

Sectoral Labour Flows and Agricultural Wages in India, 1983-2004: Has Growth Trickled Down?

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This paper examines the evolution of poverty in India through the prism of agricultural wages and employment. It links the movement in wages (and hence poverty) to the fundamental process of sectoral labour flow that underlies economic development. It finds that despite the rapid growth of the non-farm sector, its success in drawing labour from land has been limited. Yet agricultural earnings have increased, demonstrating the pivotal role of agricultural productivity. The stock of the labour force already locked into agriculture is large and the best way to improve living standards would be to boost farm productivity.

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1 Introduction

This paper examines the evolution of poverty in India through the prism of agricultural wages and employment. While headcount ratios of poverty have been the focus of much of official and academic writings on the subject, looking at agricultural wages has its advantages both as a statistical measure as well as a way of thinking about how growth trickles down to the poor.

Table 1 (p 47) displays a classification of rural households according to source of major earnings. The table is computed from National Sample Survey (NSS) consumption expenditure survey data for 2004-05. From the table, it is clear that households that depend on earnings from unskilled labour (agricultural labour and other labour) account for more than 50% of the households that are poor according to the official poverty line. The corresponding figure for the non-poor population is 32%. It would therefore seem that the earnings of manual labour households ought to be strongly correlated with poverty.

A large empirical literature in India has indeed confirmed the association of poverty with agricultural wages. A recent study that comprehensively documents this association is Kijima and Lanjouw (2005), which shows agricultural wage rates at the region level to be strongly (inversely) correlated with region level poverty rates in the three years between 1987 and 1999 for which such survey data were available. Sundaram (2001a) used the wage and employment data to construct synthetic measures of yearly earnings and showed that the movement in earnings was directionally consistent with the movement in poverty as measured by consumption expenditure surveys.

Deaton and Dreze (2002) argued that agricultural wages could be taken not just as a proxy for poverty but also as a poverty measure in its own right since it is the reservation wage of the very poor. It would also seem that it would be easier to theorise and model agricultural wages than it would be poverty measures which are complicated non-linear functions of underlying average income and income inequality. It is this last consideration that motivated this study to use agricultural wages as a measure of poverty.

To see this, consider a dual economy of the standard sort comprising a farm and a non-farm sector. The farm sector uses land and labour to produce a farm good. The poor in this economy are those who are assetless. In particular, the rural poor are the landless workers in agriculture. Because of labour mobility, the agricultural wage is also the floor wage in the non-farm economy. Thus, if there is full employment, poverty can decline only if

agricultural wages rise. The question is how will growth in this economy affect agricultural wages and the poor.

Growth comes about because of higher total factor productivity (TFP) in the farm and non-farm sector. The connection between farm TFP and agricultural wage (and hence poverty) is quite direct: at the same level of production inputs an increase in agricultural TFP (e.g., through better seeds or through irrigation that leads farmers to raise more crops or to switch to high-value crops) will raise the marginal product of labour and hence the wage. What is the relationship between non-farm TFP and agricultural wages? Here the link is through labour allocation: if an increase in non-farm TFP increases the value of the marginal product of labour in the non-farm sector, it will draw labour away from agriculture and, given the diminishing returns due to land (a fixed factor), the agricultural wage will rise. The extent of the wage increase due to non-farm TFP growth would depend, of course, on the amount of labour drawn away from agriculture.

This simple conceptual scheme justifies the use of agricultural wages as a poverty measure.¹ It is also suggestive of the mechanisms of trickle-down – that we must look at farm TFP and the extent to which labour moves from the agricultural to the non-farm sectors. Hence the focus of this paper on the movement in agricultural wages and the sectoral labour flows from agriculture to the rest of the economy.

2 Data: Measures of Earnings and Labour Force

Our data sources are the employment surveys of the National Sample Survey Organisation (NSSO). In this paper, we consider the surveys undertaken in 1983 (calendar year) and in 1993-94, 1999-2000 and 2004-05 (agricultural years, i.e., July to June) – the so-called “thick rounds”. Table 2 provides information about the size of the sample in each of these years. The survey period is divided into four quarters and the sample design allots equal number of primary sampling units (villages in rural areas and blocks in urban areas) to each quarter. Thus, for instance, about 30,000 households were surveyed in each quarter of the 1999-2000 survey. The survey data do not report the day or week when the household is surveyed although the instructions for fieldwork state that within a quarter the fieldwork is spread uniformly over the different weeks. Note that the uniform allocation of household units across sub-rounds applies at the level of the state as well. Thus, in comparing outcomes at the state-level across NSS rounds, we can be sure that we do not have to adjust for seasonal factors.

For a given reference period (ranging from a year, week and half-day), individuals are classified as being in the workforce, unemployed or being out of the labour force. When the reference period is a year, the “usual” status of an individual is determined

on the major time criterion. For an individual who is employed on the usual status, their principal activity in terms of industry of employment is also determined on the basis of major time criterion. The survey also records their “subsidiary” economic activity in the remainder time.

Most work on employment and unemployment in India and in particular existing estimates of the sectoral allocation of labour force are based on the usual status definitions (see, for instance, Chadha and Sahu 2002; Sundaram 2001a, b). However, the usual status definition does not take into account multiple economic activities that are characteristic of poor households. By the usual status criterion, individuals with regular wage employment constitute only 14% of the workforce. More than half of the workforce is self-employed (53%); the great majority of them in agriculture and about one-third are casual wage workers (Pappola 2007). Furthermore, over 80% of female workers in unorganised manufacturing work out of their homes mostly in subcontracting relationships where the intermediary supplies raw material and buys back their output (Unni and Rani 2005). For most of the labour force, therefore, work is seasonal, short-term and without tenure. Consequently, an individual’s activity status can vary even within as short a reference period as a week.

In this paper, therefore, we adopt measures of labour force based on the daily status of the individual derived from the data on the weekly disposition of time. As households are surveyed throughout the year (in equal numbers), the aggregates derived from weekly data are representative of annual aggregates. For the reference period of a week, the survey elicits an individual’s time disposition during each day of the week. For each day, individuals are classified (their “daily” status) as being in the workforce, unemployed or being out of the labour force with a

Table 3: Assignment of Daily Status

	Works More than Four Hours	Works More than One Hour and Less than Four Hours and Is Seeking or Available for Work for More than One Hour	Works More than One Hour and Less than Four Hours and Is Seeking or Available for Work for Less than One Hour	Works Less than One Hour and Is Seeking or Available for Work for Four Hours or More	Works Less than One Hour and Is Seeking or Available for Work for More than One Hour But Less than Four Hours	Works for Less than One Hour and Is Seeking or Available for Work for Less than One Hour
Employed	1.0	0.5	0.5	0	0	0
Unemployed	0	0.5	0	1	0.5	0
Out of labour force	0	0	0.5	0	0.5	1

weight of either 1.0 or 0.5. A weight of 1.0 corresponds to a full day and a weight of 0.5 corresponds to a half-day. Naturally, an individual can at most be assigned two activities with equal weight. The survey uses a priority and major time criterion to assign the activity status to each half-day. This is explained in Table 3. Summing the weights across days, we obtain for each individual in the survey, the weekly break-up of days in each of

Table 1: Classification of Rural Households according to Major Earnings Source, 2004-05

	Non-Poor Households	Poor Households
Self-employed in non-agriculture	16.51	12.91
Agricultural labour	22.11	41.8
Other labour	10.29	12.13
Self-employed in agriculture	38.38	26.71
Others	12.71	6.45

Source: Computations from NSS data.

Table 2: Size of NSS Employment Surveys

	1983	1993-94	1999-2000	2004-05
Number of individuals				
All	6,23,448	5,64,740	5,96,686	6,02,833
Rural	4,14,649	3,56,351	3,71,187	3,98,025
Urban	2,08,799	2,08,389	2,25,499	2,04,808
Number of households				
All	1,20,897	1,15,409	1,20,578	1,24,680
Rural	78,595	69,230	71,417	79,306
Urban	42,302	46,179	49,161	45,374
Number of primary sampling units				
All	12,210	11,602	10,106	12,502
Rural	7,924	6,951	5,999	7,944
Urban	4,286	4,651	4,107	4,558

the three activity states. Therefore, for each individual one can calculate the total time spent working, being unemployed and out of the labour force.

For assigning the industrial classification code, a person who is considered to be employed for the day would be assigned at most two economic activities (with weights 0.5 apiece) decided on the major time criterion. A person who is employed for half-day only would be assigned one economic activity again on the major time criterion. Once again by summing the weights across days, we obtain for each individual in the survey, the weekly break-up of the days of employment into different economic activities.

For the reference period of a week and for each economic activity reported by an individual, the employment survey also reports the weekly earnings. A measure of daily earnings in the activity can be obtained by dividing the weekly earnings by the number of days worked in that particular activity. However, as wage data is not available for the self-employed, the survey does not report any earnings figures for them.

We adjust the raw earnings data to be theoretically consistent with the individual's labour force status. An individual who was unemployed was assigned a zero earning (rather than a missing value) to reflect their status as being part of the labour force. Second, the earnings observations for individuals who were out of the labour force (unemployed or employed but unable to work and did not receive earnings) were set to "missing".

To control for cost of living differences across time and across states, earnings have to be deflated. The Planning Commission uses the consumer price index for agricultural labourers and the consumer price index for urban manual workers to update its poverty line in nominal values. We use the deflator implicit in the Planning Commission poverty lines to deflate earnings across time and states.² Real earnings are in terms of rural Maharashtra prices of 1999-2000.

3 Trends in Agricultural Earnings

Table 4 presents real weekly earnings and real daily earnings in agriculture for each of the NSS rounds.³ At the all India level, weekly earnings grew by 68% between 1983 and 2004-05.⁴ This translates into an annualised rate of growth of 2.5% per year. The

Table 4: Real Agricultural Earnings (Rs, in 1999 Rural Maharashtra Prices)

	Weekly Earnings	Average Daily Earnings
2004-05	199.33	39.76
1999-2000	188.62	38.55
1993-94	163.42	31.10
1983	118.50	22.81
% Increase		
1983-2004	68.21	74.31
1983-93	37.91	36.33
1993-2004	21.97	27.86
1999-2004	5.68	3.15

average daily earnings grew faster – 74% between 1983 and 2004 or an annualised rate of 3.33% per year (Tables 4 and 5). The rates of growth were higher in the first decade – 1983 to 1993-04 – with annualised rates of 3.3% for weekly earnings and 3.2% for daily earnings. Both these rates

slowed down appreciably in the next decade – 1993 to 2004-05 – to 1.8 and 2.3% per year, respectively. And in the last five years – 1999 to 2004 – these rates have slowed down even further to 1.1 (weekly earnings) and 0.6% (daily earnings). The slowing down of the rate of increase in earnings correlates well with the findings of slower decline of

poverty in the 1990s and of the slower increase in real consumption expenditures (Deaton and Dreze 2008; Sen and Himanshu 2005).

Table 5 presents the annual sectoral growth rates of farm and non-farm GDP together with the annualised growth rates of daily wages and earnings in agriculture. The non-farm sector has grown more rapidly in the decade 1993-94 to 2004-05 while farm GDP growth rate has gone the other way. The growth in earnings of agricultural labour seems to follow the trend in farm sector GDP. This is particularly noticeable during the period 1999-2000 to 2004-05 when growth in both the farm sector GDP and agricultural earnings has slowed substantially.

This table suggests that the impressive growth in the non-farm GDP has not mattered much to agricultural earnings and poverty. If true, why is that? It is important to know the answer to this question because typically it is easier to increase the growth rate of the non-farm sector than the farm sector. Unlike the farm sector, the non-farm sector is not crucially dependent on a fixed factor like land. Furthermore, non-farm technology can be transferred more easily to developing countries unlike farm technologies that may require substantial climatic adaptation.

4 Sectoral Labour Flow and the Labour-to-Land Ratio

As discussed in the introduction, the growth in non-farm sector productivity could affect agricultural wages by lowering the labour-to-land ratio in agriculture.⁵ Because of diminishing returns, agricultural wages (for a given level of productivity) are inversely related to the labour-to-land ratio that, in turn, depends on the capacity of non-agricultural sectors to draw labour from agriculture. Thus, when the expansion of non-agricultural sector results in a movement of labour away from agriculture, it not only confers benefits on the labour that moved (through perhaps higher wages in non-agriculture) but to all those still left in agriculture. This is the main conduit through which non-agricultural growth can have an impact on rural poverty in a country like India. The countries in east Asia that

Table 5: Annualised Rates of Growth (%)

	GDP	Non-Farm GDP	Agriculture GDP	Agriculture Weekly Earnings	Agriculture ADE
1983-2004	5.77	7.09	2.62	2.51	2.68
1983-93	5.18	6.43	2.86	3.27	3.15
1993-2004	6.32	7.70	2.41	1.82	2.26
1999-2004	5.96	7.20	1.84	1.11	0.62

(1) GDP: GDP at factor cost at 1993-94 prices;

(2) Agri GDP: GDP originating in agriculture, forestry and logging, and fishing;

(3) Non-Farm GDP: Residual = GDP – Agri GDP;

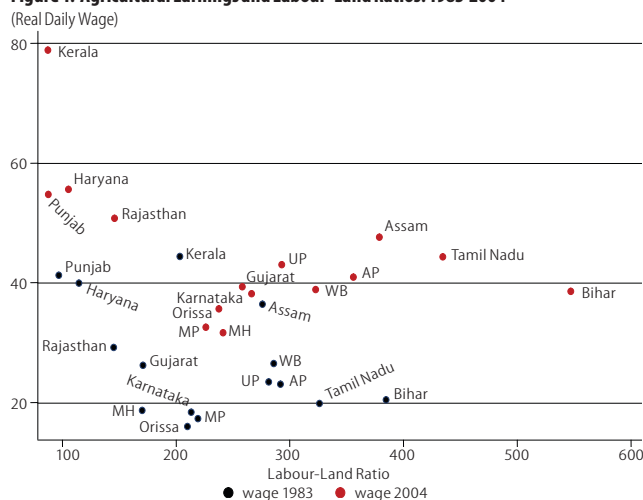
(4) Agri Weekly Earnings: Real weekly earnings in agriculture, Rural Maharashtra 1999-2000 prices;

(5) Agri ADE: Real average daily earnings in agriculture, Rural Maharashtra 1999-2000 prices;

Table 6: Employment Structure – Daily Status

	Agr	Mfg	CTT	G&P	Total
All					
2004-05	0.539	0.128	0.218	0.090	0.975
1999-2000	0.580	0.121	0.189	0.089	0.979
1993-94	0.611	0.114	0.148	0.108	0.981
1983	0.634	0.118	0.133	0.099	0.984
Males					
2004-05	0.486	0.130	0.272	0.083	0.970
1999-2000	0.529	0.125	0.233	0.088	0.976
1993-94	0.566	0.117	0.182	0.113	0.977
1983	0.596	0.124	0.157	0.105	0.982
Females					
2004-05	0.681	0.124	0.075	0.108	0.988
1999-2000	0.723	0.108	0.066	0.093	0.990
1993-94	0.737	0.104	0.056	0.093	0.990
1983	0.744	0.102	0.063	0.084	0.992

Agr: Agriculture, Mfg: Manufacturing, CTT: Construction, Trade and Hotels, Transport, Storage and Communications, G&P: Government Services, Education, Health, Community Services, Personal Services.

Figure 1: Agricultural Earnings and Labour-Land Ratios: 1983-2004

saw rapidly rising living standards also experienced a swift reduction in the share of agriculture in the labour force.⁶ Even, in China, the percentage of labour force engaged in agriculture plummeted from 70% in 1979 to 47% in 1999. It is fruitful, therefore, to examine how the employment structure has changed in India from 1983 to 2004.

Table 6 (p 48) shows the changes over the 21-year period (1983 to 2004) in the employment structure for males and females. The table is based on the one digit daily status classification of economic activities. However, instead of presenting the shares of all the eight sectors, we aggregate some of them to display the shares of four sectors: agriculture (including forestry and fishing); manufacturing; the aggregate of construction, trade and hotels, transport and communications (CTT); and lastly the aggregate of government services, health, education and various personal services (G&P). Employment shares of mining and of real estate and finance are not presented which is why the total of shares adds to a number slightly below one.

In India, the reduction of labour force in agriculture has been nothing like what was witnessed in east Asia. In the 21-year period, agriculture's share in the labour force declined by less than 10 percentage points from 63.4% to 53.9%. This change was largely driven by the change in employment structure for males. The share of agriculture in the labour force for males (measured in person days) declined from about 60% in 1983 to just under 50% in 2004-05.⁷ As the share of manufacturing has changed very little over these 21 years, the share of services has increased by about the same percentage. For females, the sectoral pattern of employment has changed much less. In 2004-05, 68% of female labour force continued to be employed in agriculture as compared to 74% in 1983. While men have moved primarily into construction, trade and transport, women have moved into manufacturing and government and personal services. It is noticeable that the sectoral pattern of employment of women has been virtually stagnant between 1983 and 1999-2000. For both males and females, the diversification of employment away from agriculture has happened at a faster pace in the decade 1993-94 to 2004-05. For state-level experiences, the reader is referred to the tables in the Appendix A.2 to A.13 (pp 54-55).

For agricultural wages, what matters is the labour-land ratio that may not always move in an opposite direction to agriculture's share in the labour force. Because of labour force growth, labour-land ratios can increase despite a fall in agriculture's share in the labour force. For 15 major Indian states, Figure 1 plots the average real daily earnings (in 1999 rupees) in agriculture against the labour-land ratio (days of agricultural employment per hectare of gross cropped area) for 1983 and 2004. It can be seen that for all but three states (Kerala, Haryana and Punjab), the labour use per hectare of land has increased over this period.⁸ With growing population and limited absorption of labour by the non-farm sector, this is not surprising. Yet, for all states, real daily earnings have increased during this period. Quite clearly, if either farm TFP or agricultural inputs such as fertilisers had not increased during this period, agricultural wages would have declined. The contribution of agricultural productivity growth to the increase in wages and the decline in poverty is therefore evident.

It becomes interesting, therefore, to ask how much non-farm sector growth has contributed to the growth of agricultural wages. By constructing a counterfactual scenario of what would

Table 7(a): Sectoral Employment (Males) by Cohort Groups: 1983

	Millions of Days Per Week				Sectoral Shares in Total			
	18-25	26-33	34-41	42-49	18-25	26-33	34-41	42-49
Agriculture	153.86	114.96	109.61	70.88	0.59	0.52	0.55	0.55
Mining	1.78	2.32	2.22	1.30	0.01	0.01	0.01	0.01
Manufacturing	36.18	31.22	25.07	16.72	0.14	0.14	0.12	0.13
Construction	10.46	8.68	7.11	4.08	0.04	0.04	0.04	0.03
Trade and hotels	25.50	20.30	17.21	10.78	0.10	0.09	0.09	0.08
Transport	10.04	10.95	10.03	5.88	0.04	0.05	0.05	0.05
Finance and real estate	1.83	4.51	2.44	1.57	0.01	0.02	0.01	0.01
Pub admn and servs	20.88	28.59	27.35	18.80	0.08	0.13	0.14	0.14
Total	260.53	221.53	201.05	130.00	1.00	1.00	1.00	1.00

Table 7(b): Sectoral Employment (Males) by Cohort Groups: 1993-94

	Millions of Days Per Week				Sectoral Shares in Total			
	28-35	36-43	44-51	52-59	28-35	36-43	44-51	52-59
Agriculture	164.26	105.60	104.40	59.89	0.51	0.50	0.56	0.60
Mining	3.53	2.91	2.12	0.75	0.01	0.01	0.01	0.01
Manufacturing	40.48	26.32	20.51	9.74	0.13	0.13	0.11	0.10
Construction	15.39	7.87	6.38	2.29	0.05	0.04	0.03	0.02
Trade and hotels	33.94	22.45	16.73	8.74	0.11	0.11	0.09	0.09
Transport	17.69	10.57	7.86	2.92	0.06	0.05	0.04	0.03
Finance and real estate	5.10	4.69	2.54	1.20	0.02	0.02	0.01	0.01
Pub admn and servs	39.55	30.12	27.32	14.23	0.12	0.14	0.15	0.14
Total	319.95	210.52	187.85	99.76	1.00	1.00	1.00	1.00

Table 7(c): Sectoral Employment (Males) by Cohort Groups: 2004-05

	Millions of Days Per Week				Sectoral Shares in Total			
	39-46	47-54	55-62	63-70	39-46	47-54	55-62	63-70
Agriculture	143.09	90.50	82.98	41.68	0.47	0.50	0.63	0.74
Mining	3.53	1.99	0.86	0.11	0.01	0.01	0.01	0.00
Manufacturing	36.96	19.84	11.24	4.11	0.12	0.11	0.08	0.07
Construction	19.55	8.21	4.89	1.26	0.06	0.05	0.04	0.02
Trade and hotels	41.88	22.36	13.87	5.47	0.14	0.12	0.10	0.10
Transport	19.30	9.44	4.92	0.80	0.06	0.05	0.04	0.01
Finance and real estate	7.97	5.04	1.99	0.64	0.03	0.03	0.01	0.01
Pub admn and servs	32.42	22.59	12.01	2.52	0.11	0.13	0.09	0.04
Total	304.70	179.95	132.77	56.60	1.00	1.00	1.00	1.00

Table 8(a): Sectoral Employment (Females) by Cohort Groups: 1983

	Millions of Days Per Week				Sectoral Shares in Total			
	18-25	26-33	34-41	42-49	18-25	26-33	34-41	42-49
Agriculture	61.79	54.79	54.40	35.49	0.74	0.73	0.74	0.76
Mining	0.55	0.39	0.52	0.17	0.01	0.01	0.01	0.00
Manufacturing	10.59	7.31	6.62	3.51	0.13	0.10	0.09	0.07
Construction	2.03	1.77	1.63	0.73	0.02	0.02	0.02	0.02
Trade and hotels	2.15	2.70	3.37	2.17	0.03	0.04	0.05	0.05
Transport	0.37	0.25	0.30	0.13	0.00	0.00	0.00	0.00
Finance and real estate	0.27	0.25	0.13	0.08	0.00	0.00	0.00	0.00
Pub admn and servs	5.80	7.59	6.86	4.68	0.07	0.10	0.09	0.10
Total	83.54	75.05	73.83	46.96	1.00	1.00	1.00	1.00

Table 8(b): Sectoral Employment (Females) by Cohort Groups: 1993-2004

	Millions of Days Per Week				Sectoral Shares in Total			
	28-35	36-43	44-51	52-59	28-35	36-43	44-51	52-59
Agriculture	84.64	59.01	53.40	25.97	0.73	0.72	0.76	0.76
Mining	0.77	0.36	0.33	0.08	0.01	0.00	0.00	0.00
Manufacturing	11.35	7.35	4.68	2.75	0.10	0.09	0.07	0.08
Construction	1.98	1.70	0.96	0.30	0.02	0.02	0.01	0.01
Trade and hotels	4.83	3.23	3.45	1.47	0.04	0.04	0.05	0.04
Transport	0.41	0.33	0.21	0.04	0.00	0.00	0.00	0.00
Finance and real estate	0.66	0.37	0.19	0.04	0.01	0.00	0.00	0.00
Pub admn and servs	11.54	9.26	6.65	3.39	0.10	0.11	0.10	0.10
Total	116.18	81.60	69.87	34.05	1.00	1.00	1.00	1.00

Table 8(c): Sectoral Employment (Females) by Cohort Groups: 2004-05

	Millions of Days Per Week				Sectoral Shares in Total			
	39-46	47-54	55-62	63-70	39-46	47-54	55-62	63-70
Agriculture	80.95	47.58	38.55	11.58	0.70	0.72	0.77	0.73
Mining	0.40	0.20	0.10	0.02	0.00	0.00	0.00	0.00
Manufacturing	11.69	4.73	3.64	1.53	0.10	0.07	0.07	0.10
Construction	2.32	0.89	0.46	0.08	0.02	0.01	0.01	0.01
Trade and hotels	5.88	3.78	2.58	1.34	0.05	0.06	0.05	0.08
Transport	0.54	0.35	0.11	0.05	0.00	0.01	0.00	0.00
Finance and real estate	0.77	0.46	0.20	0.01	0.01	0.01	0.00	0.00
Pub admn and servs	13.72	8.11	4.49	1.24	0.12	0.12	0.09	0.08
Total	116.27	66.10	50.14	15.84	1.00	1.00	1.00	1.00

have happened if non-farm TFP was held constant at 1983 levels, Eswaran et al (2008) estimate the contribution of the non-farm sector (in the period 1983 to 1999) to be at the most 22%, confirming the primary role of agricultural productivity in increasing agricultural wages.

5 Employment Shifts: Who Moves Out of Agriculture

In this section, we examine the sectoral patterns of employment (at the one-digit level) disaggregating the population into cohorts of eight-year age intervals, in order to see which age groups are the most mobile. In 1983, we start off with the following age cohorts: 18-25, 26-33, 34-41 and 42-49. In 1993-94, these cohorts become the age groups 28-35, 36-43, 44-51 and 52-59, respectively and in 2004-05, these cohorts are in the age-groups 39-46, 47-54, 55-62 and 63-70, respectively.

Tables 7(a)-7(c) (p 49) concern males for the years 1983, 1993-94 and 2004-05. Tables 8(a)-8(c) are similar tabulations for females. The first four columns of each of the tables are the employment numbers (in millions of person days per week) for each of the cohorts at the one-digit industrial classification. The last four columns of these tables are the employment proportions.

From the proportions data, it is clear that it is only the youngest cohort in 1983 of age 18-26 that shows a change in employment structure over time. Fifty-nine per cent of males in this cohort were employed in agriculture in 1983. By 2004-05, this figure had come down to 47%. From the information on the labour force days in different sectors, it can be seen that the labour force in agriculture for this male cohort actually increased between 1983 and 1993-94. However, the proportion declined because employment in the other sectors expanded even more. This must be because the males in the cohort who were out of the labour force (presumably studying) in 1983 went more into the non-farm sectors than into the farm sector in 1993-94.

The other male cohorts do not show much change in their employment structure over time. Because of life cycle effects, labour supply of the older cohorts (in 1983) declines with time and this seems to happen proportionately among all the sectors. As these cohorts are older, they do not experience the addition of more educated members into the labour force as seen in the 18-26 group. The oldest cohort in 1983 sees an increase in the share of agriculture principally because exit from other sectors (because of retirement) is faster than from agriculture.

The story for females is similar to that of males. The only change that occurs is in the cohort that is in the age group 18-26 in 1983. Compared to males, the decline in percentage share of agriculture is muted. The employment structure for older females in 1983 continues to be frozen in later years much like that of the older male cohorts.

6 Education and the Role of the Non-farm Sector

The previous section suggested that the shift out of agriculture is associated with education, since it is the young males (and to a lesser extent, young females) who are out of the labour force in

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Table 9: Average Earnings of Males with No Education for Cohort 34-42

Sectors	2004-05				1983			
	w_{ii}	p_{ii}	$p_{ii}w_{ii}$	$p_{ii}w_{ii}/W_i$	w_{oi}	p_{oi}	$p_{oi}w_{oi}$	$p_{oi}w_{oi}/W_o$
Agriculture	227.02	0.59	133.65	0.49	135.80	0.68	92.28	0.56
Mining	426.92	0.02	8.45	0.03	281.08	0.03	8.39	0.05
Manufacturing	357.91	0.10	37.25	0.14	217.86	0.09	18.74	0.11
Construction	303.13	0.18	54.69	0.20	249.00	0.08	20.95	0.13
Trade and hotels	319.43	0.03	9.07	0.03	150.63	0.02	3.21	0.02
Communications and Transport	417.10	0.04	17.67	0.06	215.07	0.04	8.08	0.05
Finance and real estate	179.51	0.00	0.13	0.00	212.09	0.00	0.27	0.00
Pub admn and servs	351.14	0.04	12.47	0.05	218.10	0.06	13.15	0.08

$W_i = 273.38, W_o = 165.08.$

Table 10: Average Earnings of Females with No Education for Cohort 34-42

Sectors	2004-05				1983			
	w_{ii}	p_{ii}	$p_{ii}w_{ii}$	$p_{ii}w_{ii}/W_i$	w_{oi}	p_{oi}	$p_{oi}w_{oi}$	$p_{oi}w_{oi}/W_o$
Agriculture	150.36	0.72	108.79	0.65	92.72	0.76	70.11	0.73
Mining	238.44	0.01	3.46	0.02	161.83	0.02	2.60	0.03
Manufacturing	173.90	0.06	9.97	0.06	97.05	0.07	7.23	0.08
Construction	233.08	0.07	17.42	0.10	106.60	0.06	6.07	0.06
Trade and hotels	163.11	0.01	1.89	0.01	109.05	0.00	0.37	0.00
Communications and Transport	177.20	0.00	0.41	0.00	117.31	0.00	0.36	0.00
Finance and real estate	114.33	0.00	0.04	0.00	103.02	0.00	0.04	0.00
Pub admn and servs	222.56	0.12	25.76	0.15	104.10	0.09	9.31	0.10

$W_i = 167.72, W_o = 96.09.$

1983 and who are presumably acquiring education that are more likely to be employed in the non-farm sector. To make this connection explicit, this section considers the role of the non-farm sector in the earnings of workers differentiated by their education levels.

A well-known feature of earnings data is that even after controlling for education and age, earnings differ between industries. In India, earnings in agriculture are typically the lowest. Other sectors earn a premium over agricultural earnings. Suppose W_o is the expected earnings of an illiterate person in 1983. Then

$$W_o = \sum_{i=1}^n p_{oi} w_{oi} \quad \dots(1)$$

where w_{oi} is the average earnings in sector i , p_{oi} is the probability of obtaining employment in sector i and n is the number of sectors. Similarly, if W_i denotes the expected earnings of an illiterate in 2004, then

$$W_i = \sum_{i=1}^n p_{ii} w_{ii} \quad \dots(2)$$

Notice that expected earnings in 2004 could be different from that in 1983 either because of an increase in sectoral earnings or because the sectoral probabilities of employment change or both.

If the agricultural sector is indexed by 1, then the contribution of this sector to the total income of the illiterates in each year is given by

$$\rho_o = p_{o1} w_{o1}/W_o \text{ and } \rho_i = p_{i1} w_{i1}/W_i \quad \dots(3)$$

To obtain the estimates of (1), (2) and (3), we compare the cohorts in the prime working age group of 34-42 in 1983 and in 2004-05.⁹ This is done separately for males and females and for different education levels. The self-employed are not included in this exercise since there is no earnings data available for

them. The sectoral probabilities of employment are approximated by the sectoral proportions of employment of the relevant sub-population.

Tables 9 and 10 show the results for wage workers who do not have literacy skills. For illiterate males, agricultural activity accounts for 59% of working days in 2004 as opposed to 68% in 1983. Notice that the entire shift is into construction with the rest of the sectoral distribution remaining virtually unchanged between the two years. It is interesting, however, that this shift has happened largely between 1999 and 2004 – the sectoral distribution was virtually unchanged between 1983 and 1999. In 1999, the proportion in agriculture of this cohort of illiterate males was 66%.

The increase in expected earnings for this group is therefore entirely due to higher earnings in agriculture and construction and not due to any major sectoral shifts of employment. However, while agricultural earnings for illiterate males increased by 67% during this period, earnings in construction increased by only 22%. Among the non-farm sectors construction commands the least industry premium (over agricultural earnings), followed by trade and hotels. Mining commands a very high premium but employs very few people. The change in the contribution of agriculture to the total earnings of this group mirrors the changes in the employment structure – it falls from 56% to 49% while that of construction increases from 13% to 20%.

For illiterate females, the contribution of agriculture to their total income is much higher – 73% in 1983 and 65% in 2004. Between 1983 and 2004, their dependence on agriculture for employment falls only slightly from 76% to 72%, with the shift being entirely into the government and private services sector. Expected earnings of illiterate females grew by 75% during this period, but most of it is accounted by the increase in agricultural earnings given the high dependence of women on agriculture.

Table 11: Average Earnings of Males with Middle School Education for Cohort 34-42

Sectors	2004-05				1983			
	w_{ii}	p_{ii}	$p_{ii}w_{ii}$	$p_{ii}w_{ii}/W_i$	w_{oi}	p_{oi}	$p_{oi}w_{oi}$	$p_{oi}w_{oi}/W_o$
Agriculture	245.60	0.19	47.13	0.09	170.78	0.07	12.05	0.03
Mining	911.12	0.02	15.98	0.03	346.25	0.01	5.00	0.01
Manufacturing	518.76	0.21	110.77	0.21	343.83	0.21	72.44	0.21
Construction	368.80	0.11	40.52	0.08	298.63	0.02	6.16	0.02
Trade and hotels	506.28	0.12	62.54	0.12	283.15	0.05	13.03	0.04
Communications and transport	683.74	0.14	99.01	0.18	359.00	0.12	42.85	0.12
Finance and real estate	583.51	0.03	19.81	0.04	350.93	0.03	11.35	0.03
Pub admn and servs	856.87	0.16	141.30	0.26	373.90	0.49	181.71	0.53

$W_i = 537.05, W_o = 344.58.$

Table 12: Average Earnings of Females with Middle School Education for Cohort 34-42

Sectors	2004-05				1983			
	w_{ii}	p_{ii}	$p_{ii}w_{ii}$	$p_{ii}w_{ii}/W_i$	w_{oi}	p_{oi}	$p_{oi}w_{oi}$	$p_{oi}w_{oi}/W_o$
Agriculture	161.22	0.23	37.24	0.11	120.30	0.03	3.99	0.01
Mining	246.87	0.01	1.26	0.00	0.00	0.00	0.00	0.00
Manufacturing	222.85	0.15	33.84	0.10	185.45	0.06	12.03	0.04
Construction	276.67	0.03	8.40	0.03	320.69	0.00	1.39	0.00
Trade and hotels	281.53	0.04	10.96	0.03	288.26	0.01	4.24	0.02
Communications and transport	636.58	0.02	13.40	0.04	277.56	0.05	15.20	0.05
Finance and real estate	477.80	0.00	2.22	0.01	431.44	0.02	8.80	0.03
Pub admn and servs	433.90	0.52	224.36	0.68	292.15	0.81	236.00	0.84

$W_i = 331.68, W_o = 281.64$

We, therefore, see that the non-farm sector has played a limited role in accounting for the higher earnings of male illiterates and none at all for female illiterates. How does the impact vary with education level? To answer this, we repeat the exercise in the earlier section for individuals who have completed middle or secondary school. The results are displayed in Tables 11 and 12 (p 51). Note that here too the earnings figures (as well as the sectoral proportions of employment) exclude the self-employed.

Notice that the contribution of agriculture drops dramatically for individuals who have completed middle school. Note that it is lower than agriculture's share in employment because of the much higher earnings in other sectors. There is something else noteworthy here: 93% of males in this group were employed in sectors other than agriculture in 1983 whereas only 81% of them were so employed in 2004. This is surprising since the non-farm sectors are expected to have created employment for this group during the 1980s and 1990s. Indeed, construction, trade, transportation have all increased their share of employment over the time period. It is the government and personal services segment that has dropped its employment share from 49% in 1983 to 16% in 2004. This is what is primarily responsible for the reduction of the contribution of non-farm sectors in the total earnings of this group.

Within the non-farm economy, four sectors account for most of the expected earnings. These are manufacturing, communications and transport, real estate and finance and the sector consisting of government, social and personal services.

7 Educational Premia

In the last section we saw that the non-farm sector demands a wage premium over what a worker with certain age and education characteristics can get in agriculture. It pays to get non-farm sector jobs and the probability of getting these jobs rises with education. In trying to assess the contribution of the growth in non-farm sectors toward poverty removal, we can ask the following important question: would the contribution have been greater if a much larger proportion of the population was educated? In other words, where is the bottleneck – in the rate at which the educated workforce is being generated or in the rate at which employment opportunities are being created? We can get some idea by looking at what is happening to the educational premia over time.

To capture this educational premium we estimated the following regression:

$$\ln W_{ij} = \beta_0 + B_1 'E_{ij} + B_2 'C_{ij} + B_3 'N_{ij} + \delta_j + \varepsilon_{ij}$$

where i indexes the individual and j indexes the state, W is earnings, E is a vector of dummy variables indicating the individual's education level, C is a vector of dummy variables for the individual's cohort, N is a vector of interaction variables between the education and cohort dummies and δ is a fixed effect specific to the state.

Since there are six educational classes in the 61st round and only five in the 38th round we have collapsed the educational classes into four groups that would be compatible across the two rounds: (1) illiterates, (2) primary, (3) middle school, and

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National Bank of Agriculture and Rural Development (NABARD) invites Expression of Interest (EOI) from reputed consultancy organisations and research institutes for undertaking a study on "Organised Agri-Food Retailing and Supply Chain Management". The study will be undertaken on all-India basis covering different states and all major agricultural commodities, including fruits and vegetables. The sample for the study should be representative of the various formats and stakeholders (both organized and unorganized) in the value chain so as

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The EOI may be forwarded in two separate sealed covers superscribed "Organised Agri-Food Retailing and Supply Chain Management-Technical Proposal and Financial Proposal" to the Chief General Manager, Department of Economic Analysis and Research, NABARD, 4th Floor, Plot No. C-24, 'C' Block, Bandra-Kurla Complex, Post Box No. 8121, Bandra (East), Mumbai 400 051.

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(4) graduates (high school graduates and also university graduates). The coefficients on educational dummies allow us to determine the educational premium for each cohort.

An illiterate worker belonging to the cohort 3 (i.e., age group 34-42) had an all India average weekly earnings of Rs 126 in 1983 while for a worker with primary education the figure was Rs 153. Thus, the wage premium for a worker with primary school education over an illiterate worker was Rs 27. Similarly, the wage premia for middle school and graduates over illiterate workers were Rs 96 and Rs 224, respectively. The results for the 61st round show that these premia have increased to Rs 86, Rs 197 and Rs 696, respectively. For the next older cohort, the increase in premia is even greater.

What this indicates to us is that if more middle school and high school graduates were available in 2004 they would have found employment in industry and services.¹⁰ The main reason why the non-farm sector has not been able to contribute more to poverty removal is that most of the employment it creates is for educated workers rather than for the illiterates and primary school graduates.

8 Concluding Remarks

The poverty debate in India has revolved around the movement in the headcount ratios of poverty. As this is also the poverty measure that is tracked by the government, the changes in this

ratio across different time periods have provoked great interest because of what it might say about the effectiveness of different government policies. This paper pursues a complementary and different approach.

The paper looks at agricultural wages as an index of incomes of the poor. By doing so, the paper is able to link the movement in wages (and hence poverty) to the fundamental process of sectoral labour flow that underlies economic development. This way we can begin to look at the mechanisms by which economic growth can reduce poverty.

Despite the rapid growth of the non-farm sector, its success in drawing labour from land has been limited. Yet agricultural earnings have increased demonstrating the pivotal role of agricultural productivity. It could be argued, however, that the historical experience is not useful for assessing future priorities and policies. With an even higher growth rate of the non-farm sector and a corresponding massive shift of labour, farm productivity might not be that relevant to poverty dynamics. Note though that as access to non-farm sector jobs is closely tied to education, we find that it is only the young male cohorts that show labour mobility. Older males and females of all ages are directly affected by slowdown in agricultural growth. The stock of labour force already locked into agriculture is large and the best way to improve their living standards would be the most direct one – of boosting farm productivity.

NOTES

- 1 See Eswaran and Kotwal (1993) for the precise model on which our framework is based.
- 2 The Planning Commission price deflators have been criticised for using outdated weights. Deaton and Tarozzi (2005) and Deaton (2005) have constructed alternative price deflators that use more appropriate weights for the components in the consumption basket. Their work does not, however, provide a price deflator for 1983.
- 3 Although we use the terms wages and earnings interchangeably, the information in NSS data captures earnings rather than wages. The two can differ, for instance, because of piece rate contracts.
- 4 The experience of states is diverse. State-wise earnings are given in Table A.1 in the Appendix.
- 5 This is not the only channel. Other channels could be through reducing price of agricultural inputs or reducing the price of the consumption basket of agricultural workers.
- 6 Of course, in several other countries like Taiwan and Indonesia the increases in agricultural productivity preceded the industrial expansion and also played an important role in increasing rural wages.
- 7 Note that the employment shares are for the entire economy – there is no division between the rural and urban sectors.
- 8 The increase has been marginal in Madhya Pradesh and Rajasthan.
- 9 We could do this exercise for different cohorts – the results are not very different. Hence we chose to illustrate with only one cohort and we picked the cohort in the prime working age.
- 10 For a contrary view, see Desai and Das (2004).

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Table A.1: State-wise Real Agricultural Wages (Rs in 1999 Rural Maharashtra Prices)

	Weekly Earnings				Average Daily Wages			
	2004-05	1999-00	1993-94	1983	2004-05	1999-00	1993-94	1983
AP	202.91	210.45	169.65	123.50	40.77	39.37	32.04	22.89
Assam	267.11	204.48	198.38	220.13	47.46	38.26	36.48	36.25
Bihar	203.01	171.11	141.14	109.36	38.51	34.39	24.96	20.33
Gujarat	195.65	179.06	163.77	134.59	39.18	37.00	33.77	26.05
Haryana	325.96	286.81	218.82	239.60	55.49	65.70	40.31	39.81
Karnataka	191.60	192.39	152.40	95.69	38.07	35.77	29.19	18.20
Kerala	344.63	309.49	251.23	186.19	78.71	76.69	54.26	44.28
MP	170.54	162.65	155.62	103.07	32.42	28.38	26.87	17.14
MH	161.28	166.62	139.94	98.97	31.48	36.38	25.60	18.55
Orissa	192.04	133.32	135.32	86.16	35.50	26.98	24.94	15.88
Punjab	301.51	346.92	359.98	219.21	54.59	59.89	57.44	41.08
Rajasthan	278.60	259.22	231.27	155.61	50.62	44.74	39.04	29.03
Tamil Nadu	195.50	194.46	148.46	85.17	44.27	46.54	32.31	19.69
UP	207.28	185.81	165.78	126.50	42.89	39.25	31.26	23.31
WB	185.45	192.14	164.50	122.93	38.73	40.55	34.09	26.38
All India	199.33	188.62	163.42	118.50	39.76	38.55	31.10	22.81

Table A.2: State-wise Employment Structure (Daily Status All Persons – 2004-05)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.540	0.120	0.214	0.095	0.970
Assam	0.648	0.040	0.190	0.114	0.991
Bihar	0.660	0.077	0.192	0.054	0.982
Gujarat	0.533	0.177	0.194	0.076	0.979
Haryana	0.480	0.146	0.255	0.097	0.978
Karnataka	0.601	0.106	0.188	0.079	0.975
Kerala	0.307	0.142	0.354	0.145	0.948
MP	0.663	0.084	0.160	0.073	0.979
MH	0.511	0.128	0.221	0.102	0.963
Orissa	0.584	0.119	0.202	0.076	0.981
Punjab	0.445	0.151	0.277	0.107	0.980
Rajasthan	0.581	0.100	0.221	0.073	0.975
Tamil Nadu	0.412	0.217	0.238	0.098	0.964
UP	0.577	0.129	0.210	0.071	0.987
WB	0.427	0.175	0.256	0.114	0.971
All India	0.539	0.128	0.218	0.090	0.975

Table A.3: State-wise Employment Structure (Daily Status All Persons – 1999-2000)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.603	0.099	0.178	0.099	0.979
Assam	0.587	0.043	0.172	0.183	0.986
Bihar	0.703	0.078	0.132	0.066	0.978
Gujarat	0.564	0.141	0.193	0.082	0.980
Haryana	0.497	0.157	0.229	0.095	0.978
Karnataka	0.633	0.115	0.162	0.069	0.979
Kerala	0.332	0.172	0.330	0.125	0.959
MP	0.725	0.073	0.120	0.066	0.984
MH	0.535	0.131	0.211	0.098	0.975
Orissa	0.658	0.099	0.150	0.073	0.979
Punjab	0.497	0.141	0.246	0.099	0.982
Rajasthan	0.635	0.083	0.190	0.065	0.972
Tamil Nadu	0.445	0.207	0.230	0.094	0.976
UP	0.613	0.119	0.177	0.079	0.988
WB	0.460	0.183	0.240	0.096	0.980
All India	0.580	0.121	0.189	0.090	0.980

Table A.4: State-wise Employment Structure (Daily Status All Persons – 1993-94)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.642	0.098	0.144	0.098	0.982
Assam	0.692	0.034	0.132	0.127	0.984
Bihar	0.740	0.056	0.114	0.076	0.986
Gujarat	0.567	0.162	0.145	0.110	0.984
Haryana	0.518	0.108	0.202	0.159	0.987
Karnataka	0.636	0.112	0.125	0.102	0.975
Kerala	0.439	0.148	0.243	0.139	0.969
MP	0.744	0.064	0.092	0.078	0.978
MH	0.568	0.123	0.162	0.123	0.975
Orissa	0.693	0.085	0.115	0.090	0.984
Punjab	0.535	0.124	0.191	0.138	0.989
Rajasthan	0.668	0.070	0.154	0.080	0.972
Tamil Nadu	0.477	0.201	0.179	0.121	0.978
UP	0.665	0.099	0.131	0.095	0.990
WB	0.462	0.197	0.190	0.131	0.979
All India	0.611	0.114	0.148	0.108	0.981

Table A.5: State-wise Employment Structure (Daily Status All Persons – 1983)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.641	0.115	0.136	0.094	0.986
Assam	0.708	0.044	0.128	0.112	0.992
Bihar	0.728	0.084	0.101	0.070	0.982
Gujarat	0.609	0.146	0.125	0.110	0.990
Haryana	0.618	0.093	0.140	0.135	0.985
Karnataka	0.637	0.125	0.138	0.080	0.979
Kerala	0.442	0.179	0.197	0.152	0.970
MP	0.747	0.077	0.085	0.066	0.975
MH	0.596	0.131	0.160	0.098	0.985
Orissa	0.670	0.101	0.110	0.102	0.982
Punjab	0.589	0.128	0.153	0.118	0.987
Rajasthan	0.740	0.078	0.112	0.062	0.991
Tamil Nadu	0.495	0.193	0.169	0.124	0.981
UP	0.688	0.102	0.114	0.090	0.994
WB	0.495	0.176	0.171	0.137	0.979
All India	0.634	0.118	0.133	0.099	0.984

Table A.6: State-wise Employment Structure (Daily Status Males – 2004-05)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.483	0.112	0.274	0.089	0.959
Assam	0.623	0.040	0.219	0.108	0.990
Bihar	0.637	0.070	0.220	0.054	0.980
Gujarat	0.447	0.210	0.247	0.069	0.972
Haryana	0.390	0.173	0.319	0.091	0.974
Karnataka	0.544	0.105	0.247	0.073	0.968
Kerala	0.283	0.119	0.448	0.091	0.942
MP	0.612	0.082	0.203	0.078	0.975
MH	0.416	0.154	0.291	0.093	0.953
Orissa	0.563	0.100	0.242	0.074	0.979
Punjab	0.378	0.171	0.345	0.082	0.976
Rajasthan	0.477	0.111	0.297	0.080	0.965
Tamil Nadu	0.344	0.212	0.307	0.088	0.952
UP	0.525	0.134	0.256	0.070	0.985
WB	0.437	0.146	0.297	0.088	0.968
All India	0.486	0.130	0.272	0.083	0.970

Table A.7: State-wise Employment Structure (Daily Status Males – 1999-2000)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.542	0.102	0.228	0.101	0.972
Assam	0.569	0.036	0.196	0.182	0.984
Bihar	0.685	0.072	0.151	0.067	0.975
Gujarat	0.480	0.175	0.239	0.081	0.975
Haryana	0.450	0.173	0.260	0.091	0.975
Karnataka	0.578	0.116	0.212	0.070	0.976
Kerala	0.325	0.133	0.409	0.089	0.956
MP	0.675	0.077	0.155	0.073	0.980
MH	0.426	0.164	0.279	0.099	0.969
Orissa	0.638	0.082	0.178	0.078	0.976
Punjab	0.445	0.158	0.294	0.083	0.979
Rajasthan	0.534	0.095	0.258	0.076	0.963
Tamil Nadu	0.389	0.205	0.290	0.084	0.969
UP	0.574	0.124	0.211	0.077	0.986
WB	0.472	0.160	0.267	0.078	0.977
All India	0.529	0.125	0.233	0.088	0.976

Table A.8: State-wise Employment Structure (Daily Status Males – 1993-94)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.585	0.096	0.184	0.110	0.975
Assam	0.683	0.031	0.149	0.120	0.983
Bihar	0.719	0.054	0.129	0.083	0.985
Gujarat	0.493	0.194	0.180	0.114	0.980
Haryana	0.449	0.120	0.242	0.174	0.985
Karnataka	0.593	0.105	0.159	0.113	0.969
Kerala	0.431	0.121	0.295	0.116	0.964
MP	0.698	0.068	0.118	0.090	0.974
MH	0.472	0.153	0.210	0.135	0.969
Orissa	0.676	0.078	0.133	0.096	0.983
Punjab	0.500	0.138	0.220	0.130	0.988
Rajasthan	0.567	0.092	0.208	0.097	0.964
Tamil Nadu	0.408	0.196	0.239	0.127	0.971
UP	0.633	0.103	0.153	0.100	0.988
WB	0.476	0.174	0.213	0.114	0.977
All India	0.566	0.117	0.182	0.113	0.977

Table A.9: State-wise Employment Structure (Daily Status Males – 1983)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.602	0.115	0.164	0.102	0.983
Assam	0.705	0.041	0.141	0.104	0.992
Bihar	0.712	0.081	0.113	0.075	0.980
Gujarat	0.534	0.179	0.152	0.121	0.987
Haryana	0.584	0.102	0.161	0.135	0.983
Karnataka	0.601	0.117	0.167	0.090	0.974
Kerala	0.446	0.153	0.244	0.124	0.967
MP	0.694	0.087	0.107	0.081	0.969
MH	0.512	0.162	0.195	0.112	0.981
Orissa	0.663	0.094	0.113	0.110	0.979
Punjab	0.590	0.128	0.165	0.104	0.987
Rajasthan	0.659	0.097	0.150	0.081	0.988
Tamil Nadu	0.444	0.194	0.212	0.125	0.975
UP	0.660	0.107	0.131	0.095	0.992
WB	0.505	0.170	0.188	0.115	0.978
All India	0.596	0.124	0.157	0.105	0.982

Table A.10: State-wise Employment Structure (Daily Status Females – 2004-05)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.637	0.134	0.113	0.104	0.988
Assam	0.774	0.039	0.043	0.140	0.997
Bihar	0.767	0.110	0.058	0.058	0.993
Gujarat	0.749	0.093	0.059	0.093	0.994
Haryana	0.781	0.057	0.039	0.115	0.992
Karnataka	0.720	0.109	0.066	0.093	0.988
Kerala	0.368	0.201	0.115	0.282	0.966
MP	0.779	0.087	0.061	0.062	0.989
MH	0.707	0.077	0.078	0.120	0.982
Orissa	0.644	0.174	0.090	0.079	0.987
Punjab	0.689	0.079	0.029	0.196	0.993
Rajasthan	0.793	0.078	0.066	0.058	0.995
Tamil Nadu	0.529	0.223	0.118	0.115	0.985
UP	0.764	0.111	0.044	0.075	0.994
WB	0.376	0.315	0.058	0.238	0.987
All India	0.681	0.124	0.075	0.108	0.988

Table A.11: State-wise Employment Structure (Daily Status Females – 1999-2000)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.713	0.094	0.089	0.095	0.991
Assam	0.686	0.081	0.034	0.191	0.993
Bihar	0.783	0.102	0.047	0.061	0.993
Gujarat	0.769	0.059	0.081	0.083	0.991
Haryana	0.750	0.070	0.063	0.111	0.994
Karnataka	0.750	0.114	0.057	0.065	0.986
Kerala	0.351	0.278	0.111	0.226	0.966
MP	0.837	0.063	0.042	0.050	0.992
MH	0.772	0.058	0.064	0.094	0.989
Orissa	0.713	0.144	0.071	0.059	0.987
Punjab	0.722	0.067	0.039	0.168	0.996
Rajasthan	0.853	0.056	0.042	0.041	0.992
Tamil Nadu	0.557	0.211	0.109	0.113	0.990
UP	0.774	0.100	0.037	0.086	0.996
WB	0.388	0.319	0.081	0.206	0.993
All India	0.723	0.108	0.066	0.093	0.990

Table A.12: State-wise Employment Structure (Daily Status Females – 1993-94)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.740	0.101	0.074	0.078	0.993
Assam	0.743	0.050	0.027	0.167	0.988
Bihar	0.837	0.061	0.049	0.045	0.992
Gujarat	0.766	0.075	0.051	0.101	0.993
Haryana	0.795	0.059	0.041	0.101	0.996
Karnataka	0.727	0.128	0.054	0.078	0.988
Kerala	0.462	0.228	0.089	0.206	0.985
MP	0.849	0.055	0.034	0.048	0.987
MH	0.757	0.064	0.067	0.099	0.987
Orissa	0.744	0.106	0.061	0.074	0.984
Punjab	0.736	0.046	0.031	0.183	0.996
Rajasthan	0.863	0.027	0.050	0.047	0.987
Tamil Nadu	0.603	0.208	0.070	0.110	0.992
UP	0.803	0.085	0.036	0.072	0.997
WB	0.383	0.323	0.064	0.220	0.990
All India	0.737	0.104	0.056	0.093	0.990

Table A.13: State-wise Employment Structure (Daily Status Females – 1983)

	Agriculture	Manufacturing	Construction, Trade & Hotels, Transport, Storage and Communications	Government Services, Education, Health, Community Services, Personal Services	Total
AP	0.716	0.114	0.082	0.080	0.991
Assam	0.731	0.065	0.028	0.172	0.995
Bihar	0.787	0.094	0.055	0.052	0.988
Gujarat	0.809	0.056	0.050	0.083	0.998
Haryana	0.797	0.041	0.025	0.134	0.998
Karnataka	0.720	0.144	0.070	0.055	0.990
Kerala	0.432	0.251	0.066	0.229	0.977
MP	0.857	0.058	0.038	0.035	0.988
MH	0.773	0.064	0.087	0.069	0.994
Orissa	0.691	0.123	0.101	0.076	0.990
Punjab	0.572	0.135	0.049	0.232	0.988
Rajasthan	0.886	0.043	0.042	0.027	0.998
Tamil Nadu	0.603	0.190	0.079	0.122	0.994
UP	0.805	0.081	0.044	0.069	0.999
WB	0.437	0.207	0.071	0.276	0.991
All India	0.744	0.102	0.063	0.084	0.992