

CHAPTER 2

SURVEY OF LITERATURE

Survey of literature is a concise overview of what has been studied, argued, and established about a topic. Right from early seventies a lot of research has been undertaken in the field of organised sector and unorganised manufacturing sector in particular. The available literature shows that the researchers have chosen three fields in particular i.e., theoretical studies, micro level case studies and macro level empirical studies. The available literature surveys on studies of employment aspect in the Indian manufacturing sector have been undertaken by i.e. Goldar (2000) held sharp rise in wage rate responsible for the jobless growth of the 1980s and Papola (1994), Bhalotra (1998) and Nagaraj (2000) have highlighted other reasons for the stagnation in organised manufacturing employment in the 1980s. Both Nagaraj and Papola have pointed out that during the 1980s the composition of the organised manufacturing sector changed in favour of less labour intensive industries i.e.

The causes of inadequate employment growth and transformation in Indian manufacturing sector are several. First, the nature of the transition from an inward-looking, regulation-based, import substitution economy to one based on competition and international integration could have entailed restructuring and job losses in inefficient enterprises and the reallocation of workers to new export-oriented industries. A second source is a sharp sudden shift away from labour intensive economic activities towards capital intensive ones. Third, inappropriate labour market regulations affect labour costs and the adequate labour transfers. Indian labour laws are numerous, complex and even ambiguous and this could have promoted litigation rather than resolution of problems related to industrial relations. Finally, the wage elasticity has negatively affected the registered sector labour market, although the consideration of worked hours growth could reduce the effect of the rise in real wages. In order to emphasize on the main objectives of the present study, it has been necessary to review the relevant existing literature on each of these issues.

Goldar (2000) analysed the pattern of growth in employment in organized manufacturing sector during 1990s with a view to identifying some of the factors that caused acceleration in

employment growth. Basic data for the analysis have drawn from the Annual Survey of Industries¹ (ASI) which is the data source used in most earlier studies on industrial employment in India. The period covered in the analysis was up to 1997-98. The regression analysis has been done separately for the periods 1980-81 to 1990-91 and 1990-91 to 1997-98. The growth rates computed for various two digit industries have been used for this purpose. He has used regression analysis to show that the growth rates of output and real wages had a significant effect on employment growth.

He found that a significant negative relationship exists between growth rates of real wages and employment, as also between changes in the growth rates of these two variables indicates that the decline in the growth rate of real wages in the 1990s was one of principal causes of the acceleration in employment growth. While employment in organized manufacturing sector remained virtually stagnant in the 1980s, there has been a marked acceleration in the growth of employment in the 1990s. Acceleration in employment growth is found both at the aggregate level and for most industries. Goldar (2002) also found that employment elasticity (gross) in organized manufacturing sector of India increased from 0.26 in the period 1973-74 to 1989-90 to 0.33 in the period 1990-91 to 1997-98. He concluded that trade liberalization encouraged the growth of labour intensive industries and techniques of production, and this led to an increase in employment elasticity.

Goldar (2009) analysed the impact of trade on employment in manufacturing which is divided into several sub-sections. In the subsections, trends in employment for various industries/ sectors are studied followed by a study of the trends in exports and imports. Then, an assessment of the effect on employment generation has made. He has used data from Annual Survey of Industries (ASI). To gain an understanding of the effect of trade on employment generation in the organized manufacturing sector, a decomposition analysis of employment change during the period 1998-99 to 2003-04 has been carried out using the scheme of decomposition. For the decomposition analysis, data on employment and gross value of output have been taken at the two-digit industry level (NIC-1998).

¹ASI data covers industrial units registered under the sections 2m (i) and 2m (ii) of the Factories Act, 1948 and Bidi and Cigar establishment registered under the Bidi and Cigar Workers (Conditions of Employment) Act, 1966. ASI collects data using two methods: a 'census' sector survey with 100 percent coverage of units employing 50 or more persons with the aid of power and employing 100 or more persons without the use of power; and a 'sample' sector survey of the smaller units employing 10 or more persons with the aid of power and 20 or more persons without the aid of power. ASI defines the employees as number of workers plus supervisory and staff category.

Data on exports and imports have been taken from the Input-Output tables which have been matched with output and employment data at the two-digit industry level. Data on output have been deflated by the wholesale price index for the relevant product category (taking the best available index from the official series). The deflator used for the output of a two-digit industry has been applied also to the exports and imports data for products of that industry.

After the analysed the impact of trade on manufacturing employment in India, he has found that exports have a favourable effect on industrial employment, but the positive effect of export increase was offset by the negative effect of increases in imports. The net effect of trade on employment in organised manufacturing was marginal. The failure of trade to raise industrial employment has traced primarily to the changing product composition of trade and the changing direction of trade. The unorganized manufacturing sector has experienced a reasonably high rate of employment growth. The favourable effect of exports on employment in unorganized manufacturing could thus make a significant contribution to employment generation in the industrial sector. One interesting finding of the study was that after a long period of jobless growth, the corporate sector organized manufacturing has achieved in the last four years (2004-05 through 2007-08) a high rate of growth in employment, about 7 percent per annum on average.

Goldar (2011) observed the employment growth in India's organised manufacturing. He has utilised data of industrial sectors for major states as recorded in ASI results over the period 2003 to 2008. He has calculated employment elasticity, the growth rate and share percent of employment value added in organised manufacturing sector by major states.

He has found that the growth rate of industrial output was relatively high and real value added in organised manufacturing grew at the rate of nearly 12 percent per annum. The growth rate of employment of all India attained by organised manufacturing in was about 7.5 percent per annum in the period 2003-04 to 2008-09i.e., about three-fourths of the growth rate of real value added. While, in the preceding eight years 1995-96 to 2003-04, employment in manufacturing had fallen at the rate of about 1.5 percent per annum. The employment growth during 2003-04 to 2008-09 across different categories of factories classified according to the type of organisation reveals that the growth in employment has been relatively faster among private limited companies and was 14 percent per annum.He has found that the growth rate of employment of

all-India in organised manufacturing has increased in recent years at the rapid rate of 7.5 percent per annum in this period 2003-04 to 2008-09.

Mazumdar and Sarkar (2004) analysed the factors determining employment elasticity in the period 1980 to 1996 in organised manufacturing sector. They have divided this period into three periods namely 1974-80, 1980-1986 and 1986-96. They have studied the issue more intensively for one country i.e., India, and paid particular attention to the experience of the post-reform years in relation to earlier periods. The analysis of the factors determining the employment elasticity has related to the 'Formal' sector which comes under the purview of Annual Survey of Industries, and covered only the factories which have 'registered' with the relevant authorities. According to them, there have three important elements determining the value of the employment elasticity: (i) The trend in the share of wages, i.e., the rate of growth of the wage bill relative to value added in current prices facing the producer (α). (ii) The relative rates of increase in the producer and consumer price indices (sometime called the domestic real exchange rate -DRER) - which determines the value of the wage bill for the workers in terms of the prices facing them. (iii) The trade-off between employment increase and real wage increase. They have used decomposition model to determine employment elasticity in organised manufacturing.

They have found that the first period stretching from 1974-75 to 1980-81 registered a fairly high value of employment elasticity (0.99) and experienced a moderately high rate output growth of around 4percent per annum. This was, however, supplemented by a favourable trend in the producer prices relative to consumer prices. So, that in the term of real wage bills the growth rate was over 6 percent per annum. The spectacular fall in employment elasticity in the second period 1980-1981 to 1986-1987 was -0.16. It was followed by a period in the 1980s which has been noticed in the literature as the period of 'Jobless growth'. The volume of employment hardly changed while real output grew in the sector in a reasonable rate. The output growth rate was high of 6.33 percent. The growth of gross value added in real terms increased significantly but the increment was more than offset by an adverse movement of relative prices with consumer price increasing much faster than producer price.

The third period (1986-1996) which has coincided with the period of reform and saw an end of the experience of jobless growth. Output growth jumped to more than 10percentper annum in real terms. At the same time the gap between the rates of increase of consumer prices decrease

significantly compared to the previous period, so that the growth rate of the real wage bill grew considerably faster. The net effect was a substantial increase in employment elasticity (0.35), though it did not reach the high value of period 1. They have concluded that the first period (1974-80) with an elasticity close to unity, the second (1980-86) with a negative employment elasticity (jobless growth – employment started to recover along with enhanced rate of growth of output, although employment elasticity did not reach the level of the first period), and the third (1986-96), the reform period when employment started to recover along with enhanced rate of growth of output, although employment elasticity did not reach the level of the first period.

Nagaraj (2000) re-examined the analytical and empirical bases of Goldar's conclusions, and suggested (2000) an alternative explanation for the employment expansion in the 1990s. He contested the views of Goldar, and argued that faster employment generation in the organised manufacturing sector was due to the investment boom in that decade. The following were the main results of such an attempt: the inverse relationship between employment and wages is a truism in a conventional equilibrium analysis.

To find out, the relationship between employment and wages, he has used simple linear regression model. Goldar's postulated relationship between employment and wages was incorrect, as employment depends not on wages but on wage-rental ratio. However, this might not vitiate his results as the wage-rental ratio could, in fact, have fallen since the economy's real interest rate rose rapidly in the 1990s. According to Goldar, changes in employment in favour of smaller sized factories in the 1990s partly account for the wage moderation. And he has attributed the changes in the size distribution to the industrial and trade policy reforms initiated since 1991. This view was perhaps overly simplistic, since size distribution has been steadily moving in favour of smaller sized factories for the last five decades.

Finally, Goldar's regression results had a problem of interpretation. His re-estimation of Goldar's model by introducing one independent variable after another suggests that there was, in fact, no statistically valid relationship between growth in employment and wages across industries (as postulated). The relationship has 'driven' by gross value added, which was statistically significantly associated with both employment in one case and with wages in the other. It has, thus, suggested that the labour market variables seem to be mediated by product market variables. Therefore, Goldar's empirical evidence to support the inverse relationship

between employment and wages appears seriously flawed. Nagaraj's hypothesis the product market variable that could explain the employment growth in the 1990s was the growth in fixed investment. It has seemed likely that industrial deregulation led to an investment boom, aided by the stock market boom in the first half of the 1990s that reduced capital cost for large private corporate firms.

Chaudhuri (2001) examined to what extent in growth rate of income and employment in organized manufacturing sector. The basic data sources have been taken ASI and NSA figures (National Account Statistics). He has used the data presented in Annual Survey of Industries (Summary Results for Factory Sector) from 1990-91 to 1997-98, the latest year for which ASI data are available, at the time of writing.

He has found that employment in the organized manufacturing sector has increased at the compound annual rate of growth of 2.59 percent between 1990-91 and 1997-98. At the disaggregated level, however he has observed considerable fluctuations. The growth of employment (measured as number of employees) increased during 1990-91 to 1995-96 though at a much lower rate. Since 1995-96 employment has declined in absolute numbers.

Nagaraj (2004) explained that between 1995-96 and 2000-01, about 1.1 million workers, or 15 per cent of workers in organised manufacturing sector lost their jobs. The basic source of data has been taken from ASI for employment share in organised manufacturing by state and industry groups. ASI various issues capital stock is from National Accounts Statistics, per capita net national product have been taken from The Economic Survey 2001-02.

Nagaraj noted that there was jobless growth during the 1980s, but this was followed by an employment boom for four years during 1992-96 and retrenchment thereafter. Between 1995-96 and 2001-02, 1.1 million employees lost their job. These losses have been widespread across major states and industry groups. It is mostly workers who have lost over 1.1 million jobs (15 percent). But employment of supervisions increased more or less steadily, though they too experienced job losses. Between 1980-81 and 2000-01, employment of workers increased by 4.3 percent (0.24million), while that of supervisors rose up by 39 percent (0.55million). On a trend basis, however, the annual growth rates are 0.9 percent and 2.2 percent for workers and supervisors respectively.

In short, we can say that Nagaraj (2004) pointed out that faster employment generation in organised manufacturing was restricted mainly to the first half of 1990s. As the boom went bust, there was a steep fall in employment in the second half of the 1990s. Relative cost of labour did not seem to matter in employment decisions, as the wage-rental ratio declined secularly. According to Nagaraj, about 1.1 million workers, or 15 percent of workers in the organised manufacturing sector in the country, lost their jobs between 1995-96 and 2000-01.

These losses have been widespread across major states and industry groups. However, employment of supervisors rose steadily, and their earnings accelerated in this period. He described the broad dimensions of the job losses, possible reasons for it, and suggested its implications for the labour market reforms. The extent and spread of the job losses witnessed suggest that the much discussed inflexibility in industrial labour market seems over done at least in the aggregate. Productivity gains have largely accrued to employers, as real wages were practically stagnant. According to him the real need of the hour, therefore, is perhaps not greater freedom to employers to hire and fire at will, but to ensure that those losing jobs during industrial restructuring get their legitimate dues from their employers and public institutions. They require retraining to acquire marketable skills, financial assistance to become self-employed.

Hasan, Mitra and Ramaswamy (2003) presented a rigorous analysis of the impact of trade liberalization on labour-demand elasticity of manufacturing sector in India. They have used data from Annual Survey of Industries (ASI) for the sub-sectors of manufacturing for the Indian States for the period 1980 to 1997. This study estimated the impact of trade liberalization, characterized by the declining tariff and non-tariff barriers, on labour-demand elasticity to be positive.

The study also showed that the demand elasticity was greater in states with more flexible labour regulations. The implication of higher demand elasticity of labour was greater potential for employment shocks when there were shocks to wage rates or output demand. Although this study highlighted one transmission mechanism of the impact of trade liberalization on employment, it did not indicate the overall impact on employment. According to them, trade liberalization might have a 'scale effect' on employment as the demand for manufacturing output might increase with the decline in product prices due to liberalization of a protected market. There might also be a 'substitution effect' as the composition of manufacturing output might also change when characterized by labour intensity of production. Production capacity of 'labour-

intensive' sectors might rise relative to 'capital-intensive' sectors reflecting a move towards sectors in which a developing economy such as India's can be expected to have a comparative advantage in trade.

Rani and Unni (2004) observed a sharp growth in capital intensity (declining labour intensity) in both the organised and unorganised sector.² They have been using data from NSSO (1989), NSSO(1994), NSSO(1998), NSSO(2002), CSO(1955), CSO(1985), CSO(1990), CSO(2002). They have discussed the growth in the organised and unorganised manufacturing sector during the partial liberalisation and liberalisation periods. To see the impact of liberalisation, they have divided the entire period 1984 to 2001 into three sub-periods: the partial liberalisation period 1984-85 to 1989-90; liberalisation of the early 1990s, 1989-90 to 1994-95; and liberalisation of the late 1990s from 1994-95 to 2000-01.

The positive growth in capital intensity was not accompanied by a rise in capital productivity in both sectors, which again implied a substitution of capital for labour, without any technological up gradation, across all industry groups at the two-digit level in both the sectors. They have found that the initial economic reform policies have adversely affected employment in organised and unorganised manufacturing sectors, which got improved in the subsequent years. The reform measures also have differential impact on various industry groups, in particular, growth in automobiles and infrastructure enabled growth in the unorganised segment.

They have found that during the partial liberalisation period, value added in organised sector grew at 7.2 percent, with growth of capital at 6 percent and employment at 0.65 percent. In the unorganised sector, the manufactured output grew very slowly at nearly 1, compared with the organised sector during, with a negative growth of capital and employment respectively -20.41 percent and -0.95 percent.

Despite the high growth in industrial output, employment grew very slowly in the organised sector (0.65 percent) and was negative (-0.95 percent) in unorganised sector. The early of liberalisation period brought about a more comprehensive trade liberalisation, which encompassed abolition of non-tariff barriers, reduction of peak tariff rates dispersion along with

² A study by Rani and Unni (2004) shows that the sharp growth in capital intensity was not accompanied by rise in capital productivity and hence showing that there was a substitution of capital by labour without any commensurate technological up-gradation.

devaluation of rupee and imports were further liberalised. All these policies together led to growth in value added of 8.3 percent with an employment growth of 2.1 percent and fixed capital growth of 13.6 percent in organised sector in this period. In the unorganised sector, growth in value added was negative (-0.99 percent) accompanied by a negative growth of employment (-1.7 percent) and positive growth of fixed capital (5.3 percent).

And the late of liberalisation period, the reforms were gradually extended to other sectors. The earlier period, which has a high growth rate in value added in the organised sector, was led by in import led boom, and it slowed down in this period to 6.9 percent, along with employment 0.7 percent and capital 12.1 percent. The value added grew rapidly in the unorganised manufacturing sector 6.9 percent compared with a negative growth in the earlier periods, employment growth of 2.1 percent and fixed capital growth of 6.4 percent.

They have found that the opening up the economy helped the organised manufacturing sector to grow for more than a decade, before slowing down. The growth was not employment generating in this sector. Growth in the early 1990s had employment generating potential only in some consumer goods industries. This potential tapered off in the late 1990s. Initial reform policies affected the unorganised sector adversely and employment growth was negative.

Thus, they have concluded that the growth rate of value added, employment and capital in the organised manufacturing sector in the country as a whole had surged in the initial year after the introduction of reforms. Growth in the unorganised sector, however, has observed to have peaked in initial phase of partial liberalisation, and tapered off in the reforms period.

Das (2007) examined the role of manufacturing output growth has had on overall growth and on employment growth in manufacturing industries in India. He concentrated on West Bengal and Gujarat, the leading industrial states in the eastern and western parts of the country. In the 1960s, Kaldor put forward certain hypotheses linking growth of output, employment and productivity in the manufacturing sector. Testing those hypotheses with Indian data might illuminate the nature of the growth process in Indian manufacturing. In particular, they might shed new light on differences in regional patterns of growth in India over the period from 1970-71 to 2002-03. He has been used data from National Account statistics (NAS), for estimating growth rates of domestic products at the national level from 1970-71 to 2000-01. And the Central Statistical Organisation and published by the EPW Research Foundation Organisation, 2003, have been

utilised. There have four series of data on SDP (States Domestic Products) for the base periods 1960-61 to 1970-71, 1980-81 to 1993-94.

The prime data source of registered industrial sector is Annual Survey of Industries (ASI) published by the CSO. He tested the first hypothesis that faster the rate of growth of manufacturing output, the faster will be the rate of growth of GDP. Secondly, the growth of labour productivity in the manufacturing sector is positively related to output growth because of static and dynamic increasing return to scale. The higher rate of growth of manufacturing output leads to higher rates of productivity growth, but not to a faster rate of growth of manufacturing employment. To capture trend behaviour of output and employment he has used semi-logarithmic trend model. For state level analysis, generalised least square (GLS) method in the frame of fixed effect pooled regression was applied.

He has found in linear regression results that there was no strong correlation between employment growth and output growth in manufacturing sector was estimated by using ASI time series data from 1970-71 to 2002-03 in a panel frame for the states. The correlation coefficients between the growth rates of overall output and manufacturing output were reasonably small. OLS estimated value of the regression coefficients of growth rate of domestic output on manufacturing output for the total as well as different sub-periods were less than unity implying that the greater the excess of the rate of growth of economy the faster the overall growth rate. And he has also found that on the base of GLS estimated results that the effect of output growth on employment growth in this sector has been significantly higher in West Bengal than in Gujarat.

He has concluded that an important contradiction in the pace of industrialisation in India over 1970-71 to 2000-01. Manufacturing industries in India did not play an important role as the engine of the growth over the past three decades. Job destroying industrial growth was well documented in this study. The incidence of labour displacement in the process of industrial growth was stronger in the industrially advanced states.

Das and Wadhwa (2009), attempted to examine labour intensive industries in the organised manufacturing sector in India in order to understand their employment generation potential. Using the data from the Annual Survey of Industries (Government of India, various issues), the labour intensity for 97 industries at the 4-digit disaggregate level was computed for the period

1990-91 to 2003-04. The study identified 31 industries as ‘labour intensive industries’ within India’s organized manufacturing sector.

They have found a continuous decline in labour intensity across all the labour intensive industries. Labour-intensity ratio for the selected industries declined from 0.72 in 1990-91 to 0.30 in 2003-04; and the labour- intensity ratio declined not only for capital intensive industries but for labour intensive industries as well in the post-reforms period. The increase in output failed to generate enough employment growth resulting in a significant decline in employment elasticity.

Kannan and Raveendan (2009) examined the employment implications of growth performance of the organized manufacturing sector in terms of growth in employment as well as the resultant employment elasticity’s so as to further probe the ‘jobless growth’ phenomenon reported for earlier but shorter periods, the growth and employment performance in terms of industry-groups at the 2-digit level to find if there have any discernible patterns, and the changes in the distribution of income arising out of the growth as between capital and labour.

They have used the published results of the ASI from 1981-82 to 2004-05 at the 3-digit level of industrial classification were used for the study. They have divided the entire period 1981-82 to 2004-05 into two sub-periods the first period from 1981-82 to 1991-92 and the second period from 1992-93 to 2004-05.

They found that during the pre-reform period from 1981-82 to 1991-92, the employment growth rate in manufacturing industries was 0.40 percent while it marginally increased to 0.63 percent during the post-reform period from 1992-93 to 2004-05. The 2-digit level industry employment elasticity’s has presented a differentiated picture. During the pre-reform period 16 out of 22 industry groups showed positive employment elasticity’s arising out of what we call ‘employment creating growth’. During the post-reform period, a higher rate of growth in output and the growth in employment witnessed only a very marginal improvement to 0.63 percent per annum as against 0.40 percent in the first period. The average annual growth of employment in the manufacturing industries during the period from 1981-82 to 2004-05 was 0.78 percent.

Their analysis showed that a set of industries has been able to grow with some net job creation. However, there was another set of industries that grew largely by shedding employment perhaps to stay on course with the changing nature of the product market and domestic

competition. The interaction of these two trends resulted in jobless growth over nearly a quarter of a century.

Employment growth has not been high enough to generate additional employment to come out of the syndrome of 'jobless growth'. There was some streak of hope in favour of employment since industries that were 'job creating growth' sectors have increased their share of employment from 54 percent in 1981-82 to 64 percent in 2004-05 with a corresponding increase in share of output from 62 percent to 77 percent. However, employment elasticity has remained within a narrow range of 0.26 to 0.28 between the two periods analysed there.

Bhide and Kalirajan (2004) examined the impact of the reforms on employment by decomposing employment into average size of the firm, labour intensity of output, and number of firms in the industry. The data has been taken from Government of India (2002).³ They showed that One critical feature in the organised sector of Indian manufacturing affecting employment growth has been the decline in the labour-intensity of output or conversely, the rise in labour productivity. The rise in productivity has not been matched by the rise in demand for manufacturing output so that aggregate employment increased.

They also showed that there is a consistent decline in labour intensity in manufacturing. However, there was an increasing tendency in the size of factories and increased in the number of factories. They found that the overall growth of the economy has positively influenced decline in labour intensity, greater trade has a positive effect on labour intensity. Greater trade openness has also a negative impact on the size of factory. In other words, increased trade openness has increased labour intensity and favoured smaller firms.

Banga (2005) examined the impact of foreign direct investment (FDI), trade and technology on wages and employment in Indian organised manufacturing industries in the post reforms period. To capture labour market rigidities that exist in India, i.e., lack of flexibility in wage setting and rigid hire and fire policies, the study estimated dynamic panel data (DPD) model using generalised method of moments (GMM). The impact of technology has captured through three components, which have research and development intensity, import intensity of capital goods

³Government of India (2002), *Report of the Special Group on Targeting Ten Million Employment Opportunities Per Year Over the Tenth Five Year Plan Period*. New Delhi: Planning Commission.

and import intensity of soft technology. An index for technology acquisition has also constructed using principal component analysis to estimate the impact of technological progress.

The results showed that FDI, trade and technological progress have differential impact on wages and employment. While higher extent of FDI in an industry lead to higher wage rate in the industry, it has no impact on its employment. On the other hand, higher export intensity of an industry increased employment in the industry but has not effect on its wage rate. Technological progress has found to be labour saving but did not influence the wage rate. Further, the results showed that domestic innovation in terms of research and development intensity has been labour utilising in nature but import of technology has unfavourably affected employment. An immediate policy direction that emerged from the study was that to improve the employment potential of the economy trade should be encouraged and higher incentives should be generated for attracting FDI into export-oriented sectors. As the economy opens up, cost adjustments become increasingly important and flexibility labour laws are required to facilitate cost adjustments.

Bhalotra (1998) expressed that employment declined in Indian factories in the 1980's, even as output accelerated. All estimates have based on data from the Annual Survey of Industries and obtained from a regression of the log of real value added on trend. The data were a short panel (1979/80-1987/88, henceforth 1979-87) of 18 industries disaggregated by their location across 15 Indian states.

He has explained that employment depends upon expected cyclical changes in demand, the scale of production the hourly wage, productivity growth, and hours of work. Employment adjustment was sluggish, only a third being completed in one year. Inertia in employment was consistent with firing restrictions as also with insider activity, for both of which there was evidence in Indian manufacturing. This was consistent with entry, exit and trade restrictions in Indian industry. It also made small wage elasticity unsurprising.

He has found that it took a year for the wage to have any effect on employment and that the long-run elasticity was 0.28 in the output model and 0.44 in the capital model. Where hours worked appears as an independent regressor, it has a significant negative impact. Capital and

output were growing rapidly in the 1980's and this alone would lead us to expect healthy employment growth. Instead, several industries have negative growth in employment and, in manufacturing as a whole, employment growth was insignificantly different from zero. He has explained this in terms of growth in productivity, actual hours worked and the hourly product wage. The weight of the product wage in the explanation was relatively small, so that explanations which blame wage growth alone were inadequate.

Alessandrini (2009) analysed the jobless growth problem in India in terms of a Kaldorian framework where the linkages between agriculture and industry enter the labour demand through the changes in the terms of trade between the two sectors. The paper has investigated the role of agricultural surplus in influencing labour demand in Indian organized manufacturing. He has used a panel dataset on the 15 largest states of the Union for the period 1980 to 2004; his System-GMM⁴ estimates confirmed the positive linkage between a rise in agricultural purchasing power and the growth in manufacturing employment. The basic data source was Economic Survey, National Account Statistics, and Government of India.

He has found that the capability of the Indian growth process to generate new job opportunities in the organized segment of the economy was dramatically limited and, despite the expansion of formal sector in total production, informal employment continues to rise. There has been a considerable reduction in employment elasticity to aggregate output, from 0.33 in the 1980s to the value of 0.07 recorded in the 1990s. Between 1980 and 2004; the fifteen largest Indian states recorded an average growth of about 5 percent in terms of Net State Domestic Product.

Total manufacturing and, in particular, registered manufacturing output grew at a higher rate of 5.26 percent and 5.78 percent respectively, leading to a sensible reduction of the unregistered segment on total manufacturing of -0.83 per cent per year. Despite this positive performance, the effect of growth on registered employment appears quite modest, with an average annual improvement of less than 0.5 percent across states. The divergence between agricultural and manufacturing prices, instead, displays a rate of growth of less than 0.3 percent.

He has found that where the increase in agricultural prices relative to manufacturing prices has been wider, the employment in organised manufacturing has been higher. Furthermore,

⁴Generalized method of moments (GMM) is a general framework for deriving estimators

labour demand growth seemed to be more elastic to aggregate output growth rather than to increments in registered manufacturing production. His results showed that in those states where the share of the unregistered manufacturing has risen over time, the jobless growth problem has worsened. India should look to establish and reinforce forward and backward linkages between agriculture and manufacturing if it wants to transform a jobless growth pattern into an inclusive growth process.

Kakarlapudi (2010) examined the possible impact of trade liberalization on the growth of organized manufacturing employment at two digit levels by dividing industries into export oriented and import competing industries. The study therefore has tried to evaluate the effect of trade liberalization on employment growth in India in the realm of standard trade theoretic framework.

He has used data from the National Sample Survey Organization (NSSO), a survey conducted by the Central Statistical Organization (CSO), on the Employment and Unemployment Situation in India from the 48th round to 61st round to provide the overall employment trends at the aggregate as well as sectorial level during pre- and post-reform periods. For the period 1980-81 to 2003-04, he has used the ASI data published in Annual Survey of Industries.

To find out the effect on trade liberalization on employment the trade data that has been used available according to Indian trade classification based on Harmonized Commodity Description and Coding system and UNCTAD (United Nations Conference on Trade and Development).⁵ Is the most comprehensive database, which gives data on all the trade flows covering across the world also used for trade data.

He has found that employment growth in the first half of pre-reform period (1980-81 to 1984-85) was near zero which included negative growth of some industries and high growth in radio & television and non-metallic mineral products. On the other hand, growth in the second half of pre-reform period (1985-86 to 1989-90), the so called partial liberalization period, was quite higher than the earlier period.

⁵UNCTAD is the most comprehensive database, which gives data on all the trade flows covering across the world also used for trade data.

However, the employment growth during the decade of 1980s (1980-81 to 1989-90) has shown a negative growth of -0.07 percent for overall organized manufacturing sector. The total manufacturing has registered a decent employment growth of 3.51 percent during this period, against 2.20 percent and -0.07 percent during the second half and the decade of 1980s. But the trend could not continue in the later years of liberalization period. The overall growth in the employment in the post liberalization period has recorded a negative growth rate of -0.99 percent.

This indicated that liberalization policies did not have any positive impact on employment in the organized manufacturing. To find out the effect of trade liberalization on manufacturing employment, he has divided the industries into export-oriented and import-competing industries. Employment growth in export oriented industries was higher than the import-competing industries in both the post-reform sub-periods. Employment growth has decelerated in the both the industry groups during the second sub-period; even the import-competing industries experienced negative growth of -2.10 percent, while growth rate of export-oriented industries declined to 0.76 percent. The result was a negative growth rate of employment for the overall industries during this period.

The overall post-liberalization period also showed a negative employment growth (-0.99 percent); employment growth of export-oriented industry (1.54 percent) was higher than the import-competing industries (-1.26 percent). Thus, he has finally concluded that the opening up of the economy helped the organized manufacturing sector to grow for more than a decade, before slowing down. Initial reforms have increased output and employment growth significantly, but it could not sustain after 1996-97. Thus, he has concluded that the post-liberalization period witnessed deceleration in the employment growth compared to the pre-liberalization period.

The findings suggest that international trade has not had a significant positive effect on manufacturing employment via scale and composition effects, and may have had a negative effect via the substitution effect. This suggest that international trade may not be the driver for job creation in the Indian manufacturing sector and may not be the major source of job creation for India's large pools of surplus unskilled labour.

Sincavage and Haub (2010) presented BLS estimates of compensation in India's 'organized' manufacturing sector-the portion of the country's manufacturing activity that is formally registered with Indian state governments, making it subject to regulation. However, it focused primarily on the organized manufacturing sector. The article also discussed India's statistical system, features of the available Indian manufacturing industry data, the procedure used by BLS⁶ to estimate hourly compensation, and compensation trends both in all manufacturing and in 18 industries within manufacturing. He has taken data from ASI. Total compensation ratios were calculated by BLS. Compensation of all employees in India's organized manufacturing sector increased by 36.0 percent from 1999 to 2005. From 1999 to 2003, total hourly compensation for all employees grew, on average, by 6.4 percent each year. The growth of hourly compensation slowed to 2.3 percent in 2004 and was 3.8 percent in 2005.

They have found the ratio of total compensation to average hourly earnings rose or stayed the same every year from 2000 to 2003. However, the ratio decreased slightly over the last 2 years of the 1999-2005 periods, declining from 1.417 in 2003 to 1.375 in 2005. Hourly compensation costs in India were among the lowest when compared with the 36 countries in the BLS hourly compensation series. In 2005, India's average hourly compensation cost for all employees in manufacturing (\$0.91) was approximately 3.1 percent of the level seen in the United States (\$29.74) when measured in U.S. dollars. Over the period from 1999 to 2005, hourly compensation costs for all employees in Indian manufacturing fluctuated between 2.7 and 3.1 percent of the U.S. level.

Organized-sector compensation costs in India and compensation costs for all employees in Chinese manufacturing were both very low in comparison with corresponding costs in the United States from 2002 through 2005. Costs in China were lower than those in India each year. During this period hourly compensation costs increased by 25 percent in India and by 28 percent in China as measured in U.S. dollars. Thus, they have concluded that BLS estimates that in 2005, the latest full year for which data were available at the time this article was written, employers in India's organized manufacturing sector compensated employees at a mean rate of \$0.91 an hour-approximately 3 percent of the compensation level of manufacturing employees in the United States.

⁶BLS the Bureau of Labour Statistics calculates and publishes hourly compensation costs in manufacturing for all employees in 32 countries and for production workers in 34 countries. BLS estimates made by use of Annual Survey of Industries data from the Central Statistical Organisation of India.

Burange (2002) observed the states performance with respect to employment and output in the organized manufacturing sector by interstate. The study made efforts to estimate growth rate of real output and employment of the manufacturing sector over different periods for the states and makes the comparison. The main data source has been taken from the Annual Survey of Industries -Summary Results for Factory Sector. This total period has been divided into two periods. One was from 1980-81 to 1991-92, which was called Pre-reform period, and 1991-92 to 1997-98, called as Post-reform period.

He has found during the pre-liberalization period Punjab, Rajasthan, Haryana, Delhi and Tamil Nadu recorded relatively better performance in growth of employment in the manufacturing sector. West Bengal, Maharashtra and Gujarat registered a fall in employment of manufacturing sector during this period. During the post-liberalization period, Karnataka, Kerala, Tamil Nadu, Haryana and Gujarat recorded relatively high growth of employment in the manufacturing sector, while Bihar and Delhi registered a fall in employment of the manufacturing sector during this period. In general, Tamil Nadu, Andhra Pradesh, Punjab, Haryana, Rajasthan and Karnataka recorded better performance in terms of growth of employment and output of the manufacturing sector during 1980s and 1990s.

Sankaran (2007) explored the underlying factors behind the poor performance of the organized sector in terms of employment generation in the context of trade liberalization. The paper tried to examine the impact of trade liberalization on employment in India's organized manufacturing sector during post-reform period. This study was based on two different data sources. The focus of this paper was on organized manufacturing industries at disaggregated level. The study has used published results of the ASI published by Central Statistical Organization (CSO) from 1990-91 to 2004-05.

For trade related data, she utilized Commodity Trade (COMTRADE) provided by United Nations Conference on Trade and Development (UNCTAD). In addition, for tariff related data the paper has used Trade Analysis Information System (TRAINS) published by UNCTAD and Integrated Data Base (IDB) given by World Trade Organization (WTO). These data has made been available at the industry level according to International Standard Industrial Classification Rev. 3.

The present study started panel analysis with pooled ordinary least squares (OLS) regression. The estimated results has indicated that export-intensity and import weighted tariff did not have significant effect on employment and import penetration ratio affected negatively. One per cent increase in import penetration leads to -0.039 per cent reduction in industry's total employment. This tends to suggest that import competition has strong negative association with employment and it confirmed the theoretical argument of substitution effect.

The negative sign of the export-intensity co-efficient implied a negative relationship between export-orientation and employments contrary to the one expected in the theory. Yet, unpredicted result of export intensity has shown that it has significant negative effects on employment; one percent increase in exports intensity reduced employment by -0.096 per cent.

The analysis found that, trade seemed to be having negative effect on employment, which is contrary to H-O theory. This did not mean that increasing trade was not good for employment generation. The trade induced negative effect on employment was possibly due to, capital-intensive nature of the composition of trade. Therefore, it is important to encourage the labour-intensive sectors exports, which can generate employment forum skilled workers.

Kumar and Gupta (2008) explained the growth potential and competitiveness of the Indian manufacturing sector. The paper evaluated the performance of the manufacturing sector over time and makes a cross country comparison and identified the factors that have contributed to marked divergence in regional development of this sector including both the organized and unorganized sectors and examined the employment generation potential of the manufacturing sector, looks at its export performance.

The data has been taken from Central Statistical Organization (CSO), NSSO Report of the 56th Round National Sample Survey Organization and Annual Survey of Industries. A cross-country comparison found that contribution to GDP by the manufacturing sector in India is much lower compared to other developing countries. He observed that more than 99 per cent of all manufacturing units fall in the unorganized sector.

He has found that the overall employment growth rate was only 1.07 percent. The decline in overall growth rate was primarily due to near stagnation of employment in agriculture. A

decomposition of the employment growth rate between the organized and unorganized sector have shown that employment has grown faster in the unorganized sector.

He has concluded that the unorganized sector was overwhelming dominant in terms of number of enterprise and its share in total manufacturing sector workforce. However, the sector was only a marginal contributor to value added. Thus, the unorganized sector as characterized by extremely low value added per worker. The manufacturing sector, especially the organized manufacturing, has failed to generate adequate employment at that time. The primary reason for this was wide spread automation and decline in labour intensity, principally in response to the prevailing policy regime, in both organized and unorganized sectors.

Indian Council For Research on International Economic Relations (2008)The NMCC⁷ (National Manufacturing Competitiveness Council) has commissioned a study to ICRIER on the subject of ‘Labour Intensity and Employment Potential of Indian Manufacturing’⁸to provide policy options for achieving the twin objectives of manufacturing growth and employment generation.

The findings of the study which have been based on both secondary data & primary survey indicate that the employment in the organized manufacturing sector over the period 1990-91 to 2003-04.The data base of the study was the Annual Survey of Industry; volume-1Summary Results for the Factory Sector, yearly issues published by the Central Statistical Organization, Government of India. The study attempted to examine the labour intensive industries of organized manufacturing in order to understand the employment generation potential of these industries and analyzed what constraints have faced by the growth and employment of this sector.

They have found from that only 14 percent of the workers have engaged in organized sector as against 86 percent in unorganized manufacturing. But their share of employment in total manufacturing workforce was very low (0 to 1 percent) as compared the labour intensive industry. They have observed that employment elasticity has declined after 1994-95 and reached to a negative level in 2000-01. After 2000-01 they have found a substantial improvement because both employment and real gross value added growth has jumped after 2001-02.The 25

⁷NMCC provides an excellent overview of the major challenges facing Indian manufacturing and provides several key recommendations as to how they can be dealt with.

⁸Das, D K and R kumar (2008): ‘A Study on Labour Intensity & Employment Potential of Indian Manufacturing’, *The National Manufacturing Competitiveness Council*, Indian Council for Research on International Economic Relations

recent phases has seen a very huge jump in employment elasticity to 2.22. They have shown such a huge jump because during this period the average real GVA growth was 2.36 percent per annum and employment was growing at an average rate of 5.24 percent per annum. They have observed that the average labour intensity (L/K ratio) in Indian manufacturing during 1990-91 to 2003-04 has been 0.26. And based on this criterion they have 31 labour intensive industries which have L/K ratio more than 0.26 during the whole period.

While examining the yearly average labour intensity (L/K) for the 31 labourintensive industries during 1990-91 to 2003-04, they have observed that there a continuous fall from 0.72 in 1990-91 to 0.30 in 2003-04 which suggests that there has been substitution of capital for labour during above period. The 31 labour intensive sectors which ICRIER has identified out of 97 industry segments have also registered very sharp decline in labour intensity during this period. Even though there has been an increase in the gross value added in the identified labour intensive industries, there has been no significant increase in the employment, indicating labour productivity gains. An important finding of their study was that labour intensity was declining across majority of industries in the chosen time period. During 1990-91 to 2003-04 the average combined Gross Value Added share of these 31 industries have been 13.77 percent.

Ahmeed, Yunus and Bhuyan (2009) explored the possibility of a more employment-intensive growth in Bangladesh, especially through the growth of labour-intensive manufacturing and service sectors. The study has looked at the performance of the manufacturing sector of Bangladesh in terms of employment generation since early 1990s. The study has mainly based on data collected from various secondary sources supplemented with primary information for the sub-sector studies and overall employment situation. Primary information has collected from different stakeholders through unstructured interview. The analysis has based on information from published official sources.

According to this study, manufacturing is the largest contributor in overall industrial employment generation. Employment in manufacturing sector alone has grown at an annual average rate of 1.4 percent during the second half of 1990s. The manufacturing sector growth rates were 5.1 percent and 6.5 percent between 1990/00-2002/03 and 2002/03-2004/05 respectively. The share of manufacturing in total employment decreased from 10.06 percent in 1995/96 to 9.5 percent in 1999/00 and then increased to 9.7percent in 2002/03 and further to

11percent in 2005/06. The share of agriculture in employment increased from 48.9percent in 1995/96 to 50.8 percent in 1999/00 and further to 51.7 percent in 2002/03 to 2005/06, the agricultural employment has experienced negative annual growth rate (-0.1 percent) as compared to manufacturing sector. Thus, they have concluded that the share of manufacturing sector in employment generation declined during the 1990s (from 10.06 percent in 1995 -96 to 9.7 percent in 2002 -03, then increased to 11 percent in 2005/06).

Ogunrinola (2010) examined the effects of globalization on employment level in the manufacturing sector in Nigeria. Using time series data for the period 1990-2006, they have carried out an analysis of the impact of these reform policies, especially those related to globalization and employment. The data on employment and output of the manufacturing sector have sourced from Manufacturers Association of Nigeria (MAN). The data available was from 1990; hence they limited their analysis on this to the period 1990-2006. The data has been taken from CBN⁹ (2007); Manufacturers Association of Nigeria; World Economic Forum (2008; 2009); UNSTAT¹⁰ (2008). Regression analysis has used in this study to estimate variables effected.

The study has found that there existed a positive relationship between global competitiveness and employment level in the manufacturing sector and a positive relationship has found between employment in the manufacturing sector and globalization. Similarly, a positive and significant relationship was found between level of employment and output in the sector. The study also established the existence of relative substitution between labour and capital in the sector given the significant and inverse relationship between employment and employers' cost of capital. The outcome of the study established that the existence of a positive relationship between global competitiveness and employment level in the manufacturing sector in Nigeria. This suggests that a proper and appropriate custom and excise duties will improve Nigeria's competitiveness on the global platform as well as the employment level in the manufacturing sector. The study equally confirmed that employers in the sector usually base their current employment decisions on the previous level of employment.

⁹CBN is Central Bank of Nigeria

¹⁰UNSTAT (United National Statistics Division)is committed to the advancement of the global statistical system.

Hassan, Baharom, and Azis (2010) examined the effects of export changes on the output and employment in the manufacturing sector and estimated the level of employment generated due to changes in export to ASEAN 4.¹¹ This study utilized two types of data. Firstly, the export data obtained from the External Trade Statistics (Department of Statistics, various years).

Secondly, the 2000 employment data for the manufacturing sectors have been taken also from Department of Statistics. This study also has utilized Input-Output Table 2000. In this paper, the Leontief Input-Output technique has utilized. The basic input-output framework, described an economy as an interdependent system of inputs and outputs. They have employed the Input Output (IO) method since structural analysis deals with economic systems as defined by the set of industries and the relationships between them.

They have observed that the expansion of the manufacturing sector contributed significantly to employment creation during the Seventh Plan. Employment in the sector expanded at a rate 4.8 percent per annum in that period. The largest share of employment 31.2 percent was for the unskilled category of workers while skilled and semi-skilled respectively contributed as 26.5 percent and 18.0 percent. However, the skilled category recorded a high growth of 5.2 percent compared with 3.1 percent for the unskilled category. The higher demand for skilled workers also reflected a shift towards more technology-intensive industries.

From the result obtained, they have concluded that trade changes did have an impact on output and employment. In this study, an increase in export for five years period to ASEAN 4 countries affected the output and employment generation positively. Output and employment generated have moved in the same direction with increases in export. Employment growth during this five year period 5 has accounted 37percent. Singapore was the major contributor for level of employment generated followed by Thailand, Indonesia and Philippines.

Virmani and Hashim (2009) examined in detail the main determinants of factor employment, their shares, and output growth. The framework used has a CES production function estimated using ASI time-series data for the organized manufacturing industry spanning a period from 1973/74 to 2001/02. The entire period has been subdivided into three period viz. 1973-79, 1980-91 and 1992-01, roughly corresponding to pre and post reforms period. Data have also been drawn from other sources including various publications of National Accounts Statistics, and the

¹¹ ASEAN-4 include these countries (Indonesia, Malaysia, Philippines, and Thailand)

RBI bulletins. Determinants of factor employment and their share have been identified in terms of technical change and factor prices.

On the basis of their study they have found that decomposition of change in labour employment (L/Y), which declined at 5 percent per annum in 1973-01, reveals that 64 percent of the decline was due to labour-saving technical change and the remaining was due to rise in real wage rate. Wage rate, however, is increasingly becoming an important variable that determines employment. In fact, its share has moved from 25 percent in 1973-79 to 53.3 percent in 1992-01.

Thus, now both biased technical change and rising wages have become equally important determinants of manufacturing employment. Increasing the employment by reduction of wage rate however might not be possible as the wage rate has found to be smaller than the marginal product of labour. Decomposition of the change in capital employment (K/Y), which increased at 1.5 percent per annum over the study period, reveals that as much as 97.29 percent of the increase, has been contributed by technical change alone, limiting the contribution of price factor to only 2.8 percent.

Dauda (2011) examined how employee relation can be employed for technological change management. It also sought to determine effective method of using technological innovation for improved performance in the Nigerian manufacturing industry. Two hypotheses have formulated to determine the relationship between technological change and employee skill; and between technological change and employee performance. Question based on the hypotheses have formulated and 1256 questionnaires have distributed to select 30 manufacturing industry in beverages, textile, steel, cement and chemical industry in Nigeria.

The study has found that the adoptions of new technologies in the recent years have improved the performance and profitability of Nigerian Manufacturing Industry. Workers performances have also increased due to the use of new technology, but workers skills have not improved sufficiently to cope with new technology. Technological change has also not significantly improved the performance and working condition of some workers. Management have also not substantially benefited from investment in technology. Antagonistic relations between management and workers union for better condition of employment have undermined the benefits of the new equipment and machines or technological change. It has also led to low

morale and productivity, corruption among all categories of the workers and poor industrial relations climate in the Nigerian manufacturing industry.

Majumder (2006) examined the trends in employment and earnings in this manufacturing sector over the nineties and analyzed the factors affecting them. For this study both the periodical NSSO surveys and the ASI data have been used. The time points chosen were 1989-90, 1994-95, and 2000-01 as the NSSO surveys correspond to these years. This study period has divided into two sub periods- the 1989-94 quinquennial depicting the transition phase in Indian economy; and the 1994-00 quinquennial marking the Post-reform period. Quinquennial growth rate of employment and wage rates have been computed using the exponential method.

It has observed that employment growth in the transition period has been positive in the organised sector and negative in the unorganized sector. The overall trend in manufacturing sector employment too has 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 unorganized sector and the period witnessed 11 percent increase in total manufacturing sector employment. Substantial regional and industrial variations did however existed regarding employment growth rates as well. It has observed that while real wages in the organized 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 the overall wage decline in organized manufacturing sector in the post-reform period, the frequency of negative wage growth have increased here in, while that in the unorganized sector has declined.

Thus, she has concluded that, Most of the employment expansion has been in the unorganized 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 was 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.

Ramaswamy and Agrawal (2012) studied employment growth, structure, and job quality outcomes in manufacturing and service-sector in urban India. They have studied employment growth and related aspects of employment structure using the NSS surveys of employment and unemployment carried out in 1999-2000 and 2009-10 with a view to throw more light on the future role of manufacturing and services as providers of employment to large numbers joining the labour force. They have found that Manufacturing in urban India has grown at a faster rate (2.8 percent) relative to all India (1.7 percent) over this whole period (1999-2000 to 2009-10). Its growth rate was higher relative to the earlier period of 1993-99. In contrast, the service sector in urban India has grown at the same rate (2.5 percent) as that of all India. And young males have increased their share of regular employment both in manufacturing and services. They have increased their share of regular employment both in manufacturing and services. The service sector has turned out to be a boon for female workers. Both young and middle age female workers increased their share of regular jobs.

However, there were greater duality in services sector in terms of the incidence of informality and wage inequality. In the service-sector those with more skills have received higher increases in real wage. The service-sector is relatively more skill demanding than manufacturing. Their results strongly suggest that service-sector is an unlikely destination for the millions of low skilled job seekers. India needs to focus on manufacturing sector to provide large scale employment. Manufacturing has the capability because it has stronger backward linkages unlike the services sector. We cannot afford to neglect manufacturing at this stage of development.