for farm work.

Social Factors: Traditionally, the labour-employer relationship in agriculture was of master-servant type wherein a landowning farmer considered himself the master and the hired labour his servant. The labour class has resented this feudal treatment and have therefore started seeking employment either within an employer-employee framework or via labour arrangements of a contractual nature where they work on piecemeal basis for a fixed wage which does not involve a

master-servant relationship. This requires a complete change in the attitude of the farmers towards hired labour, which albeit is changing slowly. This has been a major source for tensions between labour households and farm households and the consequent emergence of bargaining power as a determinant of wage rate and labour supply in rural India. Rising reluctance on the part of farm family members to undertake farm work is strengthening the bargaining power of labour to seek higher wages and dictate the terms of a contract.

Implications of Changing Labour Market on Agriculture

Labour is a crucial factor for agricultural production. Though employment diversification is desirable from the economic development point of view, it leads to a decline in labour supply and an increase in the wage rate in the agriculture sector. Shortage of labour during the peak agricultural season hampers farm operations, while a persistent wage rise has the potential for cost-push inflation in the economy. The Granger Causality Test between real wages (at 1986-87 prices) and the wholesale price index of agricultural commodities or WPIAGRI (at 2004-05 prices) confirmed that wage rise is a causal factor for the rise in agricultural prices in India (Table 9). However, an increase in agricultural prices did not cause an increase in the real wages during the study period. The reason for this asymmetric relationship could be that the effect of an increase in the wage rate is soon captured in the cost of cultivation and pricing mechanism of the government, like minimum support prices, whereas agricultural producers do not readily and quickly pass on the rise in agricultural prices to wages.

Table 9: Granger Causality Test between WPIAGRI and Real Wage Rate (WAGERATE)

Null Hypothesis	F-statistics	Probability
Growth in real wages does not Granger-cause growth in WPIAGRI	4.13	0.018
Growth in WPIAGRI does not Granger-cause growth in real wages	1.14	0.321
No of observations (July 1998 to June 2011)	153	

While a rise in the agricultural wage rate is contributing to inclusive growth it leads to increase in cost of production which in turn (if not offset by productivity enhancement) gets transmitted to agricultural prices and puts inflationary pressure on the economy. Thus attempts need to be made to improve agricultural productivity to absorb the wage rise to keep a check on cost-push inflation. The effect of the expansion of MGNREGS in terms of number of households and duration of workdays leading to a reduced supply of labour for agriculture activities needs to be addressed through technological interventions for farm operations. Acceleration in farm mechanisation is a viable strategy to partially substitute labour as well as increase agricultural productivity. However, the economic feasibility of farm mechanisation needs to be ascertained, especially for the predominantly small and marginal farmers. For these small holdings, custom hiring and lease arrangement of farm machinery can be planned at the community level.

Conclusions and Policy Suggestions

During the 16 years between 1993-94 and 2009-10, the rural workforce has increased mainly on account of the increase in the male labour force. The number of female workers did not increase at all despite a 25% increase in their population between 1993-94 and 2009-10. This has resulted in a decline in the WPR of females as well as total workers in rural India. The decline in WPR of rural women is largely explained by the withdrawal by female labour from agriculture, presumably due to an improvement in economic conditions of farm families. There has been a big increase in pursuit of education by rural females. Improved literacy and low preference for farm work requires the creation of employment opportunities on a large scale in rural non-farm sectors to attract women to the workforce.

The rural labour market is undergoing profound changes with labour moving from agriculture towards non-farm sectors. The diversification of the rural labour market is influenced by a set of complex factors such as the pattern of economic growth, inter-sectoral wage rate and worker productivity differentials, education, MGNREGS and sociocultural factors. The output growth in non-farm sectors outpaced growth in the agriculture sector during the last 16 years. This prompted workers to move towards non-farm sectors to fetch a higher income. Similarly, a higher wage rate and worker productivity in non-farm sectors were also found to be the driving forces for such changes. Employment diversification, even at a slow pace, has led to some narrowing of large variations in real wages across different sectors and across gender in the rural economy.

MGNREGS has broken the long stagnation in real wage rates in rural India and is contributing towards the goal of inclusive growth. Employment under this scheme during 2009-10 reached 13% of the total scope for employment under this programme, which corresponds to about 3% of the total labour supply of rural labour households. The expansion of MGNREGS is bound to cause a reduction in the availability of rural labour for other activities.

The consistent increase in real rural wages has the potential for cost-push inflation in the country. A changing work culture and the emerging contractual arrangement between labour and labour-hiring farm households are also affecting the rural labour market. The improvement in education and skills of the largely uneducated and unskilled rural labour will accelerate changes in the structure of the rural workforce.

Though the movement of labour out of agriculture is a welcome development from the economic growth and development point of view, there is a strong need to develop an effective strategy to address the decline in labour in agriculture and the wage rate increase, which subsequently increases the cost of production and prices. This should include a strategy for the farm sector in the form of appropriate mechanisation, farm practices and custom hiring arrangements. Agriculture R&D has to play a vital role in terms of offering a substitute for labour in farm operations and in terms of offsetting cost-push inflation resulting from the structural shift in labour employment and rise in wages.

NOTES

- 1 It has been noted by the Planning Commission, and also many other researchers, that the published results of the 55th round (1999-2000) cannot be made comparable with either the 50th or the 61st rounds mainly due to non-sampling errors introduced by the two recall periods of seven days and 30 days for certain food items having been canvassed from the same households in the 55th round (Planning Commission 2009).
- 2 The share of population in the age group of 15-59 to total population has increased from 56% in 1993-94 to 60% in 2009-10.
- 3 The rural NDP in 2009-10 was estimated by apportioning total NDP with the share of rural NDP in total NDP for the year 2004-05.
- 4 In Palakkad district of Kerala, where MGNREGS offered nearly 100 days of work, the scheme's impact on the labour market was substantial; it drew a sizeable workforce away from agriculture and to make up for this farm wages had to go up 50-70% (Shah et al 2010).
- 5 Proportion of MGNREGS workers in total rural households.
- 6 During 2009-10, MGNREGS provided employment to 36.3% of rural labour households for 36 days in a year against a provision of 100 days – the product of the first two is 13%.

REFERENCES

- Basu, A K (2011): "Impact of Rural Employment Guarantee Schemes on Seasonal Labour Markets: Optimum Compensation and Workers", *The Journal of Economic Inequality*, 11(1): 1-34.
- Berg, Erlend, Sambit Bhattacharya, Rajasekhar Durgam and Manjula Ramachandra (2012): "Can Public Works Increase Wages? Evidence from India", Working Paper WPS/2012-5, Centre for the Study of African Economies, Oxford.
- Fei, John C H and Gustav Ranis (1975): "A Model of

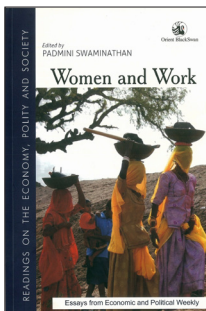
- Growth and Employment in the Open Dualistic Economy: The Cases of Korea and Taiwan", *Journal of Development Studies*, 11(2): 32-63.
- Gol (2011): *Employment and Unemployment Situation in India: 2009-10*, NSS Report No 537 (66/10/1), NSS 66th Round, National Sample Survey Office, Central Statistics Office, Ministry of Statistics and Programme Implementation (MoSPI), Government of India.
- Gujarati, Damodar N (2004): *Basic Econometrics* (New Delhi: Tata McGraw-Hill Edition).
- Gulati, Ashok, Surbhi Jain and Nidhi Satija (2013): "Rising Farm Wages in India: The 'Pull' and 'Push' Factors", Discussion Paper No 5, Commission for Agricultural Costs and Prices, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, New Delhi.
- Hirway, Indira (2012): "Missing Labour Force: An Explanation", *Economic & Political Weekly*, 47(37): 67-72.
- Kannan, K P and G Raveendran (2012): "Counting and Profiling the Missing Labour Force", *Economic & Political Weekly*, 47(6): 77-80.
- Kotwal, Ashok, Bharat Ramaswami, Mukesh Eswaran and Wilima Wadhwa (2009): "Sectoral Labour Flow and Agricultural Wages in India, 1983-2004: Has Growth Tricked Down?", *Economic & Political Weekly*, 44(2): 46-55.
- Mehrotra, Santosh, Ankita Gandhi, Bimal Kishore Sahoo and Partha Saha (2012): "Creating Employment in the Twelfth Five-Year Plan", *Economic & Political Weekly*, 47(19): 63-73.
- Ministry of Rural Development (MoRD, Government of India) (2012): *MGNREGA Sameeksha, An Anthology of Research Studies on the Mahatma Gandhi National Rural Employment Guarantee Act, 2005, 2006-2012*, edited and compiled by Mihir Shah, Neelakshi Mann and Varad Pande (New Delhi: Orient BlackSwan).
- Murthy, P S S and S Indumati (2011): "Economic Analysis of MGNREGA in the Drought-prone

- States of Karnataka, Rajasthan and Irrigation-dominated States of Andhra Pradesh", *Agricultural Economics Research Review*, 24: 531-36.
- Planning Commission (2009): "Report of the Expert Group to Review the Methodology for Estimation of Poverty", Planning Commission, Government of India, November.
- Ravallion, M (1990): "Market Responses to Anti-hunger Policies: Effects on Wages, Effects on Wages, Prices and Employment" in J Dreze and A Sen (ed.), *Hunger: Economics and Policy* (Oxford: Oxford University Press), 241-78.
- Rangarajan, C, Padma Iyer Kaul and Seema (2011): "Where Is the Missing Labour Force?", *Economic & Political Weekly*, 47(39): 68-72.
- Rengasamy, Kalarani and B Sasi Kumar (2011): "State Level Performance of MGNREG in India: A Comparative Study", *International Multi-disciplinary Research Journal*, 1(10): 36-40.
- Shah, T, S Verma, R Indu and P Hemant (2010): "Asset Creation through Employment Guarantee?: Synthesis of Student Case Studies in 9 States of India", Report Submitted to Ministry of Rural Development/UNDP, International Water Management Institute (IWMI).
- Thomas, Jayan Jose (2012): "India's Labour Market during the 2000s: Surveying the Changes", *Economic & Political Weekly*, 47(51): 39-51.
- Tiwari, Rakesh, H I Somashekhar, V R Ramakrishna Parma, Indu K Murthy, M S Mohan Kumar, B K Mohan Kumar, Harshad Parate, Murari Varma, Sumedha Malaviya, Ananya S Rao, Asmita Sengupta, Ruth Kattumuri and N H Ravindranath (2011): "MNREGA for Environmental Service Enhancement and Vulnerability Reduction: Rapid Appraisal in Chitradurga District, Karnataka", *Economic & Political Weekly*, 46(20): 39-47.
- Verma, S (2011): "MGNREGA Assets and Rural Water Security: Synthesis of Field Studies in Bihar, Gujarat, Kerala and Rajasthan", Research Report, Anand, International Water Management Institute (IWMI).

Women and Work

Edited by

PADMINI SWAMINATHAN



The notion of 'work and employment' for women is complex. In India, fewer women participate in employment compared to men. While economic factors determine men's participation in employment, women's participation depends on diverse reasons and is often rooted in a complex interplay of economic, cultural, social and personal factors.

The introduction talks of the oppression faced by wage-earning women due to patriarchal norms and capitalist relations of production, while demonstrating how policies and programmes based on national income accounts and labour force surveys seriously disadvantage women.

This volume analyses the concept of 'work', the economic contribution of women, and the consequences of gendering of work, while focusing on women engaged in varied work in different parts of India, living and working in dismal conditions, and earning paltry incomes.

Authors:

Maithreyi Krishnaraj • Maria Mies • Bina Agarwal • Prem Chowdhry • Ujvala Rajadhyaksha, Swati Smita • Joan P Mencher, K Saradamoni • Devaki Jain • Indira Hirway • Deepita Chakravarty, Ishita Chakravarty • Uma Kothari • J Jeyaranjan, Padmini Swaminathan • Meena Gopal • Millie Nihila • Forum against Oppression of Women • Srilatha Batliwala • Miriam Sharma, Urmila Vanjani • J Jeyaranjan

Pp xii + 394

ISBN 978-81-250-4777-3

2012

Rs 645

Orient Blackswan Pvt Ltd

www.orientblackswan.com

Mumbai • Chennai • New Delhi • Kolkata • Bangalore • Bhubaneswar • Ernakulam • Guwahati • Jaipur • Lucknow • Patna • Chandigarh • Hyderabad

Contact: info@orientblackswan.com