

# MPRA

Munich Personal RePEc Archive

## **Employment and Wages in the Liberalised Regime: A Study of Indian Manufacturing Sector**

Majumder, Rajarshi

Dept of Economics, University of Burdwan

December 2006

Online at <http://mpra.ub.uni-muenchen.de/12809/>  
MPRA Paper No. 12809, posted 17. January 2009 / 07:47

**EMPLOYMENT AND WAGES IN THE LIBERALISED REGIME:**  
**A STUDY OF INDIAN MANUFACTURING SECTOR**

**Rajarshi Majumder\***

*Abstract*

*Expansion of earning opportunities and increment in earning levels are dual objectives of policymakers in developing countries. The structural adjustment programme in India tried to ensure both through higher growth targets, and manufacturing sector has seen the most sweeping changes. It is now being suggested that the current jobless growth is due to high wages. The present paper examines the veracity of this by examining the trends in employment and earnings in this sector over the nineties and analysing the factors affecting them. Most of the employment expansion has been in the unorganised sector where wages have stagnated. Though real wages in the factories have declined employment therein has not increased. Interestingly, both wages and employment have increased in the mid-sized units. The relationship is therefore neither unidirectional nor exhaustive. Proper mix of labour flexibility, resource availability, and scale economies would bring dynamism to the sector and increase both employment and earnings.*

## **I. INTRODUCTION**

One of the major objectives of developing countries is to improve the living standards of its residents through both expansion of earning opportunities and increment in earning levels. Along with raising per capita income, this process has significant impact on poverty alleviation, and greater equality in earning levels is instrumental in reaching the cherished goal of reducing overall inequality. It is towards these objectives that economic policies in most developing countries have been geared and India has been no exception. Active participation of State in economic sphere, creation of PSUs, insulating domestic industries from global competition, providing reservation to the SSIs, and a magnum of legislations to protect basic rights of workers were pieces of such approach in independent India. While a major period of economic thinking in post-independence India was marked by such State control over economy, it was felt during the late eighties that the policies were losing their

---

\* Senior Lecturer, Department of Economics, University of Burdwan, Golapbag, Burdwan – 713104, West Bengal. Email: meriju@rediffmail.com

effectiveness and an effort was made to streamline the economy. It was thought that by moving from balanced growth and equality as the keystone of progress, to growth driven upliftment as the focus of economic policies, we would be able to provide more jobs and better incomes to our people. Rather than redistribution first and growth later, it was felt prudent to first achieve a satisfactory growth and then try for a fair distribution of the fruits of growth. The Structural Adjustment Programme (SAP) initiated in early nineties attempted to do so by doing away with red-tapism and State control, bringing in competition, and ushering in global players in almost every sphere of our economy – albeit slowly in some segments while faster in some others. It was argued that competition would breed efficiency, provide incentives to expand output, and the resultant high GDP growth would naturally use our abundant factor labour more intensively leading to substantial job growth too. While growth has arrived, much of it has been jobless. In this backdrop, the movements in the manufacturing sector seems quite important as it has been the hotbed of these reforms, witnessing a major shift from the Regulation-Nationalisation-Protection (RNP) regime to Liberalisation-Privatisation-Globalisation (LPG) environment. Moreover, this sector has been consistent in its productivity standards, has substantial forward and backward linkages with other sectors, inducts the majority of technical personnel of the country, and is expected to be instrumental in absorbing the surplus labour released by the primary sector over the years. As a result, the manufacturing sector is more crucial than what simply its share in employment and GDP would suggest, and it is pertinent to study the dynamics of this sector, especially after introduction of SAP. The changes have obviously affected output, employment, productivity, profitability, and competitiveness of the sector and while employment and earning opportunities were expected to expand, concerns have been raised over issues like retrenchment, closure, and excess capitalisation in face of global competition, and worsening earning opportunities for workers in this sector. Moreover, it is being suggested that employment expansion in India, especially in the manufacturing sector, is stifled because of high labour-costs and hence the conventional neo-classical panacea of wage-cut would stimulate employment growth. Due to the central position of the sector, such measures won't remain confined to this sector alone and would create ripples in the economy as a whole, making it the focal point of economic and political tussles. To understand the wage-employment issue in the economy, it is therefore crucial that we understand what has been happening in the manufacturing

sector, which has the largest share of regular wage employees. With that in mind, in this paper we try to outline the trends in employment and earnings in the manufacturing sector in India over the nineties and analyse the factors affecting wages and employment in this sector so that their interlinkage comes to light, especially in the post-SAP environment.

It is to be noted that Manufacturing sector in India in terms of data and survey coverage has been divided into two segments. The first is the Unorganised sector comprising of the OAMEs, NDMEs, and the DMEs – none of whom are registered under the Factories Act.<sup>1</sup> The other is the Organised segment or those Factories that are registered under the said Act. While the CSO covers the organised segment through its Annual Survey of Industries, the former is studied by the NSSO through its periodical surveys on Unorganised manufacturing sector. For our study both the periodical NSSO surveys and the ASI data have been used. The time points chosen are 1989-90, 1994-95, and 2000-01 as the NSSO surveys correspond to these years.

The paper has five sections. The next section outlines some theoretical views regarding trends in employment and wages in the aftermath of SAP and mentions few existing studies in this regard. The third section deals with movements in employment and wages in India during the nineties. The fourth section examines some plausible factors that have been most influential in determining wages and employment in the manufacturing sector and summarises the interlinkage between these two. The final section provides the conclusion.

## **II. THEORETICAL EXPECTATIONS**

Theoretically, SAP is expected to create more and better employment opportunities in the long run but the impacts in the short to medium run are complex. Trade liberalisation is expected to shift the manufacturing sector towards labour intensive products and technology and create more employment. But as protections come down, units are prone to cost cutting and lowering of wages. On the other hand, greater competition with imported commodities and multinationals is expected to raise the productivity levels of domestic producers and push up wages. While FDI is generally associated with higher wages, they also tend to have low employment potential due to higher capital intensity of their production technology. As efficiency and competitiveness is the buzzword in the new regime, job-loss may occur in the interim period as units shed their extra flab. However, the overall rise in investment in the

sector is expected to create more jobs. Against this backdrop, it has been argued that slow employment growth in this sector is because of existent high wages. Others have contested this view by arguing that the increase in wages has been accompanied by still higher increases in productivity, and, the relationship between wages and employment growth is not strictly negative. These issues become further complicated due to the presence of a dualistic product and labour market within the manufacturing sector, with the organised and unorganised segments having completely different sets of objectives, working conditions, regulations, and wage levels. While the organised manufacturing sector has access to amenities, technology, and export market, it is argued that rigid regulations restrict them from expanding employment even when economic situation so demands. On the other hand the unorganised segment is highly flexible but lack of both resources and State support restrict them in terms of investment and global linkages. As a result, the interlinkage between employment and wages in the manufacturing sector cannot be predicted with certainty, especially after SAP.

Table 1  
**Employment in Manufacturing Sector – All India**

<b>Enterprise Type</b>	<b>Employment (in millions)</b>			<b>Growth Rates (% pa)</b>		
	<i>1989</i>	<i>1994</i>	<i>2000</i>	<i>1989-94</i>	<i>1994-00</i>	<i>1989-00</i>
<b>OAME</b>	24.5	22.7	25.1	-1.5	1.7	0.2
<b>NDME</b>	5.1	4.9	5.6	-0.8	2.3	0.9
<b>DME</b>	6.4	5.7	6.5	-2.3	2.2	0.1
<b>Unorganised</b>	36.0	33.2	37.1	-1.6	1.9	0.3
<b>Factory</b>	7.3	8.2	8.9	2.4	1.4	1.8
<b>All Manufacturing</b>	43.3	41.4	45.9	-0.9	1.7	0.5

*Source:* Author's calculations based on NSSO (1995), NSSO (1998), NSSO (2002), NSSO (2002a), CSO (1990), CSO (1995), CSO (1995a), CSO (2001), CSO (2004).

Employment situation in India after SAP have been widely discussed and speculated by researchers and policy makers. Some have argued that structural changes would lead to greater labour and product market flexibility, a shift towards labour intensive techniques and commodities, and hence a rise in employment potential and job availability (Singh, 1993; Papola, 1994). However, most of the researchers have been pessimistic, arguing that increased competition in a globalised framework would force firms to trim their workforce and shift towards more capital intensive 'advanced' technology, thereby restricting employment expansion along with a marked trends towards casualisation of workforce (Mundle, 1992, 1993; Deshpande, 1992;

Bhattacharya and Mitra, 1993; Mitra, 1993; Agarwal and Goldar, 1995; Kundu 1997, Deshpande *et al* 2004). Others have taken a middle ground and have predicted that employment growth would suffer a setback in the initial transition period but will be restored in the longer run (Bhalotra, 1995, 1998a; Nagaraj, 1994; Srivastava, 1997). Researchers attempting to analyse trends in manufacturing/ industrial employment and wages in India against the backdrop of SAP in recent years have been Bhalotra (2002), Ghose (2000, 2003), Goldar (2000, 2002, 2003), Nagaraj (2000) and Tendulkar (2000). However, these studies have been for the Organised manufacturing sector only and leaves out the unorganised sector that accounts for about 80 per cent of manufacturing employment in India. Hence the present study becomes all the more important and relevant.

### III. EMPLOYMENT AND WAGES: OVERVIEW OF TRENDS

#### 1. Employment & Wages: Levels and Disparities

As has been mentioned earlier, we have chosen both the unorganised and the organised segments for our study. Within the unorganised segment again we have the Small Manufacturing Enterprises (SMEs) – the OAMEs and the NDMEs, where employment size is below six per unit; and the comparatively larger units or the DMEs where employment size exceeds six. We try to examine the issues of employment and wages both in totality and disaggregated across segments, regions, and industrial activity groups wherever appropriate.

Table 2  
**Average Wage Rates per Employee – All India**

Enterprise Type	Average Wages			Growth Rates (% pa)		
	1989	1994	2000	1989-94	1994-00	1989-00
<b>OAME</b>	3878	2693	2621	-7.0	-0.5	-3.8
<b>NDME</b>	3105	3496	4698	2.4	6.1	4.2
<b>DME</b>	2442	3206	4064	5.6	4.9	5.2
<b>Unorganised</b>	2609	3292	4242	4.8	5.2	4.9
<b>Factory</b>	12380	13345	13156	1.5	-0.3	0.6
<b>All Manufacturing</b>	6877	8265	8483	3.8	0.5	2.1

*Source:* Same as Table 1.

Employment in the manufacturing sector was 43.3 million in 1989, declined to 41.4 million in 1994, and then again increased to 45.9 million in 2000 (Table 1). The interim decline was wholly in the unorganised sector, share of which has been about 80-85 per cent all throughout. Major part of employment has been in the Textiles,

Food Products, and Tobacco & Beverages sectors for both organised and unorganised segments, and also in the Wood products sector for the unorganised segment.

Predictably, Real Wage per worker has been quite low in the unorganised segment relative to the organised one (Table 2). In fact, a scale factor seems to be operating with wage rates being proportional to the size-class of the units - minimum in the OAMEs and maximum in the factories. The only exception is that the NDMEs offer higher wages compared to the DMEs.

**Table 3**

**Interstate and Inter-Industry Variation in Real Wages – Coefficient of Variation (%)**

Enterprise Type	Interstate Variation			Inter-Industry Variation		
	1989	1994	2000	1989	1994	2000
<b>OAME</b>	86.2	53.5	85.0	66.0	53.2	51.8
<b>NDME</b>	41.1	27.0	74.8	29.9	31.6	29.4
<b>DME</b>	45.3	42.0	34.0	48.5	53.7	48.6
<b>Factories</b>	25.0	24.6	23.6	44.7	49.1	53.9
<b>All Manufacturing</b>	29.1	24.6	27.2	61.8	62.5	61.5

*Source:* Same as Table 1.

The wage rate however varies substantially across both regions and activity groups (Table 3). Textiles, Textile products, Chemicals, Rubber & Plastic, Basic Metals, and Equipment sectors enjoy higher wage rates compared to others all throughout. At the regional level, consistently higher wages (average across activities) are observed in Delhi, Gujarat, Haryana, Himachal Pradesh, Maharashtra, and Punjab for the unorganised segment. Recently, wage rates have been higher than national average in Tamilnadu and Rajasthan too. In the organised sector a completely different story emerges and apart from Delhi and Maharashtra, wage rates have been higher in Bihar, Madhya Pradesh, Orissa, and West Bengal. This may have been caused by significant presence of PSUs in these states – where wages are determined by administrative mechanism rather than by economic consideration.

The regional variation in wage rates arises due to variation in industry specific wage rates across states, and also due to difference in industrial structure among the states. If we control for industrial structure, i.e. if we assume that the composition of industrial workforce is same in all the states (the national structure, may be) then the variation in wage rates would be reflective of pure regional disparity in wage rates. The difference between the actual disparity and disparity after controlling industrial structure would measure effect of variation in industrial structure. It is observed that most of the variation is due to pure wage rate effect, i.e. due to regional variation in wage rates (Table 4).

**Table 4**  
**Interstate Variation in Real Wages – Coefficient of Variation (%)**

Enterprise Type	CV in Wage Levels			CV in Wage Growth		
	1989	1994	2000	1989-94	1994-00	1989-00
<b>Differences in Actual Wages</b>						
<b>OAME</b>	86.2	53.5	85.0	122.7	207.7	92.6
<b>NDME</b>	41.1	27.0	74.8	199.7	147.7	106.9
<b>DME</b>	45.3	42.0	34.0	285.9	76.8	49.4
<b>Factories</b>	25.0	24.6	23.6	125.4	872.3	129.4
<b>All Manuf</b>	29.1	24.6	27.2	91.2	249.2	83.4
<b>Pure Wage Rate Effects</b>						
<b>OAME</b>	76.8	51.7	47.6	86.6	207.1	200.8
<b>NDME</b>	40.3	24.5	30.6	194.7	54.9	95.8
<b>DME</b>	33.7	37.3	24.2	85.7	66.9	23.3
<b>Factories</b>	18.9	16.8	14.2	72.2	217.1	64.9
<b>All Manuf</b>	17.8	17.4	21.8	87.8	86.4	47.6

*Note:* Pure wage rate effects are obtained after controlling for differences in industrial structure across states. Industrial structure effects may be viewed as Actual Differences less Wage effects.

*Source:* Same as Table 1.

However, here too substantial differences exist across size classes. For the SMEs, interstate wage differences are higher compared to inter-industry wage differences, and about 90 per cent of regional disparity is explained by pure wage rate effect (controlling for industrial structure). On the other hand, for the DMEs and the organised sector, inter-industry wage differentials are greater compared to interstate differences and only about 60 per cent of regional disparity is due to pure wage rate effect. This implies that the larger units are segregated more along the lines of industrial activities and largely homogeneous across regions, but for the smaller units regional effects are far more important while differences across industries are relatively smaller.

## **2. Growth**

Against this backdrop, what has been the dynamics in wages and employment, and how far these two have been associated needs to be explored. To examine the speed and direction of such movements we have demarcated our study period into two sub-periods – the 1989-94 quinquenna depicting the Transition phase in Indian economy; and the 1994-00 quinquenna marking the Post-reform period. Quinquennial growth rates of employment and wage rates have been computed using the exponential method.

It is observed that employment growth in the transition period had been positive in the organised sector and negative in the unorganised sector – the highest decline in jobs



being in the DME segment (Table 5). The overall trend in manufacturing sector employment too had been negative during this period.

In the next period however the trends reversed. While employment growth slackened in the factory sector, healthy expansion of employment was observed in the unorganised sector, led by the DMEs, and the period witnessed 11 per cent increase in total manufacturing sector employment. Substantial regional and industrial variations do however exist regarding employment growth rates as well.

**Table 5**  
**Employment Growth in Manufacturing Sector – All India**

<b>Enterprise Type</b>	<b>Growth Rates</b>			<b>Interstate Variation</b>			<b>Inter-Industry Variation</b>		
	<i>1989-94</i>	<i>1994-00</i>	<i>1989-00</i>	<i>1989-94</i>	<i>1994-00</i>	<i>1989-00</i>	<i>1989-94</i>	<i>1994-00</i>	<i>1989-00</i>
<b>OAME</b>	-7.6	10.6	2.2	558.6	241.0	492.6	332.6	220.2	263.5
<b>NDME</b>	-4.4	13.8	8.8	783.0	177.2	426.9	647.6	140.4	220.3
<b>DME</b>	-10.9	14.2	1.7	329.4	261.9	274.2	247.4	150.3	287.8
<b>Unorganised</b>	-7.7	11.7	3.1	377.6	204.8	338.1	206.6	121.5	177.6
<b>Factory</b>	11.7	8.5	21.2	128.8	154.8	114.8	106.8	116.8	91.2
<b>All Manuf</b>	-4.4	11.1	6.1	535.0	169.6	327.7	360.3	138.9	276.3

*Source:* Same as Table 1.

If we consider the growth rates across states and industrial activity groups, it is observed that in the Transition period employment growth had been negative in more than half of the cases for the unorganised sector, and in about one third of cases for the factories (Table 6). At the other end, while one third of the cases in the unorganised segment had growth rates above 2 per cent p.a., more than half of the cases had so for the factories. Negative growth rates had been most prominent in the NDME segment, indicating that these mid-sized firms were worst hit during the transition period.

In the post-reform period, predominance of negative growth rates in unorganised sector declined and in both organised and unorganised segments about 37-40 per cent of cases experienced employment decrease. Improvements in the unorganised sector is also reflected by the fact that during this period more than half of the cases in this segment had employment growth rates above 5 per cent p.a., compared to only one fifth of cases for the factories.

Another interesting feature is that the SMEs are polarised at the two extreme ends of the growth rate spectrum – 85-90 per cent of them are either having negative employment growth rates or growing at more than 5 per cent p.a. – with a missing

middle. Compared to this, employment growth rates are more evenly distributed for the organised sector.

**Table 6**  
**Percentage Distribution of observations according to Growth in Employment**

Period	Enterprise Type	Growth Rates of Employment (% pa)				
		Negative	0 – 1	1 – 2	2 – 5	Above 5
1989	OAME	59	2	4	5	31
	DME	57	4	3	6	30
	NDME	63	2	1	5	29
1994	Factories	32	7	9	24	29
	Pooled	53	4	4	10	30
1994	OAME	39	6	4	6	46
	DME	35	2	3	5	55
	NDME	40	2	2	5	51
2000	Factories	38	9	11	23	20
	Pooled	38	5	5	10	43
1989	OAME	42	7	1	15	36
	DME	34	5	5	14	43
	NDME	48	6	3	16	27
2000	Factories	33	10	11	25	22
	Pooled	39	7	5	17	32

*Source:* Same as Table 1.

While employment growth picked up in the post-reform period, we have to now look at the growth in wages to examine whether the employment rise has been a dynamic phenomenon or distress driven.

**Table 7**  
**Percentages of observations according to Wage and Employment Growth Rates**

Period	Growth Rates of Employment (% pa)	Growth Rates of Real Wages (% pa)			
		Negative	0 – 2	2 – 5	Above 5
1989	Negative	29.3	3.4	3.7	15.4
	0 – 2	3.8	0.9	2.1	3.3
	2 – 5	5.3	1.7	2.1	3.8
	Above 5	14.2	1.7	2.1	7.4
1994	Negative	17.5	3.8	6.1	12.7
	0 – 2	4.4	2.2	3.8	2.5
	2 – 5	6.9	3.2	3.0	5.2
	Above 5	10.4	2.7	4.4	11.5
1994	Negative	18.9	4.6	4.7	18.0
	0 – 2	3.0	1.1	1.4	3.2
	2 – 5	3.8	1.4	1.5	3.8
	Above 5	12.0	2.6	2.2	18.0

*Source:* Same as Table 1.

It is observed that while real wages in the organised sector increased during the transition period of satisfactory employment growth, the post-reform period witnessed a fall in real wages along with a fall in employment too (Table 7). Real wages have fallen in both the period for the OAME segment, while for the NDMEs and the DMEs real wages have increased in both the periods. In addition, rate of wage growth has itself increased for the NDMEs but declined for the DMEs. Thus wage condition seems to be improving substantially in the NDME segment, moderate in the DME segment, and deteriorating in the other two segments.

Keeping in line with the overall wage decline in organised manufacturing sector in the post-reform period, the frequency of negative wage growth have increased herein, while that in the unorganised sector has declined (Table 8).

**Table 8**

**Percentage Distribution of observations according to Growth in Real Wages**

Period	Enterprise Type	Growth Rates of Real Wages (% pa)				
		Negative	0 – 1	1 – 2	2 – 5	Above 5
1989	OAME	79	0	1	1	19
	DME	47	4	4	11	35
	NDME	54	4	6	10	27
1994	Factories	28	11	11	30	21
	Pooled	52	5	5	13	25
1994	OAME	81	1	0	2	16
	DME	27	6	4	10	54
	NDME	29	3	3	13	52
2000	Factories	48	8	9	18	16
	Pooled	46	4	4	10	35
1989	OAME	78	0	0	3	19
	DME	29	6	4	20	41
	NDME	21	5	7	24	43
2000	Factories	32	14	15	27	13
	Pooled	40	6	7	18	29

Source: Same as Table 1.

If we now juxtapose employment growth scenario on the wage growth scenario, it can not be unambiguously inferred that employment growth has been higher in those areas where wage growth is slower. While situation of OAMEs and DMEs have improved in terms of employment growth, their performance in terms of wage growth have declined. For NDMEs both wage growth and employment growth situation have improved in the post-reform period, and for the organised sector both employment growth and wage growth have suffered a setback in the later period. This can be seen as an indication of declining strength of the larger units, distress nature of the smaller

units and rise of the middle who enjoys both scale economies a la larger units, and flexibility of operation like the smaller units.

#### IV. FACTORS AFFECTING EMPLOYMENT AND WAGES

The dynamics of the wage-employment relation would be more vivid once we explore the factors affecting employment and wages. We have tried to estimate employment function and wage function for the manufacturing sector in India.

##### 1. Correlates of Employment

It was hypothesised that factors affecting employment would include Gross Output, Technology, Wage levels, and Regional economic condition reflected by the size of Non-primary workforce in the state and Per Capita Net State Domestic Product (PCNSDP) of the state. While output, size of non-primary workforce, and PCNSDP are expected to affect employment positively, it is likely that better technology (in terms of higher capital-labour ratio) and higher wage levels will adversely affect employment levels. The results are depicted in Table 9 and 10.

Table 9  
Aggregate Employment Function

Year	Variables	OAME	NDME	DME	Factory	Pooled
1989	Constant	-8.14*	-3.17	-4.30	-2.46	-9.19**
	Value Added	1.71**	0.74**	0.54*	0.95**	0.38**
	Wage Rate	0.02	-0.51*	-0.93*	-0.71*	0.00
	Non-primary Workforce	0.34	0.19	0.16	0.26	0.47**
	Fixed Capital	-0.93*	0.06	0.49	-0.18	0.22**
1994	Constant	-8.26**	-1.95	-1.52	-2.04	-7.46**
	Value Added	2.31**	0.57**	0.91**	0.64**	0.75**
	Wage Rate	0.11	-0.18	-0.90**	-0.72**	-0.13**
	Non-primary Workforce	-0.14	0.22	-0.04	0.41**	0.39**
	Fixed Capital	-1.21**	0.25	0.12	0.01	-0.11*
2000	Constant	-3.13	-7.41**	-2.53**	-1.17	-9.04**
	Value Added	1.65**	0.99**	1.12**	0.68*	0.23**
	Wage Rate	-0.14	-0.16	-0.82**	-0.86*	-0.11**
	Non-primary Workforce	0.41	0.27*	0.01	0.36*	0.44**
	Fixed Capital	-1.09**	-0.19	-0.10	0.02	0.42**

Source: Same as Table 1.

It is observed that employment is significantly positively associated with Output. The association with non-primary workforce is also positive, supporting the notion that the manufacturing sector absorbs surplus labour shifting out of the primary sector. However, the coefficients are less than unity, indicating that output growth leads to

less than proportionate rise in number of jobs, and the role of manufacturing sector in occupational transformation is limited. As expected, the association of employment levels with Wage Rate and Fixed Capital has been negative, though Wage is not the foremost determinant of employment levels.

Table 10  
**Aggregate Employment Growth Function – All Workers**

Year	Variables	OAME	NDME	DME	Factory	Pooled
<b>1989-94</b>	<b>Constant</b>	1.70	0.27	0.25*	0.77*	0.42**
	<b>Wage Growth Rate</b>	-0.89*	-0.37	0.00	-0.18	-0.03
	<b>Growth in Value Added</b>	0.24	0.40	0.40**	0.34*	0.37**
	<b>Growth in NPWF</b>	0.31	0.03	0.03	-0.11	-0.01
	<b>Growth in PCNSDP</b>	-0.38	-0.13	0.02	-0.29	-0.02
<b>1994-00</b>	<b>Constant</b>	1.12	-0.64	-0.17	0.19	0.48
	<b>Wage Growth Rate</b>	-0.16	0.04	-0.06	0.04	-0.15
	<b>Growth in Value Added</b>	0.18	0.56	0.47	0.49**	0.89**
	<b>Growth in NPWF</b>	-0.43	0.21	0.23	-0.02	-0.06
	<b>Growth in PCNSDP</b>	-0.12	0.31	0.20	0.14*	-0.19
<b>1989 - 2000</b>	<b>Constant</b>	1.80	-0.71	0.17	0.04	1.13
	<b>Wage Growth Rate</b>	-0.59	-0.11	-0.56	-0.42	-0.30
	<b>Growth in Value Added</b>	0.24	0.13	0.69*	0.00	1.26**
	<b>Growth in NPWF</b>	-0.07	0.27	0.21	-0.21	-0.02
	<b>Growth in PCNSDP</b>	0.23	0.74	0.50	0.11	0.09

*Source:* Same as Table 1. For PCNSDP, CSO (2004).

However, there are substantial differences in the correlates across size class of units. The output elasticity of employment is more than unity for the SMEs and less than unity for the larger firms and the organised sector. More significant is the fact that the substitutive relation between capital and labour is true for the SMEs only, while for the larger firms and the organised sector, the relation is complementary, as evident from positive but less than unity regression coefficients of Fixed Capital. This is reflective of the fact that the SMEs expand output by inducting more workers as they have severe resource crunch, and therefore labour flexibility is high in this segment. This also explains the lower magnitude of output coefficient for the organised segment as output expansion is accompanied by increments in both employment and capital. This may also be due to excess (labour) capacity in the larger firms and their propensity to shift towards capital intensive technology.

While employment growth in larger firms are positively linked with growth of PCNSDP, that for the SMEs are negatively linked with PCNSDP growth – reflecting that much of the expansion of the smaller firms are due to distress and in absence of

dynamic growth of the regional economy. This notion is reinforced by the fact that for the smaller units, employment growth is significantly positively linked with growth of Non-primary Workforce – indicating possible the depository nature of this segment. The association with wage growth is insignificant, and in fact positive for NDMEs and Factories. Thus wage plays only a minor role in determining manufacturing sector employment, and that too not always negatively.

## 2. Correlates of Wages

As regards the Wage function, it was thought prudent that real wages would depend on labour productivity, industry type, and regional conditions depicted by the size of Non-primary workforce in the state and Per Capita Net State Domestic Product (PCNSDP) of the state. It is expected that productivity and PCNSDP will positively affect wages. The impact of Non-primary workforce would depend on whether it creates depository nature of employment expansion or dynamic employment expansion. In the former case, the association with wage rate would be negative, and in the latter, positive. In addition, we have included previous period's wage rate also to examine the issue of wage-rigidity. The results are depicted in Table 11-12.

Table 11  
Aggregate Wage Function

Year	Variables	OAME	NDME	DME	Factory	Pooled
1989	Constant	37.78*	0.41	-0.25	1.75	3.46
	Labour Productivity	-1.45	0.96**	0.46**	0.62**	0.85**
	Industry Size	-1.23	0.12	-0.07	0.16	0.31**
	Non-primary Workforce	-0.37	-0.16	0.10	-0.12	-0.35**
	PCNSDP	0.56	-0.01	0.46*	0.09	-0.25
1994	Constant	2.85	0.59	-1.13	-0.27	-5.62**
	Prev Period Wage	0.05	0.10	0.30	0.78**	0.43**
	Labour Productivity	0.01	0.59**	0.61**	0.20*	0.75**
	Industry Size	0.09	0.02	0.12		0.24**
	Non-primary Workforce	-0.03	0.01	-0.11	0.01	0.02
	PCNSDP	0.48	0.14	0.15	0.02	0.02
2000	Constant	-1.36	-6.95	-1.56	0.81	1.89
	Prev Period Wage	0.36	-0.19	0.11	0.86**	0.45**
	Labour Productivity	0.55	1.47	1.05**	0.06	0.52**
	Industry Size	-0.68	0.27	-0.01		0.15**
	Non-primary Workforce	0.62	-0.14	0.02	-0.01	-0.10
	PCNSDP	0.30	0.25	-0.08		-0.29*

Source: Same as Table 10.

It is observed that the most important factor for the larger units (DMEs and Factories) has been labour productivity, while regional economic condition affects wage rates positively for both SMEs and large units. In addition, the size of non-primary

workforce is observed to be insignificant for the larger firms but negatively related to wage rates for the SMEs, indicating that the phenomenon of wage rates being depressed by presence of *Reserve Army of Labour* is in operation in this segment. This also underlines the fact that much of the SME employment is supply side phenomenon caused by distress entry of workers displaced from agriculture but unable to find jobs in other sectors. On the other hand, previous period wage rates are important variables affecting current wage rates for the larger firms, especially the factories, indicating that wage rigidity cannot be ruled out for them.

It is also observed that change in productivity levels is the main driving force behind movement in wages, the strength of association being higher for the larger sized firms compared to the SMEs. This association is true both for changes in partial productivity levels and Total Factor Productivity Growth. Considering that researchers have already commented on decelerating TFPG in the post-reform period, at least for the organised sector (Trivedi et al., 2000; Goldar and Kumari, 2002), it seems that the recent fall in real wages in this sector is a direct consequence of the falling TFPG. An interesting aspect is that in the post-reform period the relationship between real wage growth and real labour productivity growth has become negative, indicating that while marginal contribution of labour is increasing their share is declining. This is a serious phenomenon and has to be prevented.

Table 12  
**Correlation between Aggregate Wage Growth and Productivity Growth**

Year	Variables	OAME	NDME	DME	All Unorg	Factory	Pooled
1989-94	Lab Pdvty Gr	0.03	0.65**	0.55**	0.70**	0.56**	0.54**
	TFPG	0.15	0.43	0.34*	0.35*	0.50*	0.10**
1994-00	Lab Pdvty Gr	0.13	0.48*	0.86**	0.65**	-0.41	0.37
	TFPG	0.02	0.44	0.60*	0.52*	0.26	0.11**
1989-00	Lab Pdvty Gr	0.06	0.62**	0.56*	0.44*	0.40	0.50*
	TFPG	0.18	0.45	0.53*	0.48*	0.33*	0.14**

*Source:* Same as Table 10.

Continuing with the Wage-Productivity relationship, it is observed that though productivity changes are reflected in wage changes, there is some dichotomy in the association (Table 13a & 13b). The quantum of wage changes are lower than the quantum of productivity changes for the organised sector in both positive and negative direction, and so the impact of productivity fall (or rise) is not fully passed on to the workers as wage decline (or increase). Typically, in the transition period, a

6% rise in productivity was accompanied by only 1.5% rise in wage rate while the post-reform fall in productivity by 0.8% led to only a 0.3% fall in wages. This confirms the presence of wage rigidity in this sector, but unlike popular perception, the wage rigidity operates not only in the downward direction but in the upward direction as well. For the unorganised sector completely different picture emerges. It is observed that changes in wages is more than proportional to changes in productivity for the NDMEs and the DMEs, indicating that workers bargaining power in these segments are not as bad as it is made out to be, at least in terms of wage payments in times of flourish. That working conditions are disagreeable herein are different issues altogether. In the OAMEs however, we find that the workers' bargaining strength is the least, resulting in a substantial decline in wages even when productivity increased steadily. This may be because of easy entry into this sector and the presence of *Reserve Army* leading to wage-depression even when output per person is increasing.

### 3. Wage-Employment Interlinkage: A Brief Summary

We have so far outlined the trends observed in manufacturing sector employment and wages during the nineties in India, and have also identified various correlates that are affecting both levels and growth in them. What can we deduce about the likely relationship between them from the results so far discussed?

Table 13a  
Average Productivity per Employee – All India

Enterprise Type	Average Productivity (Rs)			Growth Rates		
	1989	1994	2000	1989-94	1994-00	1989-00
OAME	1997	2263	2753	2.5	4.0	3.3
NDME	5299	5832	7342	1.9	4.7	3.3
DME	5441	7128	8265	5.6	3.0	4.3
Unorganised	3074	3617	4402	3.3	4.0	3.7
Factory	36047	48309	46378	6.0	-0.8	2.6
Pooled	8643	12442	12499	7.6	0.1	3.8

Source: Same as Table 1.

It can be seen that employment growth has clearly moved away from the organised sector in the post-reform period and the main driving force behind expanding manufacturing sector employment in the late nineties has been the unorganised sector. This has been accompanied with a fall in real wages in the organised sector and in the smallest size class of units – the OAMEs. Thus the factories have suffered a setback on both counts in the post-reform period while the employment expansion in the OAMEs is mainly of distress type – accumulation of workers in the face of slackening



factory sector, presence of a huge *Reserve Army of Labour*, and faltering agricultural growth. The expansion of OAMEs has naturally been higher in low-income states in this period. Interestingly, the mid sized units have benefited in the LPG regime where both employment and wages have shown substantial increase in the post-reform period. Moreover, the association between wage growth and productivity growth has turned negative in this period.

Table 13b

<b>Wage-Productivity Relationship per Employee – All India</b>						
<b>Enterprise Type</b>	<b>Ratio of Levels</b>			<b>Ratio of Growth Rates</b>		
	<b>1989</b>	<b>1994</b>	<b>2000</b>	<b>1989-94</b>	<b>1994-00</b>	<b>1989-00</b>
<b>OAME</b>	1.94	1.19	0.95	-2.77	-0.14	-1.17
<b>NDME</b>	0.59	0.60	0.64	1.24	1.29	1.27
<b>DME</b>	0.45	0.45	0.49	1.01	1.61	1.22
<b>Unorganised</b>	0.85	0.91	0.96	1.44	1.30	1.36
<b>Factory</b>	0.34	0.28	0.28	0.25	0.36	0.24
<b>Pooled</b>	0.80	0.66	0.68	0.49	5.78	0.56

Source: Same as Table 1.

Thus, there is a clear dichotomy in the wage-employment relationship. For the smaller units, wages are determined by existing & potential employment. In the face of huge *Reserve Army of Labour* and depository nature of employment growth, wages have remained stagnant and even decreased. For the factories, employment is determined mainly by output level and in the face of wage rigidity, cheap capital, and high non-wage labour costs, employment growth has been stifled. Even declining real wages has not been able to resurrect the employment situation herein. Therefore, wage cuts as a means of creating more jobs does not seem to be a feasible option, at least for the organised manufacturing sector. For the rest, the wage levels are already at the floor level. That the neo-classical negative relation between wage and employment growth is inoperative in this sector is reaffirmed by the experience of the NDMEs, where both levels and growth rates of wages and employment have increased simultaneously in the post-SAP period. The explanation therefore lies elsewhere and manipulating other factors like productivity levels, capital availability, labour flexibility, and inducing output growth, as we have seen earlier, can augment both wages and employment.

While wage-cut as means to improve employment is thus ruled out, it must also be remembered that labour legislations in our country are said to be such that employers find retrenchment costs during downsizing to be quite high leading to high real labour costs (wage costs plus other benefits plus retrenchment costs). In other words, the

absence of right to downsize workforce seems to be hindering expansion of employment even during upswing. However, this does not call for watershed changes in the labour legislations as the big employers for whom the laws are meant are finding ingenious ways to circumvent the rules in any case. Diluting of safeguards will only add to the plight of the already miserable condition of a majority of our workers.

Another interesting feature is that the intermediate goods producing activities in the unorganised sector, e.g. Basic Chemicals, Non-metallic Mineral products, Metal products, and Equipment sectors, are benefiting from SAP in terms of both employment and wage growth, indicating emergence of stronger linkage between the organised and unorganised sectors through subcontracting and outsourcing. Manufacturing sector is thus achieving flexible specialisation not by changing the structure of the units but by shifting out production to the segment that is flexible. Promoting such linkages and nurturing the flexibility of the SMEs should be stressed upon to reap greatest benefits.

## **V. CONCLUSION**

We have outlined the trends in employment and wages in the Indian manufacturing sector in the backdrop of SAP. What lessons should we remember?

The OAMEs are creating employment but its desirability is questionable as most of it seems to be of distress nature with resource crunch, low productivity and low wages. Measures for productivity improvement and resource mobilisation in this segment alone won't be able to do the trick unless the continuous influx of workers can be stemmed. This requires immediate attention towards revival of the agricultural sector and rural infrastructure creation so that labour displacement from agricultural and related activities does not become disproportionately large. Recently launched NREGA may be one of the instruments to do so. The dynamics of the factory also warrant policy rethink as one must carefully look at the relative real costs of labour and capital. Recent shifts towards capital intensive technology in a labour surplus economy even when wages are falling may be really due to availability of cheap capital to the organised sector and not because of high labour costs as alleged. In this regard the non-availability of capital for the SMEs – those who could have created more employment – is also to be highlighted.<sup>2</sup> Perhaps the most encouraging aspect has been the rise of the mid-sized units, implying that proper mix of labour flexibility,

resource availability, and scale economies would bring dynamism in the sector. This experience should mould the future policies for the manufacturing sector. In addition, issues of regional disparity within the manufacturing sector and its close link with regional development levels should also be looked into, especially as growth of the SMEs seem to be following such spatial patterns. On the contrary, dynamics of the large factories have been more industrial activity oriented and hence policies for them should be more industry specific. Blanket policy prescriptions are thus neither possible nor advisable. Integrated yet sector specific policies, encouraging both flexibility and scale economies, removing rigidities while preserving workers' rights, and developing synergic bonds between segments of the manufacturing sector, as also between it and the rest of the economy, is the need of the hour.

---

#### Notes

- <sup>1</sup> OAME - Own Account Manufacturing Enterprise - manufacturing enterprise operating with no hired worker employed on a fairly regular basis; NDME - Non-Directory Manufacturing Establishments - units employing less than 6 workers including household workers; DME - Directory Manufacturing Establishments - units employing 6 or more workers with at least 1 hired worker but not registered under the Factory Act.
- <sup>2</sup> It is estimated that the same amount of capital creating a single job in the organised sector is enough to create twelve jobs in the unorganised sector.

#### References

- Agarwal, R.N. and Goldar, B. (1995) – “*Economic reforms and employment in India Projections for the year 2001-02*”, in Indian Journal of Labour Economics, Vol. 38, No. 4.
- Bhalotra, Sonia R. (1995) - *Four Essays on the Urban Labour Market in India*, D.Phil. thesis submitted to the University of Oxford.
- Bhalotra, Sonia R. (1998) – “*The Puzzle of Jobless Growth in Indian Manufacturing*”, in *Oxford Bulletin of Economics and Statistics*, Vol. 40, No. 1.
- Bhalotra, Sonia R. (2002) – “*The Impact of Economic Liberalization on Employment and Wages in India*”, International Policy Group, International Labour Office, Geneva
- Bhattacharya, B.B. and Mitra, A. (1993) – “*Employment and Structural Adjustment: A look at 1991 Census Data*”, in *Economic and Political Weekly*, 18 Sep.

- CSO (1990) - Annual Survey of Industries; Summary Results for Factory Sector 1989-90  
CSO, Government of India, New Delhi.
- CSO (1995) - Directory Manufacturing Establishments Survey, 1989-90 Summary Results,  
CSO, Government of India, New Delhi.
- CSO (1995a) - Annual Survey of Industries; Summary Results for Factory Sector 1994-95,  
CSO, Government of India, New Delhi.
- CSO (2001) - Annual Survey of Industries; Summary Results for Factory Sector 2000-01,  
CSO, Government of India, New Delhi, from [www.mospi.nic.in](http://www.mospi.nic.in).
- CSO (2004) - Statistical Abstract of India 2003-04, from [www.mospi.nic.in](http://www.mospi.nic.in).
- Deshpande, L.K. (1992) – *‘Institutional Interventions in the Labour Market in Bombay’s Manufacturing Sector’*, in T.S. Papola and G. Rodgers (eds.), *Labour Institutions and Economic Development in India*, Research Series 97, (Geneva, International Institute for Labour Studies, ILO).
- Deshpande, Lalit, K., Alakh N Sharma, Anup, K Karan, and Sandip Sarkar (2004) – *‘Liberalisation and Labour: Labour Flexibility in Indian Manufacturing’*, New Delhi, Institute for Human Development.
- Ghose, A.K. (2000) - *‘Trade Liberalisation and Manufacturing Employment’* , *Employment Paper* no. 2000/3, International Labour Office, Geneva.
- Ghose, Ajit K. (2003) – *‘Jobs and Incomes in a Globalising World’* , Geneva, International Labour Office.
- Goldar, B. (2000) - *‘Employment Growth in Organised Manufacturing in India’* , *Economic and Political Weekly* , Vol. 35, No. 14, April 1-7.
- Goldar, B. (2002) - *‘Trade Liberalization and Manufacturing Employment: The Case of India’*, *Employment Paper* no. 2002/34, International Labour Office, Geneva.
- Goldar, B.N. (2003) – *‘Trade Liberalisation and Manufacturing Employment: The Case of India’*, *Employment Paper* 2002/34, Geneva, International Labour Office.
- Kundu , A. (1997) – *‘Trends and Structure of Employment in the 1990s: Implications for Urban Growth’*, in *Economic and Political Weekly*, 14 June.
- Mitra, A. (1993) – *‘Urban Employment, Migrant Labour and Structural Adjustment’*, *Indian Journal of Labour Economics*, Vol. 37, No. 3.
- Mundle, S. (1992) – *‘The employment effect of stabilization and related policy changes in India: 1991-92 to 1993-94’*, in *Indian Journal of Labour Economics*, Vol. 35, No. 2.
- Mundle, S. (1993) – *‘Unemployment and financing of relief employment in period of stabilization in India, 1992-1994’* , in *Economic and Political Weekly*, 30 Jan.

- Nagaraj, R. (1994) – ‘*Employment and Wages in Manufacturing Industries: Trends, Hypotheses and Evidence*’, *Economic and Political Weekly*, 22 Jan.
- Nagaraj, R. (2000) - ‘*Organised Manufacturing Employment*’ , *Economic and Political Weekly*, September 16.
- NSSO (1995) - Tables With Notes on Survey of Unorganised Manufacture: Non directory Establishments and Own Account Enterprises, *NSS 45th Round (July 1989-June 1990) NSS Report No: 396*, NSSO, March, 1995, Government of India, New Delhi.
- NSSO (1998) - Unorganised Manufacturing Sector in India : Its Size Employment and Some Key Estimates, *NSS 51st Round (July 1994-June 1995) NSS Report no: 433*, NSSO, August, 1998, Government of India, New Delhi.
- NSSO (2002) - Unorganised Manufacturing Sector in India 2000-2001 - Key Results, *NSS 56<sup>th</sup> Round (July 2000-June 2001) NSS Report no: 477*, NSSO, November, 2002, Government of India, New Delhi.
- NSSO (2002a) - Unorganised Manufacturing Sector in India 2000-2001 - Input, Output and Value Added, *NSS 56<sup>th</sup> Round (July 2000-June 2001) NSS Report no: 480*, NSSO, November, 2002, Government of India, New Delhi.
- Papola, T.S. (1994) – ‘*Structural Adjustment, Labour Market Flexibility and Employment*’ , in *Indian Journal of Labour Economics*, Vol. 37, No. 1.
- Singh, M. (1993) – ‘*New Economic Policy and Challenges before the Labour Economists*’ , Inaugural address to the 34th Conference of the Indian Society of Labour Economics, Jawaharlal Nehru University, in *Indian Journal of Labour Economics*, Vol. 36, No. 1.
- Srivastava, V. (1996) – *Liberalization, Productivity and Competition: A Panel Study of Indian Manufacturing*, Delhi, Oxford University Press.
- Tendulkar, S. (2000) - ‘*Employment Growth in Factory Manufacturing Sector during Pre - and Post-Reform Periods*’, paper presented at a Conference to honour Professor K.L. Krishna on the theme ‘Industrialisation in a Reforming Economy: A Quantitative Assessment’, Delhi School of Economics, Delhi, December 20-22, 2000.