

## **GROWTH AND INEQUALITY OF WAGES IN INDIA: RECENT TRENDS AND PATTERNS**

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*The analysis of National Sample Survey (NSS) unit level data shows that wage growth had declined between 1993-94 and 2004-05 for both regular employees and casual workers. The decline in growth rate of wages has been particularly severe for regular workers such that there was an absolute decline in wage rate during the period 1999-2004. Regional trends show that slow down of wage growth is spreading at a faster rate to all parts of the country. Wage inequality does not seem to be accentuating between educational categories, while it is widening within educational categories. It seems to be widening between service sector and other sectors, but declining between manufacturing and agriculture sectors. Within sector inequality also is increasing in the service sector while it is declining in the manufacturing and agriculture sectors. These trends in wage growth and disparity may be central in explaining the observed rise of self employment and worsening of income inequality. They also throw light on probable changes in distribution of the value added.*

### **I. INTRODUCTION**

The Indian economy had witnessed exceptional growth during the last decade since liberalisation. However, the same period witnessed concentration of wealth in fewer hands as depicted in accentuation of income inequalities (Deaton and Dreze, 2002; Sen and Himanshu, 2005; Sundaram and Tendulkar, 2003), and spoils of this excellent growth phase was inaccessible to a large segment of the labour force due to the peculiar 'jobless growth' (Bhattacharya and Shaktivel, 2003) during a major part of the last decade. When employment growth started picking up as shown in the 61st NSS round, it was mainly concentrated in the self-employed category, while wage employment was more or less stagnant. Given that the expected returns of the self-employed workers lay way below the stipulated minimum wages, the rise in self employment points towards distressed movement away from wage employment (Chandrasekhar and Ghosh, 2007).

Growth without job creation, however, should be productivity augmenting, hence wage enhancing. Conversely, the emergence of self employment points towards very low wage expectations from wage employment. These conflicting setting within the labour market signals growing distress in wage employment in terms of growth and distribution. To understand this disparity in wage employment, we analyse the direction and magnitude of changes in wage rates during the last two decades.

Further, disparities in levels of wage rates are analysed using two contending paradigms: the variations in wage rates based on levels of education and wage variations across sectors. The categorisation based on levels of education seeks evidence for skill-biased changes in wage rates. The sector-based wage variations, on the other hand, searches for evidence on

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wage inequality arising out of inter-sectoral variations in growth performance in the economy. Section 2 gives details on data used and the method of wage rate estimation. Sections 3 and 4 explore the growth and inequality in wages respectively. Section 5 relates the patterns in wage inequality to levels of education and industrial sectors. Finally the last section draws implications and broad conclusions of the study.

## II. DATA AND MEASUREMENT<sup>1</sup>

For the purpose of this paper unit level data of the NSS conducted for the years 1983, 1993-94, 1999-2000 and 2004-05 obtained from Central Statistical Organisation (CSO), India was utilised. The data were taken only for workers who reported as casual or regular workers as their current weekly status. The age group covered is from 15 to 65. The regional cover consists of 16 major states in India.

Wage rate was calculated as average wage per day. For the purpose, the total reported wages received in a week by each individual was divided by the total number of days of work in a week. The wage rate was further deflated using consumer price index for agricultural labourers (CPIAL) for the rural areas and consumer price index for industrial workers (CPIIW) for the urban areas at the state level. Using the state-level conversion table provided by CSO the base years were shifted to 1960-61 for both the series. Then all wage rates were deflated to the 1983 prices using the respective indices.

## III. TRENDS IN REAL WAGE RATES

The real wage rate among regular workers had increased from Rs. 20.67 in 1983 to Rs. 39.0 in 1999,<sup>2</sup> but there was, for the first time in the quarter of a century, a decline in the real wage rates by more than one rupee to Rs. 37.8 in 2004 (Tables 1 and 2). Among the casual workers, the real wage rates increased from Rs. 7.2 to Rs. 13.4 during the period from 1983 to 2004-05. However, whether it is casual or regular employment, between every round of NSS there has been a secular deceleration in growth of wage rates. For the regular workers the growth rates declined from 4.1 per cent per annum during the period 1983-1993 to 3.9 per cent during 1993-1999, and by 2004 the rate turned out to be negative at -0.62 per cent. For the casual workers the rates had declined from 3.3 per cent to 3.1 per cent to 1.9 per cent during the same periods. Such a decline in the growth of wage rate of casual workers was reported by Srivastava and Singh (2006) as well for the period 1983-1999.<sup>3</sup> In both types of employment, the greatest deceleration had been during the period 1999-2004.

The deceleration in growth rate of wages is pervasive across location and gender, especially so in the period 1999-2004. Among urban males and females, in both regular and casual employment, the real wage level itself had declined during 1999-2004. The decline in growth rate is pervasive across both rural and urban, male and female, regular and casual employment. The urban regular male workers and rural male casual workers, the two representative groups of Indian workers, had experienced a marginal rise in growth of wage rates during the previous period 1993-99, but both these groups experienced decline in the later period. For the urban male regular workers it declined from 7.43 per cent in 1993-99 to -4.17 per cent in 1999-05, and for the rural casual male workers the growth rates declined from 3.33 to 3.19 per cent.

A comparison across the two decades of 1983-1993 and 1993-04, clearly shows that the growth of wage rates in the first period had been substantially higher than the second period in

**Table 1**  
**Real Wage Rate Levels and Growth Rates: Regular Employees (At 1983 Prices)**

Year	Rural			Urban			Total
	Male	Female	Person	Male	Female	Person	
<i>Real daily wage rate</i>							
1983	15.33	10.44	14.63	24.45	17.02	23.48	20.67
1993	28.33	18.9	26.94	33.45	27.2	32.46	30.92
1999	36.98	24.88	34.99	41.77	35.1	40.67	39.05
2004	41.72	25.7	38.73	39.69	28.37	37.27	37.84
<i>Compound annual growth rate</i>							
1983–1993	6.33	6.11	6.30	3.18	4.80	3.29	4.11
1993–1999	4.54	4.69	4.45	3.77	4.34	3.83	3.97
1999–2004	2.44	0.65	2.05	-1.02	-4.17	-1.73	-0.63
1993–2004	3.58	2.83	3.36	1.57	0.38	1.26	1.85

Source: NSS unit level data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

**Table 2**  
**Real Wage Rate Levels and Growth Rates: Casual Workers (At 1983 Prices)**

Year	Rural			Urban			Total
	Male	Female	Person	Male	Female	Person	
<i>Real daily wage rate</i>							
1983	7.79	4.89	6.77	11.1	5.62	9.51	7.28
1993	10.69	7.31	9.56	13.62	7.78	12.01	10.09
1999	13.02	8.39	11.51	16.01	9.27	14.54	12.17
2004	15.23	9.04	13.23	15.59	8.98	14.05	13.42
<i>Compound annual growth rate</i>							
1983–1993	3.22	4.10	3.51	2.07	3.31	2.36	3.32
1993–1999	3.34	2.32	3.14	2.73	2.96	3.24	3.17
1999–2004	3.19	1.50	2.82	-0.53	-0.63	-0.68	1.97
1993–2004	3.27	1.95	3.00	1.24	1.31	1.44	2.63

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

all sectors, gender and employment status, except for the rural casual male workers, which is marginally higher in the second period. However, this margin petered out in the period 1999–2004 exhibiting a secular and pervasive decline in growth of wage rates.

The most striking aspect about the regional patterns in real wage growth is that the negative growth rate (or a decline in the wage rate levels) during 1999–2004, among regular employees is almost a pan-Indian phenomenon. Barring the states of Assam, Bihar, Punjab, and Uttar Pradesh, all major states in the country experienced this negative growth in the regular wage rates (Table 3). In the case of casual wage rates, though the growth rate is positive among most states, a few states such as Haryana, Punjab, Rajasthan and West Bengal had shown negative growth rates. This negative growth rate in wages needs to be a serious concern. A decline in the growth rates in wage rates had never occurred in any states in India

Table 3  
Real Wage Rate Growth Rates across States (At 1983 Prices)

State	Regular			Casual		
	1983-1993	1993-1999	1999-2004	1983-1993	1993-1999	1999-2004
Andhra Pradesh	7.45	-0.92	-3.45	5.28	0.10	0.67
Assam	4.69	2.73	5.82	1.57	2.35	2.89
Bihar	5.11	6.06	0.42	1.71	6.30	3.05
Gujarat	2.87	4.61	-3.13	2.58	2.00	0.69
Haryana	2.54	8.00	-5.27	0.58	5.12	-1.45
Himachal Pradesh	1.34	7.81	-1.36	2.79	7.03	2.91
Karnataka	2.91	2.89	-0.38	3.89	3.44	1.30
Kerala	3.05	4.58	-0.19	2.00	5.66	2.50
Madhya Pradesh	5.09	4.35	-2.60	4.08	0.48	3.23
Maharashtra	3.02	3.45	-0.21	3.27	2.63	0.21
Orissa	5.99	7.70	-0.57	2.06	4.69	6.06
Punjab	4.44	3.55	1.82	2.71	0.91	-0.62
Rajasthan	4.17	4.61	-1.89	2.84	3.44	-0.90
Tamil Nadu	3.53	4.51	-0.61	4.94	5.52	1.10
Uttar Pradesh	4.46	2.66	2.11	2.80	2.42	1.79
West Bengal	3.67	5.89	-2.83	2.88	3.20	-0.06
Group Total	4.10	3.97	-0.63	3.32	3.16	1.98

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

during the period of 1983-1999, nearly two decades, except in the sole case of the regular workers in Andhra Pradesh during the period 1993-99.

A negative growth rate in the wages (or a decline in the wage rate) may not be an abrupt occurrence out of the blue. These negative trends in growth should have been preceded by deceleration in growth rates. To understand the deceleration/acceleration trends the growth rate of the latter period is subtracted from the earlier period and the states that experienced deceleration/acceleration is classified in Table 4.

The deceleration in the growth of wages was initially concentrated in certain states and as time period moves from 1983 to 2004, the decline in growth spreads faster across most regions. Of the 16 major states considered in the study, the growth rate of 6 states among regular employees and 7 states among casual workers decelerated during 1993-99 compared to the previous period of 1983-93, while the rest experienced acceleration. But the deceleration trend for regular employees spread out to 15 out of the 16 states, barring Assam during the period 1999-2004 in comparison to the previous period 1993-99. The story in the casual wage growth is not different. Here too, the growth rates declined in 12 of the 16 states.

From the above analysis of growth and level of wages three observations are made. One, growth of wage rates had slowed down in both casual and regular workers. Two, this decline had been occurring through out the decade of 1993-2004. Thirdly, the deceleration trend in wage growth is spreading to all parts of the country. As to the question whether the decline in wage rates had occurred prior to 1993, this paper is unable to answer owing to data limitations.<sup>4</sup> The decline in growth of wages, however, need not be uniformly affecting the workforce. The differential pattern of wage growth and its levels across the working population is captured in the next section.

Table 4  
Regional Patterns in Acceleration/ Deceleration in Growth of Average Wage Rates

	<i>Regular</i>		<i>Casual</i>	
	<i>Period 1&amp;2</i>	<i>Period 2&amp;3</i>	<i>Period 1&amp;2</i>	<i>Period 2&amp;3</i>
Deceleration	Andhra Pradesh Assam Karnataka Madhya Pradesh Punjab Uttar Pradesh	Andhra Pradesh, Bihar, Gujarat,Haryana, Himachal Pradesh, Karnataka, Kerala Madhya Pradesh, Maharashtra,Orissa, Punjab,Rajasthan Tamil Nadu, Uttar Pradesh, West Bengal	Andhra Pradesh Gujarat Karnataka Madhya Pradesh Maharashtra Punjab Uttar Pradesh	Bihar,Gujarat, Haryana, Himachal Pradesh, Karnataka,Kerala, Maharashtra,Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal
Acceleration	Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Kerala, Maharashtra, Orissa, Rajasthan, Tamil Nadu, West Bengal	Assam	Assam, Bihar, Haryana, Himachal Pradesh, Kerala, Orissa, Rajasthan, Tamil Nadu, West Bengal	Assam Andhra Pradesh Madhya Pradesh Orissa

*Note:* Period 1 & 2 is the difference between growth rate of 1993-99 and growth rate of 1983-93.

Period 2&3 is the difference between growth rate of 1999-2004 and growth rate of 1993-99.

*Source:* NSS unit level data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

#### IV. TRENDS IN WAGE INEQUALITY

To analyse wage inequality, the workers are classified into decile groups based on their wage rates. To understand inequality among workers, first we take the static picture of inter-decile variations. To make them comparable across years the wage rate of each of the decile figures are expressed as a ratio of the first decile, which is the lowest wage earning group. The estimated figures for both regular and casual workers are given in Table 5.

At first blush it seems that there have not been any significant changes in wage inequality for regular employees during the period 1983-2004, as the wage rate in the 10th decile is about 33 times higher than the first decile in both the years. Between 1983 and 1993 the variations between extreme deciles had been nearly 22 times, but then increased to 26 times in 1999. Thus between 1983 and 1993 the range of the wage rates had reduced, but since 1993 the range had been widening, and by 2004 the range had reached to 1983 levels. A comparison of the values across time period brings out one important observation: below the 5th decile the distance between the first and the other deciles are reducing over the years. For example, the second decile reduced from 1.6 in 1983 to 1.5 in 1993 and further to 1.4 in 2004, which means the wage rate in 2004 for the second decile was 1.4 times the first decile while it was 1.6 times in 1983. But if we take the points above the 5th decile, interestingly there is a clear rise in the ratio over time. For example, the 6th decile had increased from 4.2 to 4.7 and the 7th decile increased from 5.0 to 6.5 during the period 1983-04. Moreover, the rise in the ratio is consistent across the time period. These figures essentially connotes that at the lower

spectrum (below the 5th decile) the wage inequality is declining, while at the upper spectrum (above 5th decile) the wage inequality is widening among the regular workers. Kijima (2006) studying the wage inequality in urban India till the period 1983 to 1999-2000 had made similar observation that among the lower wage groups wage inequality was more or less stable while for the higher wage groups wage inequality was widening. Figure 1 brings out these divergent trends in wage inequality clearly. As can be seen, the lines representing ratio of 9th decile to 1st and 7th decile to 1st are diverging away from one, while the ratio of 5th and the 3rd decile are converging towards one.

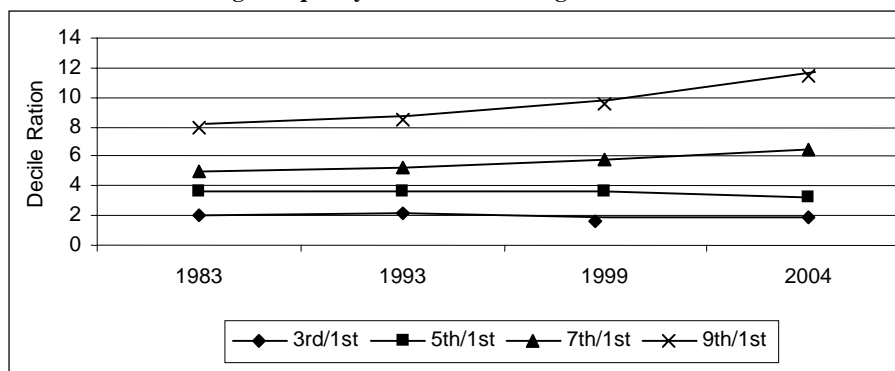
The wage inequality among casual workers is considerably lower than the regular workers. There is no widening of wage inequality in the case of casual workers. Intertemporal comparison of the calculated ratios shows that between 1983 and 1993 there was some reduction in wage inequality across all deciles, and after that there has been remarkable stability in wage inequality till 2004. Interestingly, the distance from the 1st decile to the 5th

Table 5  
Inter-Decile Variations in Wage Rate

Decile ratio	Regular workers				Casual workers			
	1983	1993	1999	2004	1983	1993	1999	2004
1st/1st	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2nd/1st	1.6	1.5	1.5	1.4	1.3	1.2	1.3	1.2
3rd/1st	2.0	2.1	1.9	1.9	1.7	1.5	1.5	1.5
4th /1st	2.9	2.8	2.6	2.5	1.7	1.7	1.7	1.7
5th/1st	3.6	3.6	3.6	3.2	2.0	1.9	2.0	1.9
6th/1st	4.2	4.4	4.6	4.7	2.3	2.1	2.2	2.2
7th/1st	5.0	5.3	5.8	6.5	2.7	2.5	2.5	2.5
8th/1st	6.0	6.5	7.2	8.6	3.3	2.9	2.9	2.9
9th/1st	8.0	8.5	9.5	11.5	4.0	3.7	3.7	3.7
10th/1st	33.2	21.6	25.9	33.0	50.5	20.8	40.0	24.8
9th /5th	2.2	2.4	2.7	3.6	2.0	1.9	1.9	1.9

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

Figure 1  
Wage inequality across Deciles-Regular Workers



Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

decile and the 9th decile is more or less proportionate. The 5th to 1st decile ratio is 1.9 and that of 9th to 1st is nearly the double, *i.e.* 3.7. Thus wage inequality among the casual workers had been more or less stable during the last two decades. This study thus confirms the argument put forward by Dutta (2005) that wage inequality was worsening among the regular workers, but it differs from her view that inequality among casual workers had declined. From this analysis at best one could say is that it had not worsened for the casual workers.

Table 6 provides the decile variation in wage rate between successive NSS rounds for both regular employees and casual workers. For decadal comparison, the last column in each panel provides the variations during the period 1993-94 to 2004-05. During the period 1983--93, the 1st decile experienced an increase of Rs 2.2 for regular employees. But as one moves up the decile scale, the increase in each decile class is higher with the 9th decile recording an increase of Rs. 21.2. Thus clearly the distribution of wage rate increment is such that the rise in wage rate is much higher among the high wage earning groups rather than the low wage earners, which accounts for the widening inequality among the regular workers during the period. Such an increasing trend in wage inequality is visible during the period 1993-99 as well. During the period 1999-04 the wage increment is confined to the 8th percentile and above, while all the deciles below experienced absolute decline in the wage rates. Thus if inequality of wage rates was widening in relative terms during the period 1993-1999, during the period 1999-2004 wage inequality was widening in absolute terms, with low wage earners earning less in 2004 than what they earned in 1999, while high wage earners earned higher than what they earned in 1999. Figure 2 shows the decadal variations in wage earnings. It shows that between the lowest and the 5th decile there is an absolute decline in wage rates during the decade 1993-2004, while in the deciles above the 5th there is an absolute increase in wage rates. Moreover, the gap between the two periods reduces continuously as one moves up from 5th decile upwards, implying the wage increase in the high wage earners is almost equal during the two periods, while the low wage earners position has deteriorated during the last decade.

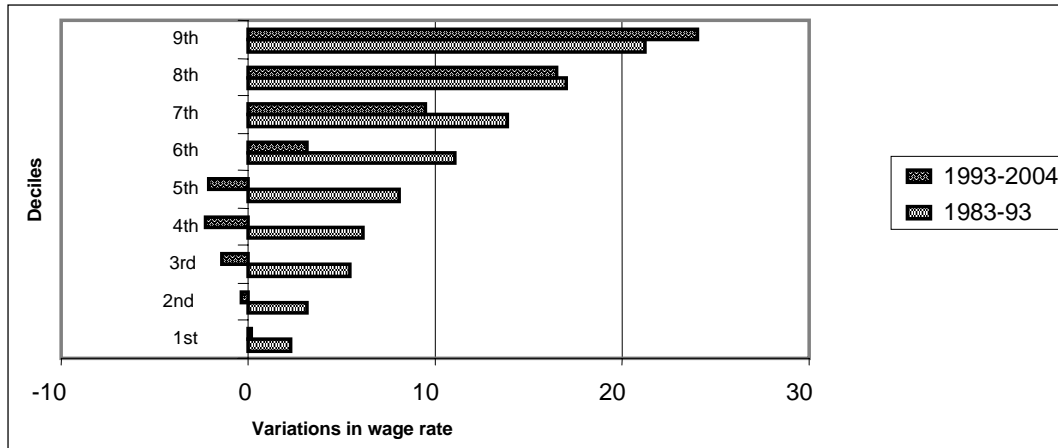
For casual workers, however, the incremental widening of wage inequality is very low compared to regular workers. Between the 1st and the 9th decile the increment in wage rate

Table 6  
Inter-temporal Variations in Wage Rates across Deciles

Decile	Regular workers				Casual workers			
	1983-93	1993-99	1999-04	1993-04	1983-93	1993-99	1999-04	1993-04
1st	2.2	1.2	-1.1	0.2	1.6	0.8	0.6	1.4
2nd	3.1	1.5	-1.8	-0.3	1.7	1.1	0.7	1.7
3rd	5.4	1.2	-2.6	-1.4	1.9	1.2	1.0	2.2
4th	6.2	2.0	-4.3	-2.3	3.1	1.1	1.3	2.4
5th	8.1	4.3	-6.4	-2.1	2.9	1.8	1.2	3.0
6th	11.0	7.3	-4.1	3.2	2.9	2.1	1.0	3.2
7th	13.8	10.2	-0.7	9.5	3.6	1.9	1.5	3.4
8th	17.0	14.1	2.3	16.5	3.4	2.1	1.9	4.0
9th	21.2	19.2	4.9	24.1	4.8	3.3	2.2	5.5
10th	-9.3	62.9	25.0	87.8	-55.0	121.7	-67.4	54.4

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

Figure 2  
Decile Variations in Wage Rates: Regular Workers



Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

differs by Rs. 3.2 in the period 1983-93. This difference continues in the later decade 1993-04 as well. Comparison between the periods also shows that there are no incremental changes in wage inequality among the casual workers.

## V. WAGE INEQUALITY: ROLE OF EDUCATION AND INDUSTRY

The above analysis has brought out evidence for widening wage inequality among workers through out the last decade. Now, we turn to understanding these trends in wage inequality. Two important hypotheses related to wage inequality pertains to wage variations owing to skill differences and wage variations due to growth differences across sectors. The wage premia to education vary by levels of education. Moreover, any technological change biased towards increasing the demand for educated workers would increase the wage differential between educated (or skilled) workers and less educated (or skilled). The increase in wage rate for the skilled workers would be equal to the increase in productivity due to technological change. Such skill-biased technological changes generally occurring across the economy, permeating to all sectors, would raise greater demand for educated workers thus bringing in wage differentials across levels of education as the most prominent factor. A typical example of such change is the diffusion of information technology in the economy.

On the other hand, wage variation may not be skill specific, but sector specific. Growth differences in various sectors of the economy could lead to widening inter-sectoral wage variations. As a corollary to this, trade theory argues that competitive advantage and other country-specific advantages induces countries to specialise in certain sectors of the economy, while the demand for other domestic-focused industry would remain low, thus creating inter industry wage differentials a prominent component of the total wage differentials.

First we take a look at the first hypothesis, *i.e.* relating education to wage inequality. Tables 7 and 8 provide the wage ratio of the lowest educational category to other educational groups. The wage inequality across educational categories for both regular workers and casual workers had been remarkably stable during the last two decades. Among the regular



Table 7  
**Wage Differentials between Levels of Education: Regular Employees**

Level of educational	Average wage rates (Rs. daily in 1983 price)				Wage ratio of not-literates to other groups				Growth rates of wage rates		
	1983	1993	1999	2004	1983	1993	1999	2004	1983-93	1993-99	1999-04
Not literate	10.5	15.3	19	16.1	1.00	1.00	1.00	1.00	3.8	3.6	-3.2
Literate but below primary	15	19.9	23.2	20.9	1.43	1.30	1.22	1.30	2.9	2.6	-2
Primary	15.7	20.4	23.8	21.6	1.50	1.33	1.25	1.34	2.6	2.6	-1.9
Middle	18.6	24	28	25.7	1.77	1.57	1.47	1.60	2.6	2.7	-1.7
Secondary	26.5	34.9	43.4	37.5	2.52	2.28	2.28	2.33	2.8	3.7	-2.9
Graduate and above	38.4	52.3	66.7	59	3.66	3.42	3.51	3.66	3.1	4.2	-2.4
Total	21.2	32.3	40.9	39.1					4.3	4	-0.9

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

workers, wage rate of the highest educated, graduates and above, to not-literates, had been around 3.5 times since 1983. The ratio between literates and not-literates declined marginally from 1.4 in 1983 to 1.2 in 1999, but it increased to 1.3 by 2004. The ratio had shown marginal decline for all educational groups between 1983 and 1999 but increased marginally since 1999. A comparison of the growth rate of wage rate between educational groups also confirms the above observation that wage disparity between educational categories had been more or less stable during the last decade. The growth rate during 1983-93 remained in a close range between 2.6 per cent and 3.8 per cent. During the period 1993-99, it was between 2.6 and 4.2 per cent while during 1999-2004 it was -2 and -3.2 per cent.

The above observations made for regular workers remain more or less the same among the casual workers too. The wage rate for the most educated group was more than two times higher than the wage rates for the not-literates in 1983, which declined to less than 1.5 times by 2004. The growth rates of wages across different educational categories, interestingly shows that the wage rate for the less educated was growing faster than the educated groups in

Table 8  
**Wage Differentials between Levels of Education: Casual Workers**

Level of educational	Average wage rates (Rs. daily in 1983 price)				Wage ratio of not literates to other groups				Growth rates of wage rates		
	1983	1993	1999	2004	1983	1993	1999	2004	1983--93	1993--99	1999-04
Not literate	6.4	9.4	11	11.8	1.00	1.00	1.00	1.00	3.8	2.8	1.4
Literate but below primary	8.7	11.5	13.9	14.6	1.36	1.22	1.26	1.24	2.8	3.2	1
Primary	9.3	12.8	15.3	15.6	1.45	1.36	1.39	1.32	3.3	3	0.3
Middle	10.1	13.7	16.1	17.1	1.58	1.46	1.46	1.45	3.1	2.7	1.3
Secondary	10.8	13.3	16.6	17.3	1.69	1.41	1.51	1.47	2.1	3.7	0.9
Graduate and above	13.2	14	18.6	17.2	2.06	1.49	1.69	1.46	0.6	4.9	-1.6
Total	7.1	10.6	12.9	14					4	3.3	1.7

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

the period 1983-93 and 1999-04, while in the mid period 1993-99 there was a trend of higher wage growth for the more educated.

Thus, *prima facie*, there seems to be evidence of skill premia for workers, as argued by Duraisamy and Duraisamy (2005), but there is no evidence for incremental changes in this skill premia, which would have shown up if there were technological changes that increased demand for skilled workers.

However, from 'between differences' if we move to 'differences within' each educational category, certain interesting patterns emerge. Table 9 provides wage rates for the 25th, 50th and 75th percentiles of wage rates within each level of education. Among the less educated groups, that is not literate, literate but below primary, primary and middle school, wage rate differences within each category is declining, but among the higher educated groups, *i.e.* secondary level and above, the within-differences are widening. For the not-literate, the ratio of the 25th percentile to the 75th percentile declined from 2.02 in 1983 to 1.95 in 2004; for below primary it declined from 2.38 to 1.93; for primary the decline was from 2.67 to 2.09 and for middle school the decline was from 2.63 to 2.36. On the other hand, the ratio of 25th to 75th percentile increased from 1.99 in 1983 to 3.66 in 2004, in the case of secondary educated workers and for graduate and above workers the ratio increased from 1.87 to 3.67 during the period. Widening inequality within higher educational groups along with declining inequality within less educated groups, and at the same time the stability of wage inequality between educational groups prompts us to reject the hypothesis that skill-biased changes are appearing within production. Such changes would have increased the demand for educated workers and

Table 9  
Wage Differentials within Educational Groups

Level of education	Percentiles	Wage rate				Wage ratio of 25th to 50th and 75th percentiles			
		1983	1993	1999	2004	1983	1993	1999	2004
Not literate	25	4	5.8	6.9	7.4	1.00	1.00	1.00	1.00
	50	6	8.4	9.6	10.7	1.50	1.45	1.39	1.45
	75	8.2	11.7	13.4	14.4	2.05	2.02	1.94	1.95
Literate but below primary	25	6	7.8	8.6	9.5	1.00	1.00	1.00	1.00
	50	8.5	11.1	12.6	13.1	1.42	1.42	1.47	1.38
	75	14.3	16.3	18.1	18.3	2.38	2.09	2.10	1.9
Primary	25	6	8.3	9.3	9.6	1.00	1.00	1.00	1.00
	50	10	12.2	13.6	13.8	1.67	1.47	1.46	1.44
	75	16	19.2	20.9	20.1	2.67	2.31	2.25	2.09
Middl	25	8	9.3	10.2	10.3	1.00	1.00	1.00	1.00
	50	14.3	14.6	15.1	15.1	1.79	1.57	1.48	1.47
	75	21	24.8	26.1	24.3	2.63	2.67	2.56	2.36
Secondary	25	15.7	14.7	14.8	12.4	1.00	1.00	1.00	1.00
	50	23.3	28.6	29.6	20.7	1.48	1.95	2.00	1.67
	75	31.3	41.7	51.6	44.6	1.99	2.84	3.49	3.60
Graduate and above	25	25	30.4	34.6	21	1.00	1.00	1.00	1.00
	50	33.3	46.2	57.8	48.9	1.33	1.52	1.67	2.33
	75	46.8	64.6	83.4	77	1.87	2.13	2.41	3.67

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

brought in sharper divides in the wage rates between educational groups rather than within educational groups.

However, the widening wage differentials within higher educational groups give greater impetus to the argument in support of sector-biased changes in labour demand and greater inter-sectoral wage inequality. It is to this direction that we focus our attention to. For this purpose, inter-sectoral and within-sector wage variations are calculated.

All sectors experienced a decline in the growth rates in wage rates during the period 1999-04 (Table 10). However, if we take a longer period it is important to notice the decline in wage rate in the two commodity producing sectors of the economy, namely agriculture and allied sectors and manufacturing sectors.

The agriculture sector had been experiencing a decline in the growth of wage rates from 3.3 per cent during 1983-93 to 3.0 per cent in the period 1993-99 and then to 1.4 per cent in 1999-04. This decline is probably due to the slowing down of productivity growth in the sector. Such a decline in wage rate among agriculture labour was noted by other studies as well. Himanshu (2006) while studying the agrarian labour for the period till 1999-2000 had similarly identified a decline in the real wage rate of agricultural workers. Chavan and Bedamatta (2006) studying agricultural wages had also concluded that growth of agricultural wages had slowed down in the nineties. Our study shows that the growth rate of wages in the manufacturing sector also declined from 3.3 to 2.1 to -2.0 per cent during the same period. The decline in wage rate growth also coincides with slow growth phase of these two sectors during the same period. Such a decline in growth rate was experienced in the construction sector as well.

The decline in growth of wage rates in the period 1999-04 reduced the degree of wage inequality across sectors as well to some extent. However, the most noteworthy aspect is that while the wage differentials between agriculture and manufacturing sectors are declining over the years, the wage differential of these two sectors with that of the service sector is widening. Table 10 shows that the distance between agriculture and manufacturing sectors declined. The manufacturing sector wage rates declined from 2.4 times to 1.9 times of agriculture wage rates during 1983-2004. Similarly, construction wage differential to agriculture sector declined

Table 10  
Inter-sectoral Variations in Level and Growth of Wage Rates

Sector	Annual average growth rate				Wage ratio of agriculture to other sectors			
	1983-93	1993-99	1999-04	1993-04	1983	1993	1999	2004
Agriculture (0)	3.3	3	1.4	2.3	1	1	1	1
Mining and quarrying (1)	3.6	3.8	2.3	3.1	2.8	2.8	3	3.1
Manufacturing (2 and 3)	3.3	2.1	-2	0.2	2.4	2.4	2.3	1.9
Electricity, gas and water (4)	3.5	8.4	0.8	4.9	4	4	5.5	5.3
Construction(5)	3.4	2.4	0.3	1.4	1.7	1.7	1.6	1.5
Trade, restaurant and hotel (6)	2.5	5.2	-4.1	0.9	1.9	1.7	2	1.5
Transport, storage & communication (7)	2.6	3.4	0.2	1.9	3.1	2.8	2.9	2.7
Finance, real estate (8)	3.5	3.4	-1.1	1.3	5.1	5.2	5.3	4.7
Personal and community services (9)	4.1	4.8	-0.3	2.5	3.2	3.4	3.8	3.5

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

from 1.7 to 1.5 times. However, the finance and real estate sectors had their wage differentials with agriculture sector from the already very high rates of 5.1 to 5.3 times during 1983-1999 though during the later period of general decline in wage growth there was some decline in these wage differentials as well. Similarly, electricity, gas and water; personal and community services and mining and quarrying sectors also recorded generally rising wage differentials during the period 1983-1999 when compared to the agricultural sector. Thus it may be argued that there is some evidence for widening inter-sectoral wage differentials, supporting the hypothesis that wage inequality in India is related to differential growth patterns of the output sectors.

Now looking at within-sector wage inequality, noticeably, the increase in intra-sectoral variations was concentrated completely within the services sector, while the manufacturing sector and agriculture sector experienced either decline in wage inequality or stagnation in the same (Table 11). Within the service sector, the maximum rise in wage inequality was in personal and community services (the 25th to 75th ratio increased from 3 to 5.7), followed by finance, real estates and business services (the ratio increased from 2.1 to 4.9). Transport and storage sector also had shown a rise in the wage inequality but at a lesser scale. On the other hand, the ratio of wage rates at 25th percentile to the 75th percentile in manufacturing sector had declined from 3.4 in 1983 to 3.2 in 1993 to 2.6 in 1999 and lastly to 2.3 in 2004. The 25th to 50th percentile also shows a declining pattern though there was a rise between 1993 and 1999. In the agriculture sector the ratio had declined from 2 to 1.9 between 1983 and 1993 and remained stagnant at the level till 2004. The trends of within-sector wage inequality suggests that wage inequality is widening in the fast-growing sectors of the economy, mainly within the services sector, while in the slow-growing sectors of the economy the wage inequality has declined.

Reading together the trends in 'between-sector variations' and 'within-sector variations', the widening trends in both within and between wage inequality is mostly concentrated within the service sector, while wage inequality had declined 'within and between' manufacturing and agricultural sectors. The widening wage differentials between manufacturing and service sectors are probably, a reflection of the service-oriented economic growth de-linked from

Table 11  
Intra-sectoral Wage Rates Variations: Ratio of 25th to 50th and 75th percentile

Sector/Percentile	1983			1993			1999			2004		
	25	50	75	25	50	75	25	50	75	25	50	75
Agriculture (0)	1	1.5	2	1	1.4	1.9	1	1.4	1.9	1	1.4	1.9
Mining and quarrying (1)	1	2	3.1	1	2	3.9	1	1.9	3.6	1	1.7	4.3
Manufacturing (2 and 3)	1	1.8	3.4	1	1.3	3.2	1	1.5	2.6	1	1.4	2.3
Electricity, gas and water (4)	1	1.5	2	1	1.6	2.3	1	1.5	2.1	1	1.5	2.3
Construction(5)	1	1.4	2	1	1.3	1.9	1	1.3	1.8	1	1.3	1.8
Trade, restaurant and hotel (6)	1	1.5	2.3	1	1.5	2.3	1	1.5	2.5	1	1.5	2.2
Transport, storage and communication (7)	1	1.7	2.4	1	1.7	2.6	1	1.7	3	1	1.5	3
Finance, real estate (8)	1	1.5	2.1	1	2	3	1	2.2	3.6	1	2.4	4.9
Personal and community services (9)	1	2	3	1	2.3	3.6	1	2.7	4.4	1	2.9	5.7

Source: NSS Unit Level Data, 38th, 50th, 55th and 61st round, Central Statistical Organisation, Government of India.

manufacturing sector. The emergence of export-oriented new technology sectors such as software industries within the service sector whose wage rates are probably the highest across all industries is crucial in pushing up the upper limit of the range of wage rate across industries. At the same time, distress in the agricultural sector due to declining productivity continue to push workers into the informal segments of service sector widening the wage gap within the service sector.

## VI. SUMMARY AND CONCLUDING DISCUSSION

Analysis of NSS unit level data shows that wage growth had declined between 1993–94 and 2004–05 for both regular employees and casual workers. The decline in growth rate of wages has been particularly severe for urban regular workers such that there was an absolute decline in wage rate during the period 1999–2004. Regional trends show that slow down of wage growth is spreading faster to all parts of the country. However, trends in wage inequality show that the inequality had been widening among the regular workers, while there is no such evidence among the casual workers. The wage inequality among regular workers had become severe in the period 1999–04 such that the entire brunt of the absolute decline in wage rates was taken by the low-wage earners, while the high-wage earners continued to or even bettered their position compared to the previous period. Wage inequality does not seem to be accentuating between educational categories, while it is widening within educational categories. But wage inequality seems to be widening between service sector and other sectors, while wage inequality between manufacturing and agriculture sectors is declining. Within-sector inequality also is increasing in the service sector, while it is declining in the manufacturing and agriculture sectors.

The observed decline in the growth of wage rate during a period of booming economic growth distorts the distribution of income between profit and wage share biased against workers. The share in the total pie for the workers would decline, while profit share would increase. This would mean a widening gap between the workers and employers. Along with this phase of segregation of the economy, this study also shows that even among the workers, wage inequality is widening in some sections. These two aspects together may be central in explaining the rising income inequality in the economy as noted by researchers (Deaton and Dreze, 2002; Sen and Himanshu, 2005; Sundaram and Tendulkar, 2003).

The shrinking of the wage share in the total pie, and the concentration of it in a few hands, has probably encouraged many to move to the other side of the pie, namely profit share. Viewing thus, the rise of self employment in India has come up as an alternative to the growing distress in wage employment in the recent years as noted by Unni and Raveendran (2007) and others. In this context it is worthwhile to be cautious in lauding self employment as a superior option to wage employment. The lack of evidence for increase in returns to education, along with a rise in inequality 'within educational category', should be a matter of concern. The observed trends in workforce structure show that there is rise in demand for skills in economy (Government of India, 2006). However, the demand generated without sufficient signaling in wage rate is indicative of probable over education or skill mismatch. The widening wage gap between service sector and the commodity producing sectors may be a part of a circular mechanism wherein income inequality within the economy may generate demand for highly income elastic services, which feeds the growth of services without linkage with manufacturing sector. On the other hand, the stagnation of manufacturing sector may

push distress employment into informal services, generating wide inequality within the services sector. These probable implications need to be further validated using robust statistical methods.

### Notes

1. For details on data cleaning and measurement see Appendix.
2. Throughout the text, 1983, 1993, 1999 and 2004 pertains to periods 1983, 1993-94, 1999-2000 and 2004-05, respectively.
3. Srivastava and Singh (2006) had analysed rural wages for the period 1983 to 1999-2000. This study shows that though there is a decline in growth of rural wage rates of casual workers this is not uniform across the various categories of rural workers. For example, they show that in the non-agricultural rural sector there was no decline in wage growth for manual casual workers.
4. A possible option was to use the 43rd round of NSS for analysis of sub periods 1983-87 and 1987-93. However the 43rd round of NSS, for the year 1987-88 is bereft with data problems relating to wages.
5. The number of observations for weekly wages reported in the 43rd round is incomparably low, with a count of less than 3000 observations in the rural areas, whereas in other rounds the number of valid observations were greater than 35,000. (Srivastava and Singh, 2006 Table 1). Himanshu (2005) had clearly brought out the non-replicable nature of NSS 43rd round and its incomparability even with the reports based on these rounds published by NSS.

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*Appendix 1***Data Cleaning and Measurement**

For the purpose of this paper unit level raw data of the NSS conducted for the years 1983, 1993-94, 1999-2000 and 2004-05 obtained from Central Statistical Organisation, India was utilised. These rounds, namely the 38th, 50th, 55th and 61st rounds are specific large sample surveys aimed at gathering information on employment and unemployment in the country. The 43rd round of NSS conducted in 1987-88, with the same objective as the other above mentioned NSS rounds is not taken for analysis as this round is bereft with errors in data collection.<sup>5</sup>

The data were taken only for workers who reported as casual (codes 41 and 51) or regular workers (code 31) as their current weekly status. The age group covered is from 15 to 65. The regional cover consists of 17 major states in India, namely, Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The newly added states of Uttarakhand, Jharkhand and Chhattisgarh were added to their parent states Uttar Pradesh, Bihar and Madhya Pradesh, respectively in the 61st round.

After obtaining the data in the above sated manner, we get more than three lakh individual observations, of which nearly 3 per cent either do not report wages or report wages as zero (Table 1A). These observations are dropped from the dataset, leaving us with approximately 2.99 lakh observations for all the four years. The lowest number of valid observations is in 2004, which is nearly 72000, while the highest is in 1983, the number of valid observations being more than 78000.

The distribution of wage rates in the data is such that there exists extreme values at both ends. For the analysis, the tails of the distribution were trimmed at 0.1 per cent at both ends, which would exclude the extreme values from the analysis. This is an adhoc measure and the cut-off for such trimming is left to the researchers' choice. Since the sample consists of substantial heterogeneity, which includes both urban and rural, males and females, and all industries, both casual and regular workers we have tried to retain the heterogeneity reflected in wage rates as well and have trimmed only 0.1 per cent of the total valid cases. This way while the extreme cases get dropped, it retains the sample heterogeneity as well.

Table 1A  
Data Summary

	1983	1993	1999	2004
<i>Total Observations: of which</i>	80351	76024	79286	73120
wages zero	1777	19	28	4
wages missing	0	3971	2377	1184
Wages reported	78574	72034	76881	71932
Mean (Rs)	13.32	19.41	24.47	25.28
Maximum (Rs)	1429	857	50896.73	3539.24
Minimum (Rs)	0.00	0.02	0.37	0.39
Avg wage at minimum cut 0.5 per cent (Rs)	0.76	0.07	1.59	1.73
Avg wage at maximum cut 0.5 per cent (Rs)	183.16	146.25	335.52	231.74
Valid observations after 0.5 per cent trimming	77787	71314	76112	71212
Mean after trimming at 0.5 per cent (Rs)	12.52	18.86	23.01	24.35
Avg wage at minimum cut 0.1 per cent (Rs)	0.24	0.04	0.91	1.02
Avg wage at maximum cut 0.1 per cent (Rs)	500.00	218.09	969.00	393.41
Valid observations after 0.1 per cent trimming	78418	71890	76727	71787.00
Mean after trimming at 0.1 per cent (Rs)	12.84	19.23	23.54	24.93

*Note:* Wage rate was calculated as average wage per day. For this purpose, the total reported wages received in a week by each individual was divided by the total number of days of work in a week. The wage rate was further deflated using consumer price index for agricultural labourers (CPIAL) for the rural areas and consumer price index for industrial workers (CPIIW) for the urban areas. Firstly, all wage rates were deflated using the state-level index with base year 1960-61. The CPIAL provides state-level index while CPIIW provides centre level (within states) index. To arrive at state level CPIIW simple averages of the centers in each state was calculated. The CPIAL base year was shifted to 1982 and CPIIW base year was shifted to 1986-87 in some years. Using the state-level conversion table provided by CSO the base years were shifted to 1960-61 for both the series. Then all wage rates were deflated to the 1983 prices using the respective indices.

