Trends in Employment and Elasticity In Indian Registered Manufacturing Sector

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ABSTRACT *India is proud of having made unprecedented economic progress in the recent past, which is skewed geographically in the field of generating employment opportunities, but particularly in the registered manufacturing sector there appear a dismal picture. In this perspective, this paper attempts to examine the relationship between output growth and employment growth in the organized manufacturing sector in India for the period 1980-2012, taking a panel of 15 states. At the individual state level, the atmosphere scenario of employment growth has gloomy in Indian manufacturing industry since 1990, changed to move in the right and positive direction during the period of consolidation of economic reforms (2001-12) in Indian manufacturing. It clearly reveals that economic reforms have positive impact on employment especially in the manufacturing sector and sounds an optimistic note of a bright future proving the adage that however long and dark the night be there is certainly to be dawn. The inevitable outcome of the tactics adopted under the banner of LPG is strongly felt in the recent time in the creation of employment opportunities. A good performance has been found, a period of consolidation of economic reforms, in respect of wage rate at the aggregate level and as well as in most of the states under considered. The employment elasticity of output has been found to be either negative or sluggish during a phase of piecemeal and ad hoc policy changes (1980-91) and a phase of major changes in economic policy (1991-01) in most of the states under study compared to a period of consolidation of economic reforms (2001-12). This result shows that capacity to create employment in the manufacturing states during 2001-12 has been relatively well.*

I INTRODUCTION

Slow growth of employment has been a matter of anxiety and concern for planners and policy makers in India, particularly during the past two decades when a relatively high rate of economic growth has failed to create high rate of employment expansion. The phenomenon has often been described as 'jobless growth', in which output expanded but formal employment has almost stagnated. This phenomenon of jobless growth was not India specific, but was observed across developed and developing countries alike except newly industrializing South East Asian countries including China. The industrial development of the developing economies including India except newly industrializing Asian countries has also recorded a negligible growth in employment. The industrial sector has been considered the most dynamic sector of an economy which is expected to absorb and provide decent and deserving livelihood to the growing labour force. Economic reforms initiated in the early eighties which gained momentum in July 1991, at national and international levels, failed to effect manufacturing employment in the face of excess supply of unskilled labour force in the Indian economy. Indian development strategy has underspace the importance of industrial development with regard to its dynamic characteristics such as capital accumulation and technological capabilities.

The size of the employment in any country depends, to a great extent, on the level of development. The priority and attention it has received in development plans has, however, varied from time to time and so have the approaches and strategies as well as policies and programmes for employment generation. Ensuring a regular and adequate supply of suitably skilled workforce was conceived to be a matter of greater concern. Improving the quality of employment, in terms of reasonable and rising level of wages and a minimum measure of social security against the common risks of work and life was, however, considered an important concern of state policy.

Public sector, providing conditions of good quality employment, is regarded 'model employer' and expanded its workforce continuously for about four decades. The private sector was expected to follow the rules of employment as laid down in various legislations and agreements so as not only to protect employment but ensure its quality. Growth of employment emerged as an important concern in development planning in the middle of 1970s, when it was realized that economic and demographic performance of the economy had fallen short of earlier expectations and as a result unemployment had been on the rise. The problem was sought to be addressed through a two-pronged strategy: on the one hand, efforts were initiated to make more employment oriented development, by encouraging growth of employment intensive sectors and including employment among the objectives of macro-economic policies, and, on the other, special employment programmes, for creating both short-term wage employment and self-employment were introduced.

The 1990s witnessed the process of economic reforms in India, spurred by liberalization of both industrial activities and trade. Many expected this process of economic reforms to boost employment in the manufacturing sector, as there was increased outward orientation because of the regulation of the trade and the industrial sectors were deregulated. The centrality of the role of employment in transferring the benefits of growth to the poor chiefly relies on the fact that labour is about the only resource in which the poor are relatively abundant. The magnitude of the benefits of growth to the poor, therefore, largely depends on the nature and extent of employment that growth itself generates. The relationship between economic growth and employment however is not automatic

and predetermined and not all growth is equally employment intensive.

The recent experience of some of the fastest growing Asian countries testifies that the employment intensity of growth, that is, the rate at which employment grows when output increases, can be not only low but also decline over time despite a positive growth rate of the economy. In the case of India, the incredible growth performance in the last two and half a decades has rapidly modified the economic structure of the country, but without the expected transformation in terms of occupation. Major objectives of the new industrial policy were to build on the gains already achieved, identify the weaknesses, ensure a sustained growth in productivity and gainful employment and attain international competitiveness. Such a situation naturally ignites inquisitiveness of the researchers to enquire into the relationship if any, between employment growth and economic growth especially in the field of registered manufacturing particularly during the era of liberalization. Hence, the present paper attempts to make a microscopic analysis of employment growth and output elasticity of employment in registered Indian manufacturing industry for the period from 1980-81 to 2011-12.

II METHODOLOGY

The data of the present study have been collected from the various volumes of Annual Survey of Industries (ASI) published by Central Statistical Organization (CSO), Government of India. This study has used gross value added at constant prices (2004-05=100) as a measure of output and total number of persons engaged as a measure of labour input. Based on the study of India KLEMS Research Team (2014), the study period (1980-81 to 2011-12) has been trifurcated into such as sub-periods a phase of piecemeal and ad hoc policy changes 1980-81 to 1990-91) , a phase of major changes in economic policy (1991-92 to 2000-01) and a period of consolidation of economic reforms (2001-02 to 2011-12).

To study regional imbalance, the fifteen major states of India namely Maharashtra, Gujarat, Tamil Nadu, West Bengal, Uttar Pradesh, Karnataka, Andhra Pradesh, Bihar, Assam, Haryana, Kerala, Madhya Pradesh, Orissa, Punjab and Rajasthan have been selected for the study. Such selected states which together have contributed more than 90 per cent of Indian registered manufacturing gross value added in every year of the study period.

Growth rates are perhaps the most commonly used measure in economic enquiry. The sub-period growth rates are usually measured by running regressions separately for each period. In the case of independent estimation, however the trend line is likely to discontinue and hence, some time-disparity may arise in between growth rates of the sub-periods and whole period. Boyce (1986) has suggested a method of kinked exponential model for removing the inconsistency in the case of exponential trend equations, based on the elimination of the discontinuity between sub-periods by imposing linear restriction.

For the three sub-periods by adding the three separate linear trends

$Y_1 = a_1D_1 + b_1D_1t$, $Y2 = a_2D_2 + b_2D_2t$ and $Y_3 = a_3D_3 + b_3D_3t$, one can obtain a discontinuous linear model as indicated below:

$Y_t = a_1D_1 + b_1D_1t + a_2D_2 + b_2D_2t + a_3D_3 + b_3D_3t + u_t$ ----

---------- (1),

Where $D_1 = 1$ for the first period

= 0 otherwise

$D_2 = 1$ for the second period

= 0 otherwise

$D_3 = 1$ for the third period

= 0 otherwise

The possibility of discontinuity could be eliminated by two linear restrictions so that the first two lines intersect at the break point K_1 and second and third lines intersect at the second break point K_2. In mathematical terminology it is like

$a_1 + b_1K_1 = a_2 + b2K_1$ ------------------------------ (2) and

$a_2 + b_2K_2 = a_3 + b_3K_2$ ------------------------------ (3)

After solving equation 1 with these restrictions 2 and 3, one can easily get the restricted model as

$Y_t = a_1 + b_1 (D_1t + D_2K_1 + D_3K_1) + b_2 (D_2t + K_2D_3 - K_1D_2 - K_1D_3) + b_3 (D_3t - K_2D_3) + u_t$

For the present study, the following double kink exponential model has been used. This model is

$LnY_t = a_1 + b_1 (D_1t + D_2K_1 + D_3K_1) + b_2 (D_2t + K_2D_3 - K_1D_2 - K_1D_3) + b_3 (D_3t - K_2D_3) + u_t$

Here, the breaks in the year 1991-92 and 2000-01, and the three sub-periods 1980-81 to 1990-91, 1991-92 to 2000-01 and 2001-02 to 2011-12. K_1 and K_2 are the two break points, hence $t = 9$ at K_1 and $t = 19$ at K_2 and t is time period and b_1, b_2 and b_3 are the parameters to be estimated on the basis of observed data. Growth rate for the sub-period has been calculated by [exp (b_i) -1].

The following Constant Elasticity of Substitution (CES) production function has been used to derive employment function by equating marginal product to wage rate.

The specification of the CES production function is denoted by

Where,

Q= output
K= capital
L= labour
A= efficiency parameter, A>0,
= Substitution parameter and = distribution parameter, 0<< 1

Equating MP_L to wage rate (W), we get

$$\frac{(1-\delta)Q^{1+\rho}}{A^\rho} = W$$

$$\left(\frac{Q}{L}\right) = \left(\frac{WA^\rho}{A-\delta}\right)^{\frac{1}{1+\rho}} \quad \text{----------------------- (4)}$$

$\ln\left(\frac{Q}{L}\right) = \ln\beta_0 + \sigma \ln W$, where σ = elasticity of substitution. The demand for employment can be derived from (4).

$$\ln L = \ln\beta_0 + \beta_1 \ln Q - \beta_2 \ln W$$

That is, $\ln(Employment) = \ln\beta_0 + \beta_1 \ln(Production) - \beta_2 \ln(Wage\ rate)$, where β_1 = Output elasticity of employment and β_2 = Wage elasticity of employment.

III RESULTS AND DISCUSSION
3.1 Growth of Gross Value Added
Growth has crossed the 4 per cent per annum in thirteen States except West Bengal (3.28 per cent) and Bihar (-3.24 per cent) during the study period. Growth of value added has been the highest in Karnataka (9.30 per cent), followed by Gujarat (9.06 per cent), Haryana (8.95 per cent), Orissa (8.72 per cent), Andhra Pradesh (8.42 per cent), Rajasthan (7.42 per cent), Tamil Nadu (7.05 per cent) and Punjab (6.58 per cent) during the entire period of study.

The aggregate growth rate has been only 3.75 per cent during the phase of major changes in economic policy. Growth of value added in all states except Gujarat and Haryana have been relatively lower during the phase of major changes in economic policy compared to a phase of piecemeal and ad hoc policy changes. Growth of value added has been negative in Bihar (-3.18 per cent) and Orissa (-0.32 per cent) among all the fifteen states during the period the phase of major changes in economic policy. Growth of value added has been more than eight per cent and fourteen per cent in Bihar and Orissa respectively during the period of ad hoc policy changes. All the States have registered growth of gross value added exceeding 6 per cent in the phase of piecemeal and ad hoc policy changes. Gujarat has recorded continuous increase in growth of gross value added in all the three sub-periods.

During the period of consolidation of economic reforms, growth of value added has improved at aggregate and at the individual State. Growth based on gross value added at national level has been impressive during 2001-12 with record 10.65 per cent growth. The performance in seven states in the period has been so well that one of them, Orissa , excelled the growth of national level marked at 16.74 per cent while other six states namely Tamil Nadu, Punjab, Gujarat, Haryana, Assam and Rajasthan almost equaled national mark with 10.38 per cent, 9.89 per cent , 9.78 per cent, 9.75 per cent, 9.63 per cent and 9.49 per cent respectively. At this same, all the states under the study showed positive signs of growth in the output level. Growth of output in Orissa during has been exciting in Orissa during 1991-01 whereas it has been negative in 1980-91. The other thirteen states during the same period, growth of value added has been lower compared to that of mild- liberalization period. All other States excluding Bihar have registered a positive growth of gross value added the phase of major changes in economic policy. On the whole, comparative analysis across the three sub-periods reveals that LPG policy has curtailed growth of value added at the aggregate and in thirteen States' level during the phase of major changes in economic policy and enhanced during a period of consolidation of economic reforms. Economic reforms therefore have made positive impact on output growth in Indian manufacturing during the recent period 2001-12.

Table 1
Average Annual Growth Rate of Gross value added in Indian Manufacturing

(Per cent per annum)

Period State	1980-91(a phase of piecemeal and ad hoc policy changes)	1991-01 (a phase of major changes in economic policy)	2001-12 (a period of consolidation of economic reforms)	1980-12 (entire period)
All India	8.80	4.28	10.65	7.45
Maharashtra	8.53	3.75	10.20	7.02
Gujarat	8.23	9.14	9.78	9.06
Tamil Nadu	9.77	2.87	10.38	7.05
Uttar Pradesh	12.33	1.61	5.53	5.83
Andhra Pradesh	10.31	4.31	12.45	8.42
Karnataka	9.11	6.38	13.71	9.30
Madhya Pradesh	10.09	3.16	1.23	4.57
Haryana	6.73	9.99	9.75	3.95
Punjab	11.44	0.99	9.89	6.58
West Bengal	3.24	1.03	6.37	3.28
Rajasthan	9.92	4.49	9.49	7.42
Bihar	8.31	-3.18	-13.63	-3.24
Kerala	6.32	2.77	3.61	4.65
Orissa	14.29	-0.32	16.74	8.72
Assam	9.33	0.95	9.63	5.89

Note: Growth rate for the sub-periods given above are calculated form kinked exponential model, whereas growth rate for 1980-12 is calculated from the semi-log trend equation.

Source: Computed using ASI data

3.2 Growth of Employment
During the entire period of study, employment growth has been around one per cent at the aggregate manufacturing industry. Eleven out of the fifteen states have shown positive growth of employment while Uttar Pradesh, Madhya Pradesh, Bihar and West Bengal lagged behind. Employment growth in Maharashtra and Assam though positive, was less than one per cent. Haryana holds the record of highest growth in employment with a record 3.22 per cent closely followed by Tamil Nadu (2.68 per cent), Karnataka (2.54 per cent) and Punjab (1.94 per cent) during the entire period of study.

Employment has grown significantly at a modest rate of 1.70 per cent during pre- liberalization period and declined to -1.07 per cent at the aggregate level during the phase of major changes in economic policy. All the fifteen states have had relatively higher growth of employment during the segment of piecemeal and ad hoc policy changes compared to the phase of major changes in economic policy. Growth of employment has been positive in all the states except West Bengal and Assam for the period of a piecemeal and ad hoc policy changes. Number of States having negative growth rate of employment increased from two in the first sub-period to eight during intensive- liberalization period (1991-01). Employment growth has been the highest in Punjab (5.89 per cent) during first period but it has declined to the negative in the succeeding sub period. An encouraging performance in

terms of growth of employment has not been recorded in any of the state under study during intensive liberalization period 1991-01 which mirrors gloomy picture during that period in Indian manufacturing. In other words, the phenomenon of "jobless growth" was prevalent in the organized Indian manufacturing sector during the 1990s.

In the recent past (2001-12) there has witnessed an expeditious growth of employment at the aggregate level and individual state in India. Growth of employment has been -1.10 per cent in aggregate Indian manufacturing during the phase of major changes in economic policy. But growth in industrially developed States such as Gujarat and Maharashtra has plunged into negative in the same period. During the period of consolidation of economic reforms, the performance in terms of growth of employment has shown signs of better must in all the states except Bihar and it exceeded four per cent in eight states. The highest growth of employment has been recorded in the state of Orissa (6.93 per cent) closely followed by Haryana (6.48 per cent), Punjab (5.58 per cent per annum), Tamil Nadu (5.34 per cent per annum) and Rajasthan (5.07 per cent) during a period of consolidation of economic reforms which implies that employment performance has been positive and encouraging during the same period. It is thus, proved beyond doubt that economic reform could positively influence the employment in Indian manufacturing in the recent years (2001-12) and employment growth in manufacturing sector has been particularly encouraging in labour abounded like India.

Most of the studies warned that liberalization policy would intensify jobless growth in future but results of a threadbare analysis prove that tactics adopted under the banner of LPG would generate and sustain employment opportunities in India.

Table 2
Average Annual Growth Rate of Employment in Indian Manufacturing (Per cent per annum)

Period State	1980-91 (a phase of piecemeal and ad hoc policy changes)	1991-01 (a phase of major changes in economic policy)	2001-12 (a period of consolidation of economic reforms)	1980-12 (entire period)
All India	1.70	-1.07	4.08	1.23
Maharashtra	0.38	-1.10	2.75	0.45
Gujarat	0.67	-0.30	4.86	1.59
Tamil Nadu	2.89	0.67	5.34	2.68
Uttar Pradesh	1.05	-3.64	2.86	-0.38
Andhra Pradesh	3.02	0.29	2.32	1.68
Karnataka	1.77	1.30	5.08	2.54
Madhya Pradesh	3.34	-3.38	-2.64	-1.24
Haryana	3.32	0.88	6.48	3.22
Punjab	5.89	-3.26	5.58	1.94
West Bengal	-1.33	-3.64	-0.59	-2.07
Rajasthan	3.13	-1.65	5.07	1.46
Bihar	1.63	-6.94	-10.22	-5.49
Kerala	1.18	0.97	1.87	1.30
Orissa	3.77	-4.87	6.93	1.01
Assam	-1.40	-0.37	4.79	0.81

Note: Growth rate for the sub-periods given above are calculated form kinked exponential model, where as growth rate for 1973-09 is calculated from the semi-log trend equation.

Source: Computed using ASI data

3.3 Growth rate of Wage rate

Growth of average emolument has been 0.33 per cent during 1980-12 at the aggregate level but substantial variation has been witnessed across the States. Growth has been the highest in Haryana (0.97 per cent), followed by Gujarat (0.81 per cent) while Bihar recorded the lowest (-2.96 per cent), followed by Rajasthan (-1.12 per cent) during the entire study period. All the fifteen states witnessed either negative or sluggish growth of wage rate during the study period (1980-12). Thus, the performance of growth of wage rate has not so encouraging during the entire study period.

Comparative analysis of growth pattern of average emolument per employee between 1980-91 and 1991-01 brings to limelight the utter failure of liberalization to effect any significant change in compensation to employees. All the fifteen States except Assam have had negative growth of wage rate during the phase of major changes in economic policy(1991-01) compared to the period of piecemeal and ad hoc policy changes (1980-91) and growth has been positive in all the fifteen States during the period of piecemeal and ad hoc policy changes (1980-91).

During the period of major changes in economic policy fourteen states showed an abnormal negative growth in terms of wage rate but the positive impact of reforms during the phase of consolidation of economic reforms brings down that number just to three, whereas these states found ways and means not only to survive of debacle in the decade (1991-01) of intensive liberalization period but also register a substantial growth in terms of wage rate of Bihar and Assam touched the bottom-line of negative growth rate of -9.99 per cent -6.88 per cent respectively during 2001-12. But in general it may be said that a good performance has been found in the period of consolidation of economic reforms in respect of wage rate at the aggregate level as well in as most of the states under study. Yet the growth of employee's compensation has not been in consonance with output growth.

Table 3
Average Annual Growth Rate of Emolument per Employee in Indian Manufacturing

(Per cent per annum)

Period State	1980-91 (a phase of piecemeal and ad hoc policy changes)	1991-01 (a phase of major changes in economic policy)	2001-12 (a period of consolidation of economic reforms)	1980-12 (entire period)
All India	3.99	-7.09	14.81	2.21
Maharashtra	4.19	-3.95	2.67	0.33
Gujarat	3.07	-1.74	2.19	0.81
Tamil Nadu	2.55	-4.24	2.44	-0.33
Uttar Pradesh	4.86	-2.68	1.27	0.65
Andhra Pradesh	3.05	-3.45	4.27	0.67
Karnataka	3.73	-3.27	2.40	0.41
Madhya Pradesh	3.39	-1.31	0.10	0.47
Haryana	3.53	-1.26	1.60	0.97
Punjab	2.95	-2.97	0.62	-0.17
West Bengal	2.03	-3.24	0.05	-0.75
Rajasthan	4.03	-4.88	-1.05	-1.12
Bihar	2.54	-1.56	-9.99	-2.96

Kerala	3.48	-4.32	1.59	-0.35
Orissa	1.79	-1.59	2.38	0.56
Assam	5.21	1.34	-6.88	-0.05

Note: Growth rate for the sub-periods given above are calculated form kinked exponential model where as growth rate for 1980-12 is calculated from the semi-log trend equation.

Source: Computed using ASI data

3.4 Employment Elasticity in Indian manufacturing

The employment elasticity helps in understanding the relationship between employment growth and expansion of output in the manufacturing sector. The low employment elasticity with respect to output signifies that the economic development concentrates on a particular sector and higher growth of manufacturing sector can affect in a limited way the rest of the sectors of the economy (Mazumdar, 2000).

The increase in the wage bill can be used to support either increase of employment at the going wage or increase in the real average earnings of workers. There is thus a clear trade- off between employment growth and wage growth. Alternate theories of wage determination are possible to account for the causal mechanism underlying the trade-off which runs in the neo-classical models of labor markets from wages to employment. Real wage growth is determined first by the trends in the supply price of labor (alternate earnings), and employment growth responds to it through an inverse functional relationship.

The calculated values of elasticity are presented in the Table 4. Two states namely Madhya Pradesh and West Bengal recorded negative output employment elasticity. While the majority of the manufacturing states showed positive though low degree of employment elasticity of output. The industrially advanced states of Uttar Pradesh and Maharashtra have registered zero per cent of employment elasticity during the study period. The picture revealed in the table is not encouraging during the entire period 1980-81 to 2011-12.

Table 4
Employment Elasticity in Indian manufacturing across States

	Employment Elasticity with respect to Output				Employment Elasticity with respect to Wage Rate			
	1980-91 (a phase of piece-meal and ad hoc policy changes)	1991-01 (a phase of major changes in economic policy)	2001-12 (a period of consolidation of economic reforms)	1980-12 (entire period)	1980-91 (a phase of piece-meal and ad hoc policy changes)	1991-01 (a phase of major changes in economic policy)	2001-12 (a period of consolidation of economic reforms)	1980-12 (entire period)
All India	0.25	0.28	0.44	0.15	-0.46	0.39	0.02	0.11
Maharashtra	0.13	0.29	0.54	0.09	-0.41	0.19	1.14	0.01
Gujarat	0.24	0.20	0.60	019	0.71	0.13	-0.62	-0.03
Tamil Nadu	0.26	0.37	0.69	0.39	-0.91	0.15	-0.79	-0.02
Uttar Pradesh	0.13	0.02	0.40	-0.06	-0.23	0.47	0.47	0.29
Andhra Pradesh	0.28	0.47	0.41	0.23	-0.46	0.28	-0.53	-0.05
Karna-taka	0.16	0.47	0.47	0.29	-0.11	0.00	-0.39	-0.19

Madhya Pradesh	0.19	0.11	0.23	-0.13	-0.03	0.38	1.23	0.76
Haryana	0.22	0.20	0.88	0.33	0.21	-.06	-0.80	0.52
Punjab	0.51	0.07	0.59	0.32	-0.09	0.57	-2.69	0.51
West Bengal	-0.10	0.60	0.28	-0.32	-1.17	0.56	0.49	0.45
Rajasthan	0.20	0.13	0.47	0.24	0.12	0.31	-0.23	0.15
Bihar	0.15	-0.17	0.27	0.29	-0.39	-0.24	0.44	0.80
Kerala	0.39	-0.48	0.35	0.28	-084	0.03	0.24	-0.19
Orissa	0.03	0.16	0.53	0.14	0.47	0.96	-0.36	0.35
Assam	-0.24	-0.14	0.20	0.10	0.64	-0.81	-0.10	-0.46

Source: Compiled from ASI Data

The employment elasticity with respect to output during all the three sub-periods remained less than one per cent in all manufacturing states and in the manufacturing sector as a whole. The employment elasticity of output has been found to be either negative or sluggish during a phase of piecemeal and ad hoc policy changes (1980-91) and a phase of major changes in economic policy (1991-01) in most of the states under study compared to the period of consolidation of economic reforms (2001-12). That the value of employment elasticity output has ranged between 0.21 and 0.88during the period of consolidation of economic reforms (2001-12), highlights the remarkable to generate employment in the manufacturing states. The highest growth of employment elasticity with respect to output has been registered in the state of Haryana (88 per cent) followed by Tamil Nadu (69 per cent), Gujarat (60 per cent), Punjab (59 per cent) and Maharashtra (54 per cent) during that period of consolidation of economic reforms. As a result, performance of employment elasticity of output has shown pleasant during the period of consolidation of economic reforms in manufacturing sector of labour abounded country like India.

The employment elasticity with respect to wage rate which was found to be positive state with less than one in most of the manufacturing states as well aggregate level during the periods 1991-01 and entire period of the study (2001-12). On the other hand, it has been negative in nine states in the period of consolidation of economic reforms economic policy (2001-12) while it has been negative in two states for the period of major changes economic policy (1991-01). It is a clear total absence trade-off between wage and employment in Indian registered manufacturing states during the phase of major changes in economic policy but there is trade-off between wage and employment during a period of consolidation of economic reforms. The peculiar point is noted that the wage rate and employment have found to move the same direction during the period of major changes in economic policy (1991-01).

IV CONCLUSION AND POLICY IMPLICATIONS

During the period of consolidation of economic reforms, growth of value added has improved at aggregate and at the individual State. Growth based on gross value added at national level has been impressive during 2001-12 with record 10.65 per cent growth. The performance in seven states in the period has been so well that one of them, Orissa, excelled the growth of national level marked at 16.74 per cent. On the whole, comparative analysis across the three sub-periods reveals that LPG policy has curtailed growth of value added at the aggregate and in thirteen States' level during the phase of major changes in economic policy and enhanced during a period of consolidation of economic reforms. Economic reforms therefore have made positive impact on output growth in Indian manufacturing during the recent period 2001-12.

The encouraging performance of employment during the period of consolidation of economic reforms is the ulti-

mate outcome of the positive impact of economic reform on employment in Indian manufacturing sounds optimistic of a bright future in labour abundant country like India. The result of the present study that the tactics adopted under banner of LPG has yielded a rich harvest in employment opportunities in India in the recent years, has Cleary nullified the fears in previous studies about the intensification of jobless growth on an account of liberalization. At the aggregate level, growth of gross value added has been nearly 10.65 per cent per annum and that of employment has been 4.08   per cent during the period 2001-12 showing obviously that adoption of LPG policies have not only in promoting economic growth but also in maintain employment growth in manufacturing sector of India. But the negative growth of employment has been found in some of the states during the same period; it may be a viewed not as a national but a global phenomenon. As India is a labour surplus economy, India's path of growth is matched by employment generation and liberalization policy may fulfill this.

The performance has been found in the period of consolidation of economic reforms in respect of wage rate at the aggregate level and most of the states under study. Though, growth of employee's compensation has not been in consonance with output growth.

The employment elasticity with respect to output during all the three sub-periods remained less than one per cent in all manufacturing states and in the manufacturing sector as a whole. The employment elasticity of output has been found to be either negative or sluggish during a phase of piecemeal and ad hoc policy changes (1980-91) and a phase of major changes in economic policy (1991-01) in most of the states under study compared to the period of consolidation of economic reforms (2001-12). The result of the present study reveals that performance of employment elasticity of output has shown pleasant during the period of consolidation of economic reforms in manufacturing sector of labour abounded country like India.

From the analysis of wage elasticity of employment it is apparent that the   total absence trade-off between wage and employment in Indian registered manufacturing states during the phase of major changes in economic policy but there is trade-off between wage and employment during a period of consolidation of economic reforms.

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