

**EMPLOYMENT AND PRODUCTIVITY IN ORGANISED
MANUFACTURING SECTOR IN INDIA:
AN INTER-STATE ANALYSIS**

**Dissertation submitted in partial fulfillment of the requirement for the
award of the degree of**

MASTER OF PHILOSOPHY

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I, Ajaya Kumar Naik, certify that the dissertation entitled “**EMPLOYMENT AND PRODUCTIVITY IN ORGANISED MANUFACTURING SECTOR IN INDIA: AN INTER-STATE ANALYSIS**” for the degree of **MASTER OF PHILOSOPHY** is my bonafide work and may be placed before the examiners for evaluation.

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Dedicated to my
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CHAPTER-I

INTRODUCTION

Employment for every able-bodied person has always been regarded as the prime goal of developmental activity in a state or region as this ensures the fulfillment of all basic human needs. Since the inception of planning era this is a major concern, and expansion of employment opportunities has been an important objective of development planning in India. There has been a significant growth in employment over the years. However, a relatively higher growth of population and labour force has led to an increase in the volume of unemployment from one plan period to another. India is rich in both manpower and natural resources, because it is a labour abundant country due to a high population growth rate. India should seize the opportunity of its vast workforce by providing employment.

Economic growth requires transformation of an economy from agrarian structure to that of industrial structure. It has been observed that economic development takes place only with the structural change (i.e. pre-Newtonian to industrial) of the economy. It is felt that economic development proceeds by big spurts rather than by gradual changes. And the big spurt is the process of industrialisation. The most common characteristic of high per capital income countries is a high degree of industrialisation. According to Myrdal(1956), the productivity of manpower in industry tends to be considerably greater than the traditional agricultural pursuits.

A major reason for industrialisation is that it may be a means to provide employment to those who are either unemployed or partially employed. Land cannot be distributed equally or there is not enough land to provide every one with an economic holding. So the problem of unemployment, under-employment and disguised unemployment arises. As a matter of fact, there should have been a diversification from agricultural occupation to others. Moreover, huge labour surplus causes the marginal

productivity zero or negligible, it should be shifted to industrial sector to increase labour utilization and aggregate output. So industrial sector should be given priority for more employment and development.

The problem of regional-variation is an important topic for discussion for the modern day economists and particularly the regional variation in the industrial sector. In India, there is a substantial inter-regional variation in the industrial sector, which has been handed down from the colonial legacy. But after the planning process government has made efforts a lot to eliminate the variation. The Indian workers are less mobile because of socio-cultural reasons and therefore particularly the inter-regional industrial inequality is a major concern.

Productivity is a necessary element of economic growth. A rising productivity connotes several things- higher wage rates, larger and growing employment potential, price stability and greater level of living. It is the *mantra* in the age of globalisation. In case of India, this is even more necessary to be able to compete in the global market. The changing aspirations of the people and fast growing domestic market too make it imperative.

1.1 Literature Review

Employment and productivity are two important economic variables affected by the recent changes taking place in Indian industries. A developing country like India cannot afford industrial inefficiency and at the same time, soaring unemployment. A labour-abundant country should make use of the available labour force instead of spending huge amount of capital on substitutes to labour. We will now discuss some of the views on employment situation in India, regional variation on employment and productivity in the organised manufacturing sector.

1.1.1 Employment

It is now an accepted fact that there was a decline in the growth of employment in the organised sector in the eighties and in particular there was fall in the number of workers in registered manufacturing or organised manufacturing sector. But at the same time the output growth didn't decline. So there is a jobless growth in this sector in the 1980s. In fact, in India 1 per cent increase in the annual growth of industrial output generates less than 0.5 per cent increase in employment.

A recent study by Bhattacharya and Mitra(1993) has noted that the employment growth rate declined to 2.43 per cent per annum during the 1980s compared to the 1970s when the average annual growth rate of employment was 2.80 per cent per annum. Although the period of 1980s is considered to be a period of significantly high economic growth in the country, especially in the industrial sector the growth of industrial employment in the organised sector has taken place only in the public sector enterprises. In the private organised manufacturing sector, employment growth seems to have been negligible or even negative.

Two popular perceptions exist for the slow-down of employment in the pre-liberalisation decade. One explanation, which is supported by Fallon and Lucas(1991), Agarwal(1997) etc. is that, policy-induced rigidities in the labour market are the principal cause for the decline in employment. The labour market rigidity is due to the job security regulations introduced in the late 1970s and strengthened in the early 1980s. It is argued that these provisions made labour adjustment difficult and therefore enterprises refrained from increasing their work force, as they feared that it would not be possible for them to reduce it if warranted by compulsions of competitive efficiency.

Due to the job-security regulation there is a decline in employment. The empirical support for this view has been provided by the study of Fallon and Lucas, who

attempted a quantitative measure of the loss of employment due to job security regulations and estimated that the employment in organised manufacturing sector would have been 17.5 per cent higher in the absence of such regulations.

The other view for the decline of employment is attributed to raising labour cost or increase in real wage of labour. The rise in the relative price of labour was caused by both macro-economic policy and labour market development. Ghosh(1994), Ahluwalia (1991), World Bank(1989), etc support it. The World Bank has asserted that the decline in factory employment in the 1980s could be explained by acceleration in product wages, which the report attributed to union push. The report claimed that the real wage rate increased at 7.2 per cent per annum in the first half of the eighties and it argued that “.... employers responded (to the increase in wage rate) by virtually stopping new hiring and retrenching existing workers to the extent possible.” The study added: “The estimates points to a significant trade off between the higher real cost of labour and employment. This suggests that the faster growth of real wages in 1980s indeed did play an important role in slowing down employment creation.”

The view of the World Bank that the hike in wage rate attributed to union push is supported by Shuji Uchikawa(2002). He said that in the initial period of the 1980s the labour union had enough power to protect job security and to maintain real wage rate up. But after the closing down of cotton textile and jute mills during the mid 1980s, labour union movement declined. Between 1980 and 1986 there were 384 cotton textile mills were closed down and 219 jute mills were shut down in 1982-83.

Ghosh(1994) tries to find out the reason for the sharp decline in the employment elasticity of organised sector during 1980s. He shows that the proportion of non-responding units for the survey of collection of data has tended to rise over time. And there is underestimation of data on both output and employment. He also enunciated that

“the sharp decline in employment elasticity in the organised manufacturing sector in the eighties resulted from a strategy of capital deepening pursued by enterprises irrespective of their size, organisational set-up or particular field of operation. The process involved both modernisation and pure substitution of capital for labour, though modernisation was the dominant element. Thus output growth was achieved through a growth in labour productivity, which in turn was achieved through a growth in capital per unit of labour. Under such circumstances, there was little scope left for employment growth.”

Ahluwalia(1991), however identifies policy-induced rigidity as the principal reason for the decline in employment, though she has also mentioned other possible reasons like the growth of contract labour and spill over of employment into the unregistered sector. Identifying for the bulk of the decline, she argues “The sharp increase in the capital labour ratio in the first half of the eighties was associated with a sharp increase in the real wage rate during this period.....While the cause and effect can be debated at length, the data seem to suggest that the consumer non-durable goods sector experienced the maximum increase in the real wage rate during this period.”

Papola(1994), Nagaraj(1994), and Bhalotra(1998) do not agree with the view of rise in labour cost as the cause of decline in the growth rate of employment in organised manufacturing sector. Two factors highlighted in these studies are (a) change in industrial composition and (b) increase in actual worked per worker (or mandays per worker).

Papola has indicated that the increase in labour productivity in this period was much faster than the growth in real wage. Further, the decline in employment in cotton textiles and food products industries, which accounted for a sizable part of factory employment was caused by closure of mill due to sickness and rationalization to overcome obsolescence. Nagaraj’s analysis of trends in earning of workers in the period 1979-80 to

1988-89 reveals that nearly one-half of the increase in real earning per worker was accounted for by increase in mandays per worker. While real earning per worker increased at the rate of 3.6 per cent per annum, the growth rate of real earning per mandays was only 1.6 per cent per annum. So there is no sharp hike in the real wage rate.

Nagaraj and Papola have also pointed out that during the 1980s the composition output of the organised manufacturing sector changed in favour of less labour intensive industries. There was faster growth of industries with low employment intensity and slower growth of industries with high employment intensity. These changes in industrial composition, according to them, had an adverse effect on the growth rate of employment.

Some arguments reveal that entrepreneurs in the 1980s, instead of employing more workers, significantly increased the actual hours worked per worker in the 1980s. According to Bhalotra(1998), competitive pressure, business uncertainties, better discipline among workers and improvement in infrastructure were the possible causes of increase in actual hours worked per worker. This would obviously depress the growth rate of employment.

In the 1990s there was a positive growth rate of employment in the organised manufacturing sector. Since a process of major economic reforms was initiated in India in 1991, the marked acceleration in employment growth in organised manufacturing sector in the 1990s may be thought to be a result of the economic reform. But the aggregate employment situation in India is somehow different from that of organised manufacturing sector. After the induction of New Economic Policy in 1991 the problem of unemployment aggravated more and this might be seen from various studies.

Mundle(1993) has brought out the employment effect of New Economic Policy by using NSS data on employment and unemployment under two assumption of

high and low growth rate and in both the cases he has found the increasing rate of unemployment. Visaria and Minhas(1991) analysed extensively the various rounds of NSS surveys and argued that, in view of the resource crisis and other structural rigidities the organised sector would be unable to provide a high growth rate of employment in the coming years. Bhattacharya and Mitra(1993) said “The New Economic Policy by its programme of technological up gradation has promoted capital-intensive technologies and as a consequence, employment elasticity have further declined”.

But in contrast to the above views there is a positive growth rate of employment in the organised manufacturing sector. Goldar(2000) attributed this positive change to two major reasons, one slowdown in growth of real wages and second, faster growth of small and medium sized factories which are more labour intensive than large size factories. Nagaraj(2000) contested Goldar’s view and argued that faster employment generation in the 1990s was due to the investment boom in that decade.

1.1.2 Regional Variation

The problem of inter-regional economic disparities is a widely observed phenomenon over the world, though the extent being much higher in the developing countries. The problem has been a major issue of concern since the implementation of the planning process in India in 1951. In fact the problem of regional economic disparity in general and that of inter-regional industrial disparity in particular, has been a colonial legacy, when the concentration of industries was observed in a few regions, and others lagging far behind giving a lopsided pattern of growth. Here some of the views on inter-regional industrial disparities in India over time can be discussed.

There are two opposite views regarding the inter-regional industrial disparity. A study by Rao and Anuradha (1990), which covered the period 1970-71 to

1985-86 showed a decline in inter-regional industrial disparity with three inequality indices as Co-efficient of Variation, Theil's Index and Hirschman-Herfindahl Index. Udai Sekher(1983) also found a decline in the value of Theil's Index between 1961 and 1975 for the net value added and employment in the manufacturing sector. He has also shown that the share of the top four industrialized states in manufacturing employment and net value added in manufacturing have gone down.

Tewari(1988) has shown that in spite of the fact that there has been no change in the inter-regional pattern of industrialisation, a decline in disparity is observed between 1970-71 and 1980-81 by a decline in the level of Co-efficient of Variation of the composite indices of industrialisation. Awasti(1991), by using six inequality indices, has shown that developed states have lost some of their shares in favour of industrially backward states and consequently the inequalities across states in the distribution of industry have declined between 1961 and 1978. However, He argues that this decline is more a result of deceleration of some industrially developed states than the gain by industrially backward states.

Some of the authors have, however, come to the opposite conclusion. According to them, the regional industrial disparity has gone up over time. Barthawal(1980) for example has examined the distribution of the companies at work and their paid capital between 1975-76 and 1978-79. His study has shown the maximum concentration for the companies and their paid-up capital in Maharashtra, followed by West Bengal and Tamil Nadu.

Likewise Rakesh Mohan(1989) showed with the help of employment data from Annual Survey of Industries and Labour Bureau that the organised sector factory employment has shown high level of dispersal with the under developed states of Orissa

and Rajasthan showing highest growth rates. The unorganised sector employment has shown almost the same picture with the industrialized states maintaining their position except for West Bengal between 1961 and 1981. He also showed that though the organised employment has shown dispersal, in terms of value added, the old industrialized states have continued to maintain their earlier position, according to him, the most dynamic states being Punjab and Haryana.

Thus it can be concluded that most of the studies have shown a decline in inter-regional industrial disparity. Since the inception of planning process, some of the studies, which have at all shown an increase, have reached during early 1960s and 70s of course till 1965 and there has been an observable decline in inter-regional industrial inequality. In fact, the conclusion depends a lot on the choice of the variables rather than the time period, since various authors are reaching different conclusions with different variables during the same period.

1.1.3 Productivity

The productivity of the industry can be measured in terms of the productivity of its constituent factors of productions, such as labour and capital. However, the partial productivity measures have limitations as in situations where capital intensity is increasing over time. Partial productivity measures such as labour productivity may show an increase but this could be more a reflection of rising capital-labour ratios rather than pure productivity increase. This problem is resolved by analysing total factor productivity growth, which encompasses the effect not only of technical progress but also of better utilization of capacities, learning-by-doing and improved skills labour (Ahluwalia 1991).

A review of studies exclusively concerned with total factor productivity (TFP) change in Indian Industries has been discussed by various economists,

Brahmanand(1982), Goldar(1985), Krishna(1985), Ahluwalia(1986 and 1991), Balakrishnan and Pushpangadan (1994) and Rao(1996^a).

Krishna (1987) in his review of studies during the 1960s and 1970s observed that all studies agreed upon a deceleration in the TFP since 1960s. Ahluwalia(1991) observed a decline in TFP during the 1970s and a turnaround in the first half of the 1980s. Brahamananda's study covers all sectors in the Indian economy. He works out partial and total factor productivity ratios for the year 1960-61, 1970-71 and 1980-81 with 1950-51 as base. According to his estimate the productivity performance during 1971-81 was worse than in the earlier two decades in all sectors. Between 1950-51 and 1970-71, the productivity growth was 1.8 per cent per annum, the total growth rate being 3.7 per cent. The productivity growth rate declined to zero between 1970-71 and 1980-81.

Goldar's(1985) study estimated that the TFP grew at 1.3 per cent per annum during 1951-65. His estimation of productivity growth for the period 1959-79 as a whole and for three sub-periods relate to relatively large establishments in the registered sector. The rate of increase in capital intensity was the highest in the sub-period, 1959-65 & 1965-70. In spite of decline in capital productivity in these two-sum periods, TFP growth was positive in these two sub-periods. According to him productivity performance in the 70s was better than in the 60s.

Ahluwalia(1986) has estimated that the average annual TFP change over the period 1959-80 for aggregate manufacturing ranged between -0.2 and 0.3 per cent and total industry between -0.3 and 0.6 per cent. The results show that during the periods of 60s and 70s as a whole there was little change in TFP. The second work of Ahluwalia(1991) estimates TFP growth rate which shows suggest virtually zero growth (-0.04 per cent per annum) in TFP over the period from 1959-50 to 1985 - 86. Ahluwalia

found out a turnaround in productivity growth in the period since 1982-83 after two decades of industrial stagnation. For the manufacturing sectors the turnaround was a negative and negligible growth in TFP in 60s and 70s to a significant 3.4 per cent per annum in the first half of 80s. But Balakrishnan and Pushpangadan(1994), Rao(1996a) contested the result of Ahluwalia and they show opposite result of slower or negative growth in 80s.

1.2 Objectives of the Study

The objectives of the present study are:

- To study the growth and structure of employment in organised manufacturing sector at two-digit level industry groups in India and trying to find out the causes of fluctuation of employment.
- To study the growth and structure of employment in organised manufacturing sector at two-digit level industry groups in seventeen major states, the pattern of changes in the industrial bases of various states and to measure the extent and the direction of inter-regional industrial disparity in terms of some selected indicators.
- To assess the performance of industrial productivity of organised manufacturing sector in various states.

1.3 Database and Methodology

The study is based on secondary sources of data and it is mainly confined to the organised industries (factory sector)¹. The major sources of data for the major part of the study covered in this study is the “Annual Survey of Industries” (ASI) for the corresponding years for which the study is conducted. The Annual Survey of Industries publishes the data for the factory sector and the census sector². The basic source of data on various variables of this sector is Annual Survey of Industries (ASI): Summary Results for Factory Sector. Along with ASI, we have taken data from National Sample Survey’s

various rounds of publication on unorganised manufacturing sector. The source of data on wholesale price indices for the nearest relevant category is Economic Survey, National Account Statistics.

The study is conducted for the period 1980-81 to 1997-98, the year for which the latest published data are available (Central Statistical Organization had published the Provisional result of the summary result for factory sector for the year 1998-99 but the new National Industrial Classification [NIC98] is introduced. The industry code used for different groups in the NIC98 is very much different than NIC70 and NIC87³. Therefore, it is not accessible for the study to take the year 1998-99). The study is mainly conducted taking time series data for all India and three points of time 1980-81, 1989-90 and 1997-98 for states. Considering the state as a unit, major seventeen states Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal are taken for study. It has not been possible for us to include the Northeastern states⁴ much due to underdeveloped secondary sector in these areas. The present study also does not cover the union territories mostly due to the same reason except Delhi, Chandigarh and Pondichery.

METHODOLOGY

For different objectives different statistical tools have been used. For the purpose of temporal assessment of the growth and pattern of employment in organised manufacturing sector at two-digit level industry groups we have used simple statistical measures like percentage share, log linear trend growth rate for time series data and compound growth where data available for two different points of time.

Compound Growth Rate

For computing compound growth rate we have used the following method

$$Y_t = Y_0(1+r)^t$$

Where Y_t = Employment in terminal year

Y_0 = Employment in base year

r = Growth rate

t = Time variable i.e. number of year.

Trend Growth Rate

The procedure adopted for calculating the log linear trend growth rate is as follows:

We know that

$$Y_t = Y_0(1+r)^t$$

Taking logarithm of both sides, we get

$$\log Y_t = \log Y_0 + t \log(1+r)$$

Denoting $\log Y_t$ as Y_t^* , $\log Y_0$ as β_1 and $\log(1+r)$ as β_2 . The above equation may be written as

$$Y_t^* = \beta_1 + \beta_2 t$$

As Y is known Y_t^* can be calculated and we can find β_1 and β_2 by regressing Y^* on t .

$$\text{Now } \beta_2 = \log(1+r)$$

$$\text{So } 1+r = \text{Antilog}(\beta_2)$$

$$\therefore r = \text{Antilog}(\beta_2) - 1$$

Ordinary Least Square

To know the fluctuation of growth of employment, we have used the method of Ordinary Least Square (OLS). We regress the dependent variable employment with certain other independent variables by using the OLS method.

The relative variability of industrialisation in different states is measured with the help of Co-efficient of Variation (CV), Theil's Index and Gini's Co-efficient.

Co-efficient of Variation- CV can be algebraically put in the following form:

$$CV = \frac{\text{Stdev (SD)}}{\text{Mean}}$$

$$\text{Where, SD} = (\text{Variance})^{1/2} = \{[\sum(\bar{X}_i - \bar{X})^2]/n\}^{1/2}$$

And

$$\text{Mean} = \frac{\sum X_i}{n} = \bar{X}$$

Where X_i 's are the values of the variable (or indicator) under study and \bar{X} is the corresponding mean of the values of the variable, and n = number of observations (values of the indicators)

Co-efficient of Variation satisfies three of the four properties. The four properties (Axioms) of a good inequality methods of measurement are (1) Additive Monotonicity (2) Redistributive Monotonicity (3) Directional Sensitivity (4) Repetitive Redistributive⁵. Theil's Index, on the other hand, satisfies all the four properties. The range of Theil's Index lies between zero and $\log n$. The algebraic form of the Theil's Index is given by

$$T = \log n - \sum X_i \log 1/X_i$$

Where

n = number of values of the indicator (number of regions, in the present study)

X_i = i^{th} value of the indicator (i^{th} observation)/sum of all the values of the indicator

$$= \frac{X_i}{\sum_{i=1}^n X_i}$$

Finally, Gini's Coefficient, though it doesn't satisfy a substantial number of the properties of a good indicator, it is supposed to be a reliable one. Since it individually

takes up all the values of indicator for which the inequality is to be determined, along with the various values of n, as it is given below, this is usually denoted by.

$$G = 1 + \frac{1}{n-2} \frac{1}{\bar{X}} [nX_1 + (n-1)X_2 + (n-2)X_3 + \dots + n-(n-1)X_n]$$

Where n = number of observations (number of states)

$X_1, X_2, X_3, \dots, X_n$ are the values of indicators in ascending order, i.e., $X_1 < X_2 < X_3 < \dots < X_n$

And \bar{X} = mean of the values of the indicator taken for the study.

1.4 The Study Plan

The delineation of chapters is as follows-

Chapter-1 gives introduction, survey of existing literature, objectives of the study and database and methodology used for the present study.

Chapter-2 is a review of plan policy and industrialisation in India after the inception of planning process, the policy changes after the economic reform and industrialisation in the WTO regime.

Chapter-3 shows the growth and structure of employment in organised manufacturing sector in two-digit level industry groups. The rural-urban differences in the growth and structure of employment have also been shown. This chapter also shows employment in different size of factory and finally tries to find out the causes of fluctuation of employment in the organised manufacturing sector.

Chapter-4 shows the growth and pattern of employment in the organised manufacturing sector in two-digit level industry groups in various states. The industrial bases of various states are shown and the changes in it over time, and in the last section we show the inter-regional variation over the study period.

Chapter-5 shows the growth of productivity performance both partial and total in the organised manufacturing sector in various states

Chapter-6 is the conclusions of the study.

NOTES

1. Factory sector or Registered factory is one which is registered under sections 2m(i) and 2m(ii) of the Factory Act 1948. The sections 2m(i) and 2m(ii) refer to any premises including the precincts thereof (a) whereon ten or more workers are working or were working on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on with the aid of power, or is ordinarily so carried on or (b) whereon twenty or more workers are working or were working on any day of the preceding twelve months and in any part of which a manufacturing process is being carried on without the aid of power, or is ordinarily so carried on.
2. The census sector covers those industries with 100 or more workers and rest are classified under non-census sector.
3. NIC-1987
 - 20-21: Food Products
 - 22: Beverages, Tobacco and Related Products
 - 23: Cotton Textiles
 - 24: Wool, Silk and Man-made Fibre Textiles
 - 25: Jute and Other Vegetable Fibre Textiles
 - 26: Textile Products including Wearing Apparel
 - 27: Wood and Wood Products; Furniture and Fixtures
 - 28: Paper and Paper Products and Printing, Publishing and Allied Industries
 - 29: Leather and Products of Leather, Fur and Substitute of Leather
 - 30: Basic Chemicals and Chemical Products except Products of Petroleum and Coal
 - 31: Rubber, Plastic, Petroleum and Coal Products; Processing of Nuclear Fuels
 - 32: Non-Metallic Mineral Products
 - 33: Basic Metal and Alloys Industries
 - 34: Metal Products and Parts except Machinery and Equipment
 - 35-36: Machinery and Equipment other than Transport Equipment
 - 37: Transport Equipment and Parts
 - 38: Other Manufacturing Industries
 - 39: Repairs
4. The North Eastern states left out of study are Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim
5. (a) *Axiom of Additive Monotonicity*: If we add something in a series of observation without disturbing its rank, inequality will go down.
(b) *Axiom of Redistributive Monotonicity*: If we distribute a series of observations without disturbing the rank, then also inequality will go down.
(c) *Directional Sensitive Axiom*: If we distribute of a series of observation at the lower end and the higher end of a series, the inequality will be low in case of lower end in comparison to higher end. Suppose if we distribute first from lower side and the inequality will be D_1 and then we distribute from higher value side and the inequality will be D_2 . So according to directional sensitive axiom D_1 should be less than D_2 .
(d) *Repetitive Redistribution Axiom*: When we repeat the distribution between certain individuals in a series of observation without affecting the rank, the inequality in the series will be go down and its impact becomes less and less, i.e. the inequality first assumed as D_1 , after first distribution it assumed as D_2 and after second redistribution it was D_3 . Then $D_1 - D_2 > D_2 - D_3$.

CHAPTER-II

PLANNING, POLICY AND INDUSTRIALIZATION IN INDIA- AN OVERVIEW

Under the British rule, India was denied the benefit of a sound economic policy for Industrial development. The policy of the British government was confined only to the consumer goods industries and no effort was made to foster the development of capital goods industries. There was very limited development of medium sized enterprises. The advent of independence, however, brought a fundamental change in the industrial policy of the country. India had a strong case for industrialization. The Indian policy makers adopted a two-pronged strategy for industrialization. While Nehru-Mahalanobis model favored a strategy of building basic and key industries for long term growth rate, the Gandhian approach of traditional village industries was also given due importance and protection. This two-pronged strategy still goes on today.

Public Sector—the Harbinger of Modern Industrial Development

The major feature of the Indian industrial strategy was to carve out a prominent role for the public sector in planning for industrialization. The central importance assigned to the public sector was first articulated in the Industrial Policy Resolution of 1948 and 1956 and subsequently incorporated in the second Five Year Plan. Lack of private initiative in areas which required bulky investment and long gestation lags was one such argument which assigned key role for the public sector.

Trends in Industrial Growth

Industrial policy in India in post-independence era has stressed rapid industrial growth with diversification of the industrial structure as one of the important objectives of industrialization. Industrial growth during the period of planning can be divided into the following four phases (a) Phase I which covered the period of the first

three plans (i.e. the period 1951 to 1965) laid the basis for industrial development in the future by building up of a strong industrial structure, (b) Phase II which covered the period 1965 to roughly 1980 was marked by industrial deceleration and structural retrogression. (c) Phase III which covered the period of eighties (1980-81 to 1991) was marked by industrial recovery and (d) Phase IV covering the post-reform period (i.e. the period 1991-92 onwards).

2.1 Phase I (1951-1965): Building up of strong Industrial Base

As noted above, Phase I laid the basis for industrial development in future. The Second Plan based on Mahalanobis model emphasized the development of capital goods industries and basic industries. Accordingly, huge investments were made in industries like iron and steel, heavy engineering and machine building industries. The same pattern of investment was continued in the Third Plan as well. In brief, India accepted the socialist pattern of society as the objective of social and economic policy. During this Phase I, the Industrial Policy Resolution of 1956 was passed. Some of the important points of this Industrial Policy Resolution of 1956 are given below.

(I) *New classification of Industries*:- Industries were reclassified into three categories, having regard to the part which the state would play in each one of them. The first category consisted of industries, the future development of which was to be the exclusive responsibility of the state. 17 industries were placed in this category. Some of these were arms and ammunition, atomic energy, iron and steel, heavy plant and machinery for basic industries, coal, mineral oils, railway transport and aircraft.

In the second category, there were 12 industries which were to be progressively state-owned. It was said that the state would generally take the initiative in establishing new undertakings in which private enterprises will also be expected to supplement the efforts of the state. Important among these industries were all other

minerals except minor minerals, aluminum and other non-ferrous metals, fertilizers, road transport, sea transport etc.

All the remaining industries were kept in the third category. Their future development was left to the initiative and enterprise of the private sector, though it was open to the state to start any industry even in this category.

It must however, be noted that this division of industries into separate categories didn't imply that they were being placed in watertight compartments. It was said that it would be opened for the state to start any industry not included in the schedules when the needs of planning so required.

(II) *Institutions providing financial assistance:-* The Resolution said that the state would continue to foster institutions to provide financial aid to the industries in the private sector and special assistance would be given to enterprises organized on cooperative lines.

(III) *Stress on the role of cottage and small scale Industries:-* The Govt. once again put stress on the role of cottage and small scale industries in the development of the country's economy. It was stressed that the state will continue to support such industries by restricting the volume of production in the large-scale sector, by differential taxation or by direct subsidies.

(IV) *Reduction of disparities in regional development:-* It was also recognized that disparities in the level of development between different regions should be progressively reduced. Facilities for development will be steadily made available to areas which were lagging behind industrially.

(V) *Managerial and technical cadres:-* The Industrial Policy Resolution of industrial development would make large demands on the country's resources of technical and managerial personnel. To meet this rapidly growing need it was announced that proper managerial and technical cadres would be developed.

(VI) *Role of labour*:- It was also brought out in emphatic terms that in a socialist democracy, labour is a partner in the common task of development and should participate in it with enthusiasm. There should be joint consultation and workers and technicians should, whenever possible, be associated with management.

Industrial Policy of 1956 made an improvement over the 1948 resolution in several respects. The classification of industries between the public and private sectors was more flexible in the new policy. In fact, the new policy envisaged more coordination between the two sectors. This policy also assigned a much wider field to the public sector. This policy didn't talk about the nationalization of the existing units.

This policy announcement was criticized in several quarters. It was pointed out that this would not produce the necessary economic climate for the smooth working of private enterprise. It was said that the scope of state enterprise had been increased to a significant extent while that of private enterprise had been drastically reduced. It was claimed that the not result of all this would be to retard rather than help the industrial development of India. Much of this criticism was however unfounded with the exception of 17 industries included in schedule A, the entire field was practically left open for the private enterprise in which it could expand itself in formality, of course, with the social and economic policy of the Govt..

There occurred a noticeable acceleration in the compound (annual) growth rate of industrial production over the first three plan periods up to 1965 from 5.7 per cent in the First Plan to 7.2 per cent in the Second Plan and further to 9.0 per cent in the Third Plan. This shows that a strong base for industrial development was laid during the first three plan periods. The credit for this undoubtedly goes to the massive expansion of investment that took place in the public sector.

2.2 Phase II (1965-80): Industrial Deceleration and Structural Retrogression

From period 1965 to 1976 was marked by a sharp deceleration in industrial growth. The rate of growth fell steeply from 9.0 per cent per annum during the Third Plan to a mere 4.1 per cent per annum during the period 1965 to 1976. It is also important to point out that even this mere rate of industrial growth does not express the true situation as there was a sharp increase of 10.6 per cent in industrial production in the year 1976-77. If this year is left out, then the rate of industrial growth over the ten year period 1965 to 1975 declines further to a mere 3.7 per cent per annum. (Setty,1978)

In March 1977, the Janata Government came into power. It questioned the Congress strategy of heavy industrialization. This Janata Government announced its Industrial Policy Statement, 1977 which said for cottage and village industries what the Congress Government said for basic and heavy industries. The followings were some main features of the Industrial Policy Statement of the Janata Government.

- (i) The central theme of this policy was the development of small units in the country. The aim was the promotion of employment and the dispersal of these industries in rural areas and small towns.
- (ii) The large scale industries were not only to be the instruments of adopting high technology and developing capital-intensive industries, but these were to be related to the programs of meeting the basic needs of population through wider dispersal of small scale and village industries and strengthening the agricultural sector.
- (iii) As a part of the objective of reducing economic inequalities, the policy envisaged curbs on the big industrial houses and on the concentration of economic power.
- (iv) As regards the returns on private investment, it was envisaged that the product prices would be regulated or allowed that reasonable dividend was available to

shareholders, and adequate funds were made available for modernization and growth of these industries.

- (v) The policy emphatically laid stress on the need for the use and promotion of indigenous technology for future development of industries. At the same time, the policy didn't bar the entry of foreign technology in sophisticated and high priority areas, where Indian skills and technology were not adequately developed.


The policy was just like 'old wine in a new bottle' with a few significant departures. Except the tiny sector and District Industries Centers, there was hardly anything new in it.

The objective of the Industrial Policy Statement, 1980 was defined as facilitating an increase in industrial production through optimum utilization of installed capacity and expansion of industries. It emphasized rapid and balanced industrialization of the country with a view to benefitting the common man by increasing availability of goods at reasonable prices, large employment and higher per capita income. The major function laid down by the new policy statement was solving the problem of shortage of major industrial inputs like energy, transport and coal.

Industrial Policy Resolution of 1980 ignored policy stress on measures to reduce concentration of economic power in the private sector and other problems. This policy advocated economic federalism, which was introduced as a counter to Janata Government's artificial division between small and large industry. The Industrial Policy Resolution of 1980 couldn't decrease, rather increased the regional unevenness in industrial development.

2.3 Phase III (1981 to 1991): The Period of Industrial Recovery.

The period of 1980s can broadly be termed as a period of recovery. The rate of industrial growth was 6.4 per cent per annum during 1981-85; 8.5 per cent during 1985-

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90 (Seventh Plan) and 8.3 per cent in 1990-91. The causes of Industrial Recovery during the eighties are generally listed as follow,

- (i) **Industrial liberalization and liberal fiscal regime:-** Industrial liberalization led to the recovery in industries. According to Isher Judge Ahluwalia(1991), “ The most important changes have related to reducing the domestic barriers to entry and expansion to inject a measure of competition in domestic industries, simplifying the procedures and providing easier access to better technology and intermediate material imports as well as more flexibility in the use of installed capacity with a view to enabling easier supply responses to changing demand conditions.” The important features of liberal fiscal regime were (a) maintenance of high budgetary deficit year after year, (b) resort to massive borrowing often at high interest rates and (c) the encouragement of dissaving. All these phenomena were clearly witnessed in the Seventh Plan. The liberal fiscal regime helped to expand the demand for manufactured goods in the economy.
- (ii) **Contribution of agricultural sector:-** Increase prosperity of large farmers in certain regions of the country helped in creating additional demand for industrial goods. According to R. Thamarajakashi, the rural sector’s demand for non-agricultural consumer products rose considerably from 35 per cent in 1967 to 47 per cent in 1983.
- (iii) **Growth of service sector:-** According to Dalip S. Swamy, there was a significant increase in govt. expenditure on all services in the eighties. Fast growth of consumer durable goods sector pushed up the rate of industrial growth.

2.4 Phase IV (191-92 onwards):-full-fledged Restructing

The year 1991 ushered a new era of economic liberalization. Major liberalization measures designed to affect the performance of the industrial sector were—

wide scale reduction in the scope of industrial licensing, simplification of procedural rules and regulations, reduction of areas exclusively reserved for the public sector undertakings, enhancing the limits of foreign equity participation in domestic industrial undertakings, liberalization of trade and exchange rate policies, rationalization and reduction of custom and excise duties and personal and corporate income tax etc.

New Industrial Policy, 1991

In July 1991, as a part of economic restructuring and liberalization programme, a new industrial policy was announced by the newly formed Congress Govt.. The public enterprises in the manufacturing activity were said to have managerial weaknesses, over-manning, low work ethics, technical inefficiencies and over-capitalisation due to substantial time and cost over runs, faulty investment decisions and subsidies pricing and unprofitable product mix (Ahluwalia 1985, Bagchi 1990). Restructuring the public enterprises were therefore, an important objective of the structural adjustment programme (SAP) initiated by the Central Govt. since July 1991. The Govt. had decided to take a series of initiative in respect of the policies relating to the following areas:

- Industrial licensing
- Foreign investment
- Foreign technology agreements
- Public sector policy
- MRTP Act.

Industrial licensing:- The requirement of licensing was abolished for all industries except for a short list of 18 industries, related to security and strategic concerns, hazardous chemicals etc. Licencing would no longer be required in cities with population below one

million. There was abolition of mandatory convertibility clause for term loans from financial institutions for new projects.

Foreign investment:- To encourage industrial development, foreign investment would be permitted so as to bring technology, marketing expertise, modern management and export promotion possibilities in India. For this Purpose; (a) Direct foreign investment up to 51 per cent of foreign equity will be allowed in high priority industries.(b)Payment of dividends would be monitored through Reserve Bank Of India (RBI) to ensure that outflow of divided payment are balanced by export earnings over a period of time.(c) The investments of big foreign firms would be considered in totality, free from pre-determined parameters.

Foreign technology agreement:- The government would provide automatic approval for technological agreements in high priority industries up to a lump-sum payment of Rs 1 crore; 5 per cent and 8 per cent royalty for domestic sales and exports respectively subject to a total payment of 8 per cent of sales over a 10 years period from the date of agreement or over 7 years from the date of production.

Public sector policy:- It will be confined to essential infrastructure and strategic and high-tech areas. Memorandum of Understanding system would be emphasized between the Government and the undertaking. Professional management would be developed. The cases of sick public sector units would be referred to the Board of Industrial and Financial Reconstruction (BIFR).

MRTP Act:- (I) The asset-limit of MRTP company has been abolished; (II) It will be confined to monopolistic, restrictive and unfair trade practices and (III)MRTP Commission will be empowered to investigate complaints received from individual consumers or classes of consumers.

The period of eighties was marked by industrial recovery after a phase of industrial deceleration spanning over almost a decade and a half. Some economists have argued that a major factor accounting for this industrial recovery was the series of liberalization measures announced by the Government in the eighties. If one accepts this position, the logical conclusion is that more liberalization will result in still faster industrial growth.

According to Sandesara(1991), the new industrial policy seeks to raise efficiency and accelerate industrial production in five different ways. These are;

- It will reduce project cost and improve efficiency.
- It will raise the availability of foreign exchange reserves.
- More scope for private sector would improve the efficiency of the public sector.
- Emphasis on Memorandum of Understandings (MOUs) in public sector will improve the performance of this sector.
- MRTP Act would now concentrate on improving market practices and thus would promote competition in the economy.

However, there is the danger of ' opening up' the economy to too much foreign influence. Increasing role of multinational companies would harm Indian interests because there would be more drain of foreign exchange than the inflow of it under MNCs. Too much dependence on foreign technology would also be undesirable. H.K. Paranjape argue that the past record of the MNCs operating in this country doesn't warrant much enthusiasm. None of the multinationals operating here has attempted to develop India as an important base for a significant part of its worldwide research and development work.

The Now Industrial Policy, 1991 may not be able to solve problems of unemployment; concentration of economic power in private hands would be contrary to our long-cherished goals of growth with equity and self-reliance in India. The 'exit policy'

for public sector would increase unemployment in the short period due to retrenchment of labour.

2.7 WTO and Indian Industry

The World Trade Organization (WTO) came into existence on 1st January 1995. India has become a founder member of the WTO by ratifying the WTO agreement on December 30, 1995. Indian industries have been greatly affected by its commitments to WTO. As a member of WTO, India has bound about 67 per cent of its tariff lines whereas prior to the Uruguay Round only 6 per cent of the tariff lines were bound. Under General Agreement on Trade and Tariff (GATT), thirteen major agreements (e.g. anti dumping, import licensing, subsidies, trade related investments etc.) have been signed. These measures directly or indirectly affect the domestic industries. Under anti- dumping measure, if a country exports a product at a price lower than that which is charged in the domestic market, then it can be complained against for dumping activities. In other words, anti-dumping measures can be taken.

India has shown the world its commitment to WTO by removing quantitative restrictions, maintaining international standards in trade and industry, simplification of custom procedures etc. Quantitative Restrictions (QRs) on imports maintained on balance of payments grounds were notified to WTO in 1997 for 1714 tariff lines at the eight digit level. In view of the improvements in India's balance of Payments, the Committee on Balance of Payments Restrictions had asked India for a phase out for the QRs. Based on presentations before this committee and subsequent consultations with main trading partners, India reached an agreement with these countries, except USA, to phase out the QRs over a period of six years beginning 1997. An agreement between USA and India was also reached which envisaged the phasing out of all QRs by India by April 1, 2001. In line with this agreement, India removed QRs on 714 items in the Exim Policy

announced on March 31, 2000 and on the remaining 715 items in the Exim Policy announced on March 31,2001.

Unfortunately, the irony is that the WTO agreements have always favoured only the developed nations and have been biased towards the developing ones. The developed countries are imposing various trade impediments in the name of environmental concern, labour standards, and child labour and so on.

The WTO agreements also affect the domestic producers. The WTO Agreement signals the virtual emergence of a World Parliament, which has been, granted powers to enact international laws on matters that were under national jurisdiction so far. The effectiveness of the process is guaranteed by the denial of the MFN (Most Favoured Nation) treatment to a member who refuses to abide by such laws. Thus the WTO transgresses the sovereignty of a nation state. The developed nations have succeeded in building up a new international economy order that fully serves their interests and sacrifices the interests of the developing countries. Even the economic sovereignty of nation states (particularly of the developing countries) where the industry is the heart, is at stake.

CHAPTER-III

GROWTH AND STRUCTURE OF EMPLOYMENT IN ORGANISED MANUFACTURING SECTOR IN INDIA

The Indian economy has been undergoing considerable change since 1991 following the new liberal economic policy adopted by the Indian government. Consequently, these changes have affected almost all sectors of the economy. In this regard, manufacturing sector could not be an exception. Manufacturing sector, which is considered to be the backbone of the economy also saw lots of ups and down in its various components of employment, output, technology used and others. There is a structural mismatch in the changing composition of national income and occupational structure of the workforce. Manufacturing sector was considered to be the major sector and capable of absorbing more labour. But it has not been able to fulfill the hope of the planners. Still it contributes substantially for growth of Indian economy

In this chapter we analyse the growth and structure of employment in the organised manufacturing sector (OMS) in India in aggregate and in different industry groups. We have taken the study period from 1980-81 to 1997-98, the last year for which data are available. The period is divided into two sub-periods. The New Economic Policy introduced in India in 1991. So we divided the period into pre-liberalisation (1980-81 to 1989-90) and post-liberalisation (1990-91 to 1997-98). Before entering into the discussion of organised manufacturing sector, however, it would be useful to focus on the structure of employment and workforce in India and changes in it.

3.1 STRUCTURE OF EMPLOYMENT

3.1.1 Labour and Employment

India is a vast country having a billion plus population and a huge labour force of both skilled and unskilled workers. Table-3.1 shows an aggregate picture of the population and labour force for four points of time. Between 1983 and 1999-2000, India population increased from 718.21 million to 1004.10 million implying a growth rate of 2.11 per cent per annum, while labour force increased from 308.64 million to 406.05 million implying a growth rate of 1.72 per cent per annum.

Table-3.1 Population, Labour and Employment (million)

	1983	1987-88	1993-94	1999-2000
Total Population	718.21	790.00 (2.14)	895.00 (2.10)	1004.10 (1.93)
Total Labour Force	308.64	333.49 (1.74)	381.94 (2.29)	406.05 (1.03)
Total Employment	302.75	324.29 (1.54)	374.45 (2.04)	397.00 (0.98)

Note: The figures in the brackets are exponential growth rate
Sources: Economic Survey 2001-2002, GOI.

Thus labour force grew at a slower pace than growth in population. Whereas, the total employment (both organised and unorganised sectors) increased from 302.75 million in 1983 to 397 million in 1999-2000 implying a growth rate of 1.7 per cent per annum. The growth rate of population between 1983 and 1987-88 was 2.14 per cent per annum, it went down to 2.1 per cent per annum between 1987-88 and 1993-94 and further it declined to 1.93 per cent per annum in the next period of 1993-94 and 1999-2000. There is a declining tendency of population growth in India. But the growth rate of labour force and employment increased up to 1993-94 and then declined.

Figure-3.1



Series 1: Growth rate of population
Series 2: Growth rate of labour force
Series 3: Growth rate of employment

Table-3.1 here reveals a serious concern on employment growth rate in 1990s where the employment growth rate declined sharply from 2.04 per cent per annum to 0.98 per cent per annum during 1993-94 and 1999-2000. Whereas the labour force did not cope up with the same pace, it shows a declining tendency. The labour force declined from 2.29 per cent per annum during 1983 and 1993-94 to 1.03 per cent per annum during 1993-94 to 1999-2000. This implies that the growth rate in employment is less than the growth rate in labour force and this has resulted in an increase in unemployment rate. The Task Force on Employment Opportunities admitting deceleration in employment growth mentions: “This sharp deceleration in the growth of employment has naturally been the focus of much attention and comment, raising fears that economic growth in 1990s has been of a jobless variety” (Planning Commission, 2001).

3.1.2 Employment in different Sectors

If we look at the employment situation in different sectors we find a diversified picture. Table-3.2 depicts the data on primary sector (Agriculture + Mining and Quarrying), secondary sector (Manufacturing + Electricity, Gas and Water supply +

Construction) and tertiary sector (Trade + Transport, Storage and Communication + Financial service + Community Social and Personal services).

Table-3.2 Employment and its Growth in different Sectors

Sector	Employed Workers (million)			Annual Growth Rate(%)	
	1983	1993-94	1999-2000	1983 to 94	1994 to 2000
Primary	208.99 (69.0)	245.16 (65.5)	239.83 (60.4)	1.60	-0.34
Secondary	41.66 (13.8)	55.53 (14.8)	66.91 (16.8)	2.90	3.14
Tertiary	52.11 (17.2)	73.76 (19.7)	90.26 (22.7)	3.53	2.42

Note: Figures in brackets are per cent of that sector to total employment
Sources: Economic Survey 2001-2002, GOI.

In the primary sector, there is a deceleration of growth rate of employment during post liberalisation period (1994-2000). In the secondary sector, the combined effect of manufacturing and construction resulted modest improvement in the growth rate from 2.90 per cent per annum in the pre liberalisation period to 3.14 per cent per annum in the post-liberalisation period. However, in the tertiary sector (or service sector), there is a deceleration in growth rate of employment to 2.42 per cent per annum in the post-liberalisation decade. This was mainly the consequence of a sharp deceleration in employment in the community, social and personal services.

Table-3.3 Sector wise Share in Increase of Employment (In million)

	Increased during 1983-1993	Share in increase(%) 1983-1993	Increased during 1994-2000	Share in increase(%) 1994-2000
Primary	36.17	50.5	-5.33	-23.6
Secondary	13.87	19.3	11.38	50.4
Tertiary	21.65	30.2	16.50	73.2

Sources: Compiled and computed from the data given in table-3.2.

From table-3.3, two kinds of pattern in employment generation may be noticed. Firstly, between 1983 to 1993, nearly 51 per cent of additional employment came from the primary sector, 19 per cent from secondary and 30 per cent from tertiary sector. However, the second pattern emerged during 1993-94 and 1999-2000, reflecting 50 per

cent of the additional employment being generated in the secondary sector and 73.2 per cent in the tertiary sector, on the other hand, in the agriculture sector, there was a fall in employment by 23.6 per cent. After the induction of reform, in terms of employment generation agriculture sector seems to have been neglected.

3.1.3 Employment in Organised and Unorganised Sector

The organised sector includes the entire establishment in public sector and non-agricultural establishments employing 10 or more persons in the private sector as specified by the National Sample Survey Organisation and Directorate General of Employment and Training. It is generally accepted that wages in an organised sector are much higher than in a unorganised sector. Moreover, the organised sectors are well regulated and provide job security and other benefits to the worker. Within the organised sectors, jobs in the public sector receive much higher wages and accompany benefits than those in the private sectors for similar skills. Besides public sector offers greater job security too.

Table-3.4 Employment in Organised and Unorganised Sectors

Year	Employment (million)			% of Organised to total
	Organised sector	Unorganised sector	Total	
1983	24.01	278.7	302.71	7.93
1987-88	25.71 (1.4)	298.58 (1.3)	322 (2.1)	7.93
1993-94	27.37 (1.04)	344.6 (2.43)	372 (2.43)	7.35
1999-2000	28.11 (0.53)	368.89 (1.3)	397 (1.3)	7.08

Sources: NSSO, (various rounds)

Data given in table-3.4 reveal that the percentage share of organised sector employment, which was 7.93 per cent in both 1983 and 1988 came down to 7.35 per cent in 1994 and decline declined to 7.08 per cent in 1999-2000. The organised sector employment, which was 24.01 million in 1983 increased to 25.71 million in 1988

indicating a growth rate of 1.4 per cent per annum during 1983-88 and it went down to 1.04 per cent per annum during 1988-94. However, during the post reform period (1994-2000), organised sector employment went up slowly from 27.37 million in 1993-94 to 28.11 million in 1999-2000, indicating a growth of merely 0.35 per cent per annum.

Unorganised sector employment, which has a major contribution in overall employment of the country, has also undergone major changes in these years. In organised sector there was a declining trend in the growth rate whereas in unorganised sector it was 1.3 per cent per annum between 1983 and 1988 and it increases to 2.41 per cent per annum between 1988 and 1994. But in the post reform period it came down to 1.37 per cent per annum. It may be the outcome of policy changes of the said period.

3.2. EMPLOYMENT IN ORGANISED MANUFACTURING SECTOR

Organised manufacturing sector refers to those industries, which employ ten or more workers using power and twenty or more workers without using power. In 1993-94, India's manufacturing sector employed about ten per cent of workforce to produce about sixteen percent of measured GDP. Whereas the organised manufacturing produced two-third of measured manufacturing value added employing only one fifth of workers in this sector (Nagaraj, 2000). This inconsistency in the size of employment, structure and its value added attracts the attention of academician, planner and policy makers.

The sluggish growth of employment in the organised manufacturing sector in India has caused much concern. In general, the growth of employment has lagged far behind the growth of output. Employment in the sector remained virtually stagnant in the 80s. In sharp contrast, there has been a substantial increase in employment in this sector in the 1990s. Between 1980-81 and 1990-91, employment in organised manufacturing grew

at the rate of only 0.53 per cent per annum. In the next five year i.e. 1990-91 to 1995-96, the growth rate was much higher at 4.03 per cent per annum, in comparison to the growth rate achieved in the 1970s about 3.8 per cent per annum between 1970-71 and 1980-81 (Goldar 2000). The growth rate of employment between 1990-91 to 1997-98 in the organised manufacturing was 2.69 per cent per annum, and it was well above the growth rate achieved in the 1980s and higher than the growth rate of the labour force.

So the most critical problem faced by the organised manufacturing sector in the 1980s was the jobless growth. Employment growth rate decelerated even while output growth accelerated, and that the low growth in employment was due to a steep fall in the employment elasticity (Ghose 1994). The problem of very low employment growth in the organised sector is essentially a problem of the 1980s. Till then India's industry, following broadly the guideline worked out in the Mahalanobis model, performed rather well in organised industry which was at an impressive growth rate of 3 per cent per annum. Given that the rate of growth of labour force was around 2.3 per cent.

The explanations given by various economists for the low growth rate of organised manufacturing in the 1980s differ from one another. One of the views is that the job security regulations introduced in the late 1970s and strengthened in the early 1980s was the main cause of the 'job less growth' in the organised manufacturing sector in the 1980s. These provisions made the entrepreneurial labour adjustment difficult and when it was required to reduce the employed labour, it was almost impossible. Therefore the enterprises chose capital intensive technologies or casual labour. Fallon and Lucas (1993) have attempted a quantitative measure of the loss of employment due to job security regulations and estimated that the employment in organised manufacturing would have been 17.5 per cent higher in the absence of such wage legislation and the rigidities in the labour market induced by job security regulation.

However, another view is that the low growth in organised manufacturing employment in the 1980s was attributed to sharp hike in real wages. It is argued that entrepreneurs are bound to adopt capital intensive technique (Ahluwalia 1991; Ghosh 1994; World Bank 1989). But this argument has not been supported by Papola (1994), Nagaraj(1994) and Bhalotra(1998) and two factors highlighted by their studies are (a) changes in industrial composition and (b) increased in actual hours worked per worker (or mandays per worker) indicating a more intensive use of the work force.

Compared to 1980s organised manufacturing sector in the 1990s generate more employment. Seventeen lakhs new jobs were created in India's registered manufacturing between 1991-92 and 1997-98 in compared to four lakhs jobs between 1979-80 and 1990-91. Goldar(2000) attributes this positive change to two major reasons (a) slowdown in growth of real wages and (b) faster growth of small and medium sized factories, which are more labour intensive than larger sized factories. Nagaraj(2000) contested Goldar's view and argued that faster employment generation in the 1990s was due to the investment boom in that decade. In a later study, Nagaraj pointed out that faster employment generation in the 1990s was seen only in registered manufacturing, where as the unregistered sector witnessed negative employment growth between the mid 1980s and mid 1990s. This is an important finding because as Nagaraj reports that, almost four fifth of India's manufacturing employment is in the unregistered sector.

3.2.1 Growth of Employment in Various Industry Groups

In the above discussion we have seen that in the organised manufacturing sector the growth of employment in the 1980s was very low but in the post liberalisation period of the 1990s the growth rate was much higher than the growth rate of labour force. In this section we will see the growth rate of employment in various industry groups in two digit level in India.

The overall trend in growth rate of employment in the two-digit industry group in organised manufacturing sector has been presented in table-3.5. It is very clear from the table that in the 1980s there is stagnant growth rate of employment in total organised manufacturing sector. The growth rate is 0.53 per cent per annum. But in the 1990s the growth rate is 2.69 per cent per annum.

Table-3.5 Growth Rate of Employment: Two Digit Industries Groups

Industry(code)	Employment growth rate(per cent per annum)		
	1980 to 1990	1990 to 1997	1980 to 1997
20-21	-1.58	2.70	0.16
22	3.71	2.95	3.40
23	-3.17	0.58	-1.64
24	3.02	2.67	2.87
25	-3.00	1.06	-1.35
26	5.62	11.37	7.95
27	-1.79	1.80	-0.33
28	0.45	2.30	1.21
29	5.91	2.24	4.38
Agro-based(20-29)	-0.63	2.66	0.71
30	1.16	5.22	4.14
31	3.73	4.72	2.81
32	2.03	0.30	1.31
33	0.73	0.91	0.80
34	1.58	2.83	2.10
35+36+39	3.54	2.56	3.13
37	-0.18	2.10	0.75
38	2.81	7.14	6.85
Non agro-based(30-39)	1.89	2.71	2.23
Total	0.53	2.69	1.43

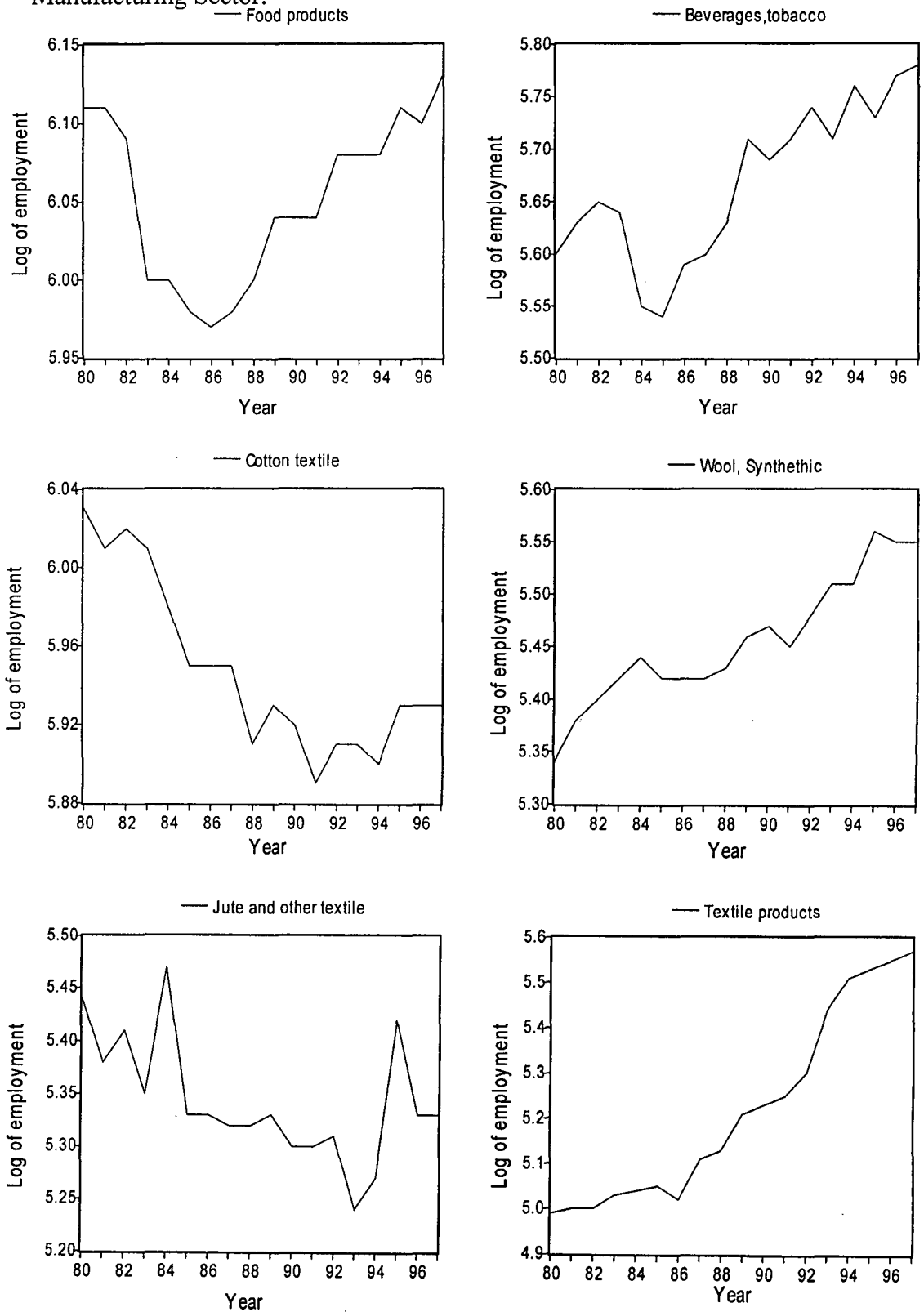
Sources: Govt. of India, Annual Survey of Industries: Summary Result of Factory Sector (Various issues).

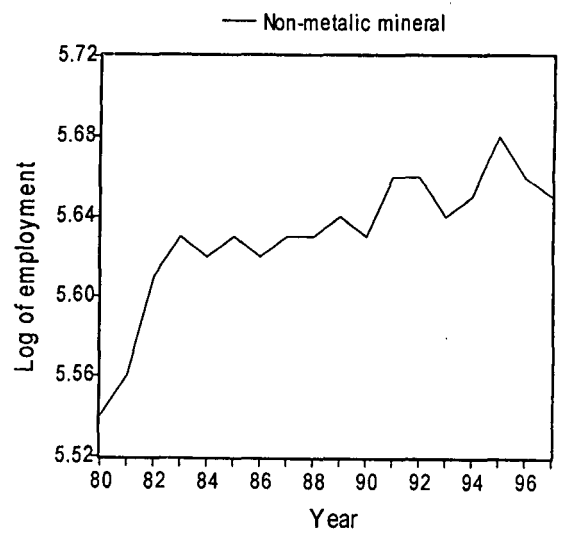
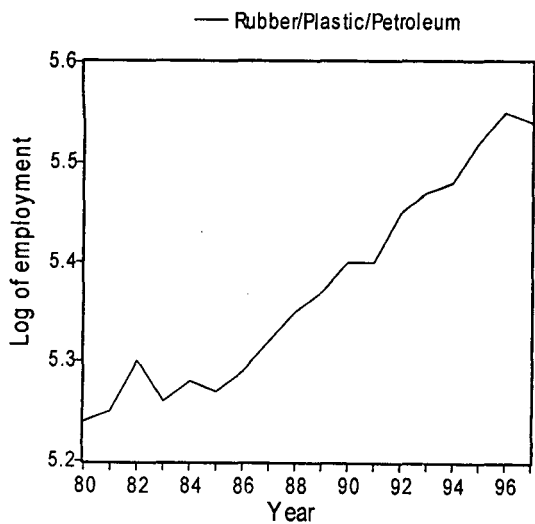
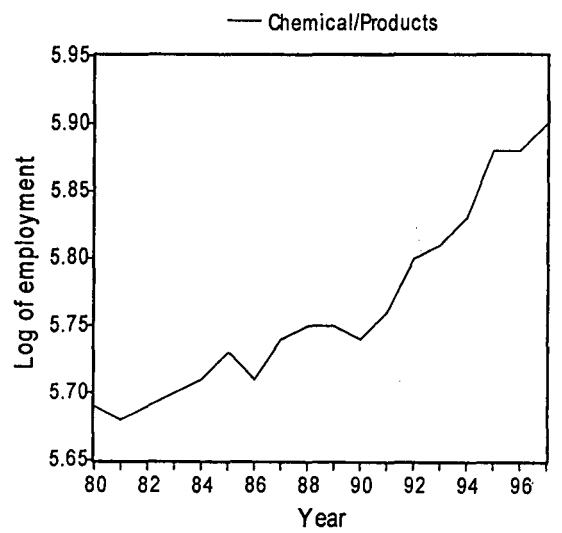
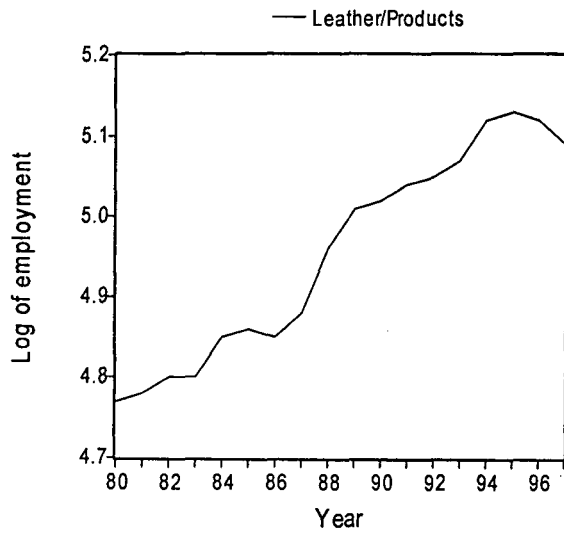
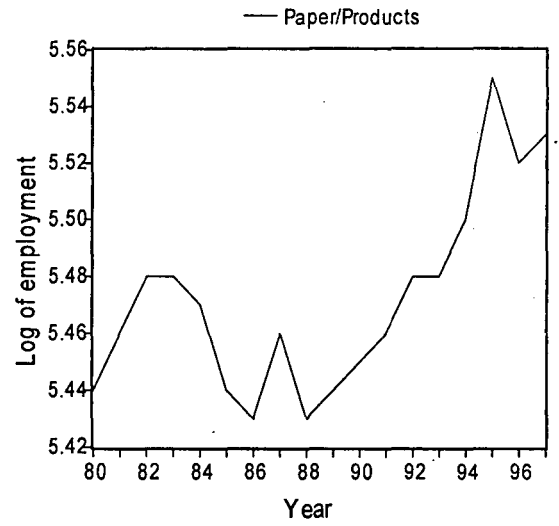
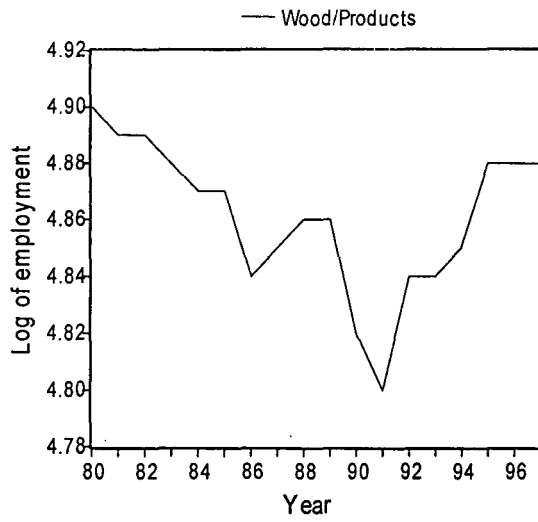
In the various industry groups, it can be seen that there is major changes in the growth of employment in the 1980s. Industry group of food products, cotton textile, jute and other textile, wood and wood product, transport equipment has negative growth rate. These entire industry group which have negative growth rate has employment share to total organised manufacturing is around 35 per cent. In the first five year of 1980s there was closing down of lots of cotton textile mills and jute mill in the country leading to negative growth rate of employment in this two industry groups.

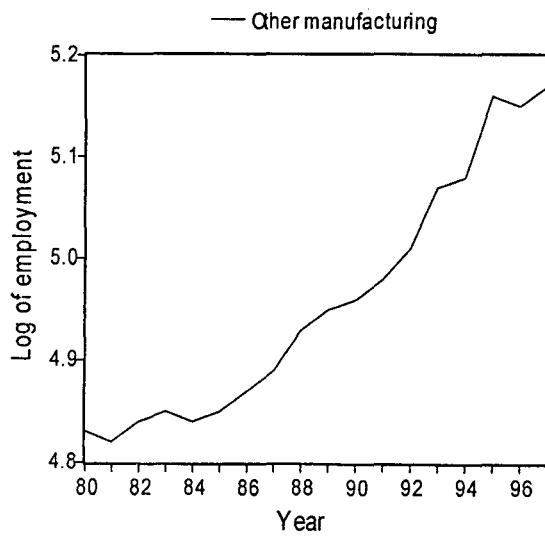
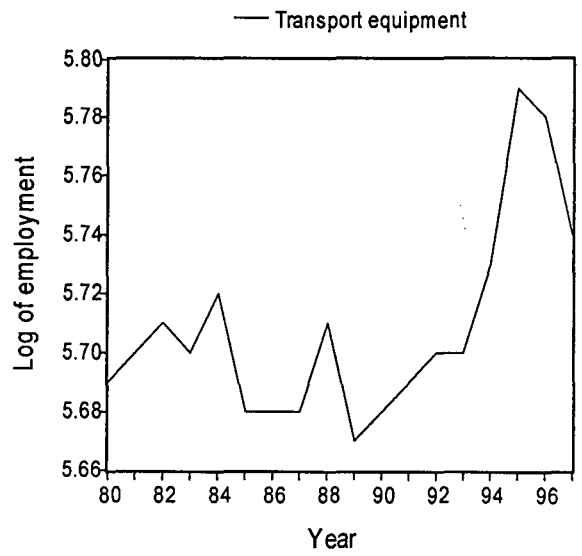
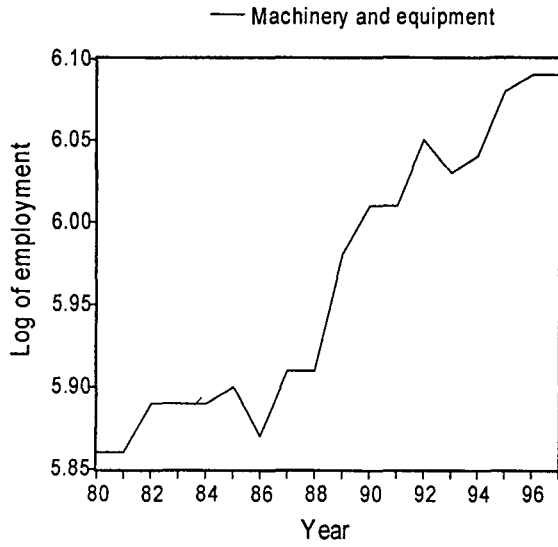
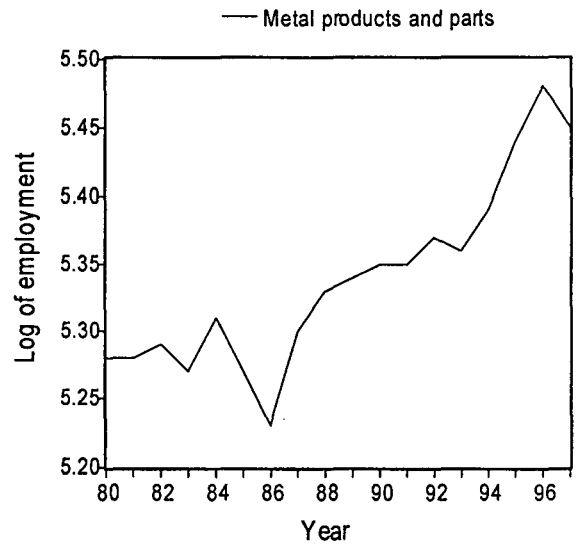
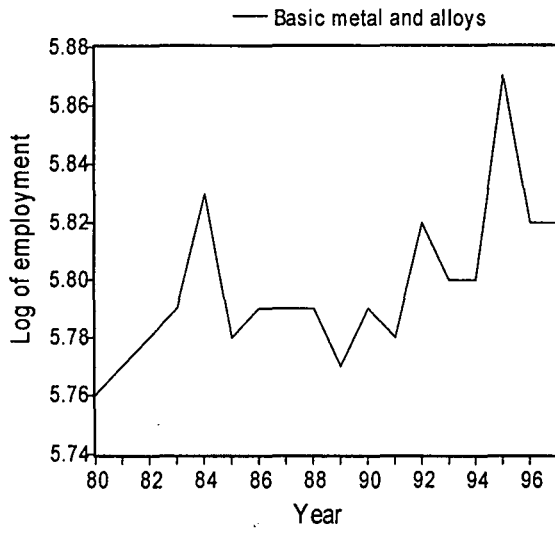
But in the post liberalisation period between 1990-91 and 1997-98 there is a positive growth rate in the all industry groups. This shows a positive effect of economic reform in all industry groups. The growth rate is highest for the manufacture of textile products with an 11.37 per cent growth of employment per annum. In the 80s also where many industry groups have negative growth rate, textile product industry have positive growth rate of 5.62 per cent per annum. Manufacture of other manufacturing industries, and chemicals and chemical products have a growth rate of above 5 per cent in the period 1990-91 and 1997-98. The growth rate of employment in the manufacture of food products, beverages and tobacco and cotton textiles industry group which have about 35 per cent of employment to total organised manufacturing have positive growth rate of 2.70, 2.95 and 0.58 per cent per annum respectively. In the pre reform period of 1980s in these industry groups there was a negative growth rate of employment. For the whole period of 1980-81 to 1997-98, the highest growth of employment shown in the manufacture of textile products and other manufacturing industries is of 7.95 and 6.85 per cent per annum respectively.

If we devise the whole two digit industry group of organised manufacturing sector into agro based (20-29) and non-agro based industries in the pre and post liberalisation period of 1980s and 1990s there is positive growth rate of 1.80 and 2.71 per cent per annum respectively. But in the agro based industry between 1980 and 1990 there is negative growth rate of -0.63 per cent per annum and in the post liberalisation of 1990s there is a positive growth rate of 2.66 per cent per annum. For the whole period of 1980 to 1997 the growth rate in agro based is 0.71 per cent per annum but for non-agro based industries it is 2.23 per cent per annum, which is much higher than agro based industries. So the slow growth rate of employment in the organised manufacturing sector in the 1980s is attributed to the negative growth rate of employment in the agro based industries.

Fig:3.1 Trends of employment in Various Industry Groups at Two-digit level in Organised Manufacturing Sector.







3.2.2. Structure of Employment of Organised Manufacturing

In the previous section we examined the growth of employment in the various industry groups in two-digit level in the organised manufacturing. Now we study the dynamics of change in the structure of employment in two-digit industry group. Table-3.6 shows the percentage of organised manufacturing employment in different industry group to total organised manufacturing employment for the period 1980-81 to 1997-98. There is a wide variation in the structure of employment in two-digit level industry groups, and the employment structure has changed over time.

The percentage of employment in the manufacture of food products industry, which is known for its labour intensive character, is highest percentage of employment. In 1980-81 it was 18.96 per cent and it increased to 19.00 per cent in next year, after then it started to decline and in 1988-89 it was 14.77 per cent. But again it started to increase slightly and in 1997-98 the employment percentage in food product industry was 15.30 per cent. The beverages, tobacco industry had 5.83 per cent of employment in 1980-81 but over the years it increased to 6.88 per cent. Cotton and textile industry have 9.87 per cent of employment, but in 1980-81 it was 15.75 per cent. So there is gradual decline of employment in this industry.

Employment in the manufacture of wool, silk, man made fiber textile had 3.18 percent in 1980-81 and over the years it increased to 4.06 in 1997-98. In jute and other textile industry the employment percentage was 4.01 per cent, but in 1997-98 it came down to 2.48 per cent only. This is because of closing down of many jute mills over the years. Manufacture of textile product industry in 1980-81 the employment percentage was only 1.16 but in 1997-98 it increased to 4.24 per cent. Wood and wood products and paper and paper products industry percentage of employment has gone down from 1.16 and 4.01 per cent to 0.87 and 3.86 per cent respectively.

Table: 3.6 Percentage of employment in different industry groups to Total organised manufacturing employment.

Industry code	1980-81	1990-91	1997-98
20-21	18.96	15.24	15.30
22	5.83	6.78	6.88
23	15.75	11.48	9.87
24	3.18	4.07	4.06
25	4.01	2.79	2.48
26	1.45	2.39	4.24
27	1.16	0.91	0.87
28	4.01	3.96	3.86
29	0.86	1.45	1.40
Agro-based	55.20	49.07	48.96
30	7.15	7.61	9.01
31	2.54	3.45	3.99
32	5.10	6.00	5.08
33	8.50	8.66	7.65
34	2.82	3.13	3.20
35-36	10.56	11.78	10.32
37	7.12	6.61	6.33
38	1.00	1.26	1.70
39	--	2.40	3.76
Non agro-based	44.80	50.93	51.04

Sources: Annual Survey of Industries, GOI

From the above discussion it is clear that the agro-based industry group (20-29) employment percentages in 1980-81 was 55.20 per cent and have gone down to 48.96 per cent in 1997-98. The non-agro based industry groups (30-39) have raised their employment percentage from 44.80 per cent in 1980-81 to 51.04 per cent in 1997-98. In the non agro-based group manufacture of machinery and equipment industries have higher percentage of employment share and it was 10.56 in 1980-81 and 10.32 per cent in 1997-98.

3.2.3. Rural, Urban Dichotomy of Employment in the Organised Manufacturing

In the highly developed countries, almost the whole industrial sector is urban based. But in India as like other developing economy, a proportion of industrial employment is located in the rural sector. According to 1981 Indian Population Census, using the main worker concept of workforce 46.11 per cent of the total secondary sector workforce was engaged in the rural secondary sector, but in the 1991 census this

percentage came down to 43.93 per cent. So there is a gradual decline of employment in the rural secondary sector and in urban sector it increases.

In this section we examine the rural-urban differences in the growth and pattern of employment in the organised manufacturing sector in two-digit industry groups. Annual Survey of Industries provides rural-urban break-up of data since 1987-88. So the period of the study is 1987-88 to 1997-98. We have divided this period into three point of time 1987-88, 1992-93 and 1997-98.

The growth and pattern of employment in the organised manufacturing industries in two-digit industry group, is portrayed in Table 3.7. For the period 1987-88 to 1992-93 the growth rate for rural areas in organised manufacturing sector is 5 per cent per annum whereas for urban areas it is 2.65 per cent per annum. So in this period the growth rate in rural areas is higher than in urban areas. In the next period 1992-93 to 1997-98 it is more astonishing that the growth rate in rural areas is 6.39 per cent per annum. This shows an interesting point that, according to population census there is a gradual decline of rural secondary (household + non-household + construction) employment. But here in the organised manufacturing industries the growth rate is higher in rural areas than urban.

In the various two-digit industry groups the growth and structure of employment for both rural and urban differ from each other. Between 1987 and 1992 in the rural areas industry group of manufacture of food products, beverages, tobacco, cotton textile and wool, silk, man-made fiber textiles, leather and leather products, in the agro-based industry group has high growth rate of more than 5 per cent. In the non agro-based group only industry group of rubber, plastic and petroleum products and machinery and equipment industry have high growth rate.

Table-3.7 Growth and Pattern of Employment in Rural and Urban area in the Organised Manufacturing.

Indus try code	% of employment to total employment of that industry						Growth rate (per cent per annum)			
	1987-88		1992-93		1997-98		1987 to 1992		1992 to 1997	
	rural	urban	rural	urban	rural	urban	rural	urban	rural	urban
20-21	57.2	42.8	61.1	38.9	63.8	36.2	5.49	2.12	3.20	0.87
22	23.4	76.6	27.6	72.4	28.1	71.9	9.44	4.73	2.07	1.62
23	23.0	77.0	30.8	69.2	42.2	57.8	6.72	-1.51	7.88	-2.28
24	20.3	79.7	29.7	70.3	41.2	58.8	11.28	0.63	10.50	-0.20
25	19.8	80.2	7.1	92.9	12.9	87.1	-17.71	4.02	13.84	-0.26
26	12.5	87.5	8.0	92.0	15.5	84.5	-0.08	10.38	28.89	11.09
27	39.7	60.3	46.6	53.4	56.8	43.2	2.86	-2.78	5.90	-2.45
28	22.8	77.2	23.3	76.7	31.6	68.4	1.18	0.63	8.62	-0.08
29	32.0	68.0	33.0	67.0	30.4	69.6	8.64	7.69	0.04	2.46
30	26.9	70.4	30.7	69.3	42.9	57.1	3.68	2.63	11.58	0.36
31	25.9	74.1	29.2	70.8	37.4	62.6	8.43	4.99	9.80	1.94
32	50.5	49.5	52.7	47.3	59.3	40.7	2.40	0.60	1.79	-3.52
33	14.5	85.5	16.2	83.8	25.4	74.6	3.69	1.00	9.50	-2.18
34	18.6	81.4	16.8	83.2	24.2	75.8	0.97	3.52	11.44	1.65
35-36	12.9	87.1	16.6	83.4	22.3	77.7	7.12	1.00	6.30	-1.18
37	14.6	85.4	13.3	86.7	20.2	79.8	-1.07	1.23	10.82	0.14
38	19.4	80.6	20.0	80.0	20.5	79.5	6.54	5.73	8.02	7.44
39	--	--	9.0	91.0	10.0	90.0	--	--	10.49	8.07
Total	27.5	72.5	29.9	70.1	36.0	64.0	5.00	2.65	6.39	0.59

Sources: Computed and Calculated from Annual Survey of Industries, Summary Results for Factory Sector, GOI

As India's rural areas is agro based the agro-based industry groups growth is much higher, but in the next period of 1992-93 to 1997-98 all industries have a positive growth rate. In the urban areas the growth rate is less than rural areas in the first period of 1987 to 1992. But high growth rate has been observed in the industry group of manufacture of textile products, leather and leather product and other manufacturing industries. In other industry groups there is significant growth rate of employment. In the next period also the picture is same as first period, except that industry groups most industry groups have negative growth rate.

3.2.4. Distribution of Employment by Factory Size

Annual Survey of Industries provide data on distribution of employment by factory size for the whole manufacturing sector (organised manufacturing including

electricity, etc). So from the published data in Annual Survey of Industries, it is not possible to study the distribution of employment by factory size for organised manufacturing sector. Table-3.8 shows the distribution of employment by size class of factories. It is seen that there was a marked change in the size structure in the 1980s and

Table-3.8 Distribution of Employment by Factory Size

Factory size	Distribution of Employment (per cent)			Growth rate (per cent per annum)	
	1980-81	1990-91	1997-98	1980-90	1990-97
0-49	13.8	17.5	16.8	2.98	2.2
50-99	9.0	10.8	13.1	2.41	5.68
100-199	9.2	10.7	12.9	2.09	5.65
200-499	12.1	13.5	19.0	1.67	7.97
500-999	9.7	12.0	13.6	2.72	4.71
1000-1999	13.7	10.1	9.4	-2.45	1.81
2000-4999	15.9	9.5	10.0	-4.48	3.64
5000+	16.6	15.9	5.2	0.13	-12.43
Total	100	100	100	0.56	2.83

Sources: Annual survey of Industries, Summary Results for Factory Sector, GOI.

more so in the 1990s. In 1980-81 the large size industries employment percentage was very high in 5000+ (16.6), 2000-4999 (15.9) and 1000-1999 (13.7). In 1990-91 the structure have changed the employment percentage in large industry decline. The growth rate of employment between 1980 and 1990 in the 1000-1999 and 2000-4999 is negative growth rate of -2.45 and -4.48 respectively. The 5000+ factory size employment growth rate is positive but between 1980 and 1990 the employment percentage decline. In the small and medium industry there shows a positive growth rate. Again between 1990-91 and 1997-98 the same trend continue but at a rapid rate. Highest growth rate observed in the small and medium industries and negative growth of -12.43 in the 5000+ industries, which is known for the capital-intensive character.

In the post reform period there is a gradual shift of employment percentage from large industries to small and medium industry. Since the factories in lower employment size classes are more labour intensive, these changes in size structure had a favorable effect on employment growth. The sharp decline in the relative size of 5000+

size class in the 1990s and the increase in the relative shares of size classes 50-99,100-199,200-499 must have made a significant contribution to employment growth in this period.

3.3. Causes of Growth of Employment

From the above discussion it is clear that there is a wide fluctuation of employment growth rate within the study period of 1980-81 and 1997-98. In the 80s of pre liberalisation period there was slow growth of employment. The causes for the slow growth rate has been explained by various economists differently, job-security regulation, hike in the real wage or rise in real cost of labour, labour market rigidity, growth of contract labour, spill over of employment in to the unregistered sector, increase in actual hours worked per worker were the main cause of slow down of employment in organised manufacturing sector.

We will now try to look at the causes of fluctuation of employment between the two periods the pre liberalisation of 80s and the post liberalisation of 90s by taking certain variables i.e. gross value added (at constant prices), real wage (product wage), mandays per employee and capital-intensity. Table-3.5 showed the growth rate of employment and table-3.9 shows the growth rate of gross value added, real wage, mandays per employee and capital-intensity for various two-digit industry groups. A comparison is made between the two periods of 80s and 90s. It is revealed that the growth rate of employment increased in the 90s in most of the industries and there is a acceleration of employment, as against that the growth rate of value added declined in the 90s in compare to 80s in a majority of industries of two-digit and for aggregate organised manufacturing sector. Therefore it is seen that some common factors have favored employment growth in a large number of industries in the post reform period even though output growth has not accelerated.

Table 3.9: Growth Rate in Gross Value Added, Real Wages and Mandays Per Employee; Two-digit Industry groups. (Per cent per annum)

Industry code	Real gross value added		Real wages		Mandays per employee		Capital intensity	
	1980-90	1990-97	1980-90	1990-97	1980-90	1990-97	1980-90	1990-97
20-21	12.03	7.39	10.74	1.75	5.24	0.59	10.71	9.25
22	8.48	7.83	2.17	1.61	0.47	0.75	9.57	12.81
23	2.63	0.26	3.64	-1.61	0.72	-0.11	7.41	17.65
24	13.79	8.35	6.26	3.32	0.41	-0.09	10.10	12.12
25	-4.24	6.56	1.42	4.38	0.30	-0.44	12.35	-1.10
26	14.63	10.44	3.25	0.77	0.26	-0.05	7.15	10.46
27	5.71	-6.74	4.90	-7.29	0.54	0.56	7.43	9.76
28	5.54	3.54	2.48	3.29	0.34	0.00	6.48	9.23
29	11.67	10.46	0.35	6.38	0.15	0.05	4.97	5.66
30	10.30	9.83	6.70	1.04	0.79	0.00	11.83	7.72
31	14.31	5.82	3.92	5.04	1.03	0.19	6.96	7.82
32	11.54	4.29	2.56	3.53	-0.15	1.39	12.72	11.77
33	6.55	11.15	1.47	5.12	0.33	-0.20	9.16	6.34
34	3.06	9.98	0.76	5.08	0.29	0.31	8.34	11.05
35-36-39	8.62	7.21	4.17	3.04	0.38	0.05	9.44	7.07
37	7.13	9.39	4.10	5.64	0.21	-0.40	4.63	9.43
38	11.96	18.98	7.83	5.95	-0.36	-0.37	7.92	8.61
Total	8.67	7.43	4.84	2.48	1.11	0.14	8.87	8.64

Sources: Computed and Calculated from Annual Survey of Industries, Summary Results for Factory Sectors, GOI. (Various issues)

Many studies considered wage rate and mandays (Bhalotra1998, Nagaraj 1993 etc.) were the main cause for explaining the stagnation in employment in organised manufacturing in 1980s. So for finding the cause of slow growth in 80s and high growth rate in 90s we may take these two variables for an explanation. It is seen that the growth rate of real wages in aggregate manufacturing declined significantly in the 90s, whereas the growth rate was high in 80s. So there is an inverse relationship that can be seen between employment and wage. It is observed that in 80s the growth of employment is low in those industries where the growth of wage rate is high and in 90s the opposite situation is seen.

Some views consider the increase in mandays per employee as the cause of slow growth of employment in the 80s but the increase in mandays per employee was rapid only in case of the manufacture of food products industry and for the rest of the industries growth is significant. But in the 90s the growth of mandays per employee is less

than 80s, in many industries it is negative growth. In food products industry the growth rate came down from 5.24 to 0.59. So there is seen an inverse relationship between employment and mandays per employee growth rate. Capital-intensity is also an important factor when considering the causes of employment growth in the organised manufacturing. It is generally consider that when the growth of capital-intensity is high the employment growth rate is low, but here we see a different picture and, in certain industry group even if the growth of capital-intensity is high the growth of employment is high.

We will now see econometrically the relationship between employment growth and growth rate of real wage, output, mandays per employee, and capital-intensity, some regression equations have been estimated. Growth rate in employment (gL) has been regressed on growth rate in real wages (gW), capital-intensity (gC), mandays per employee (gM), and output (gQ). The regression analysis has been done separately for the period 1980-81 to 1990-91 and 1990-91 to 1997-98. The growth rate computed for various two-digit industry group in table-5 and 6 have been used for this purpose. The estimated equations are shown as.

For the period 1980-81 to 1990-91

$$\begin{aligned}
 gL = & -1.0756 - 0.5165 gW + 0.0338 gC - 0.3624 gM + 0.531 gQ \\
 & (-0.73) \quad (-2.89)^* \quad (0.22) \quad (-1.02) \quad (6.85)^* \\
 R^2 = & 0.8234
 \end{aligned}$$

For the period 1990-91 to 1997-98

$$\begin{aligned}
 gL = & 1.1013 - 0.6788 gW - 0.011 gC - 0.2756 gM + 0.5530 gQ \\
 & (0.6) \quad (-2.48)^{**} \quad (-0.06) \quad (-0.2) \quad (3.25)^* \\
 R^2 = & 0.5039
 \end{aligned}$$

(The values in the brackets indicate t-statistics and *, ** indicate level of significance at one and five percent level of confidence respectively)

The coefficient of the real wages and output variables are found statistically significant. These have the expected sign. But the coefficient of the capital-intensity and mandays per employee are found to be statistically insignificant.

So the result of the econometric calculation reveals that growth rate of output and real wages had a significant effect on employment growth rate. There is an inverse relationship between employment and wage. When in the 80s the wage rate was high the employment growth rate was low and the opposite happened in 1990s.

The conclusion derived from this chapter is that there is a low growth rate of employment observed in the pre liberalisation period of 1980s in the organised manufacturing sector. But the picture is different for the two-digit industry groups, where a negative growth rate of employment has been seen in the most agro-based industry groups in comparison to non-agro based industry groups. In the post liberalisation period of 1990s the growth rate of employment is positive for each industry group and in the organised manufacturing sector. High growth rate has also been observed in the textile products industry for both the period of 80s and 90s and the growth rate is 5.62 and 11.37 per cent per annum respectively. In the pattern of employment in two digit industry groups there is a decline of employment in the resource based industries of food product, cotton textile, jute and other textile. The percentage share of employment increases in the chemical products, rubber, plastic and petroleum product. Employment in the rural-urban differences shows an interesting figure, while the population census figure shows a declining percentage of employment in the rural areas, in the organised manufacturing sector the percentage share of employment increases over the period. In the distribution of employment by factory size for the whole manufacturing sector plus other sectors like electricity etc., there is a gradual shift of employment from the large size factory to small and medium size factories. In the last section we have tried to show the causes of growth of

employment in the organised manufacturing. By taking four independent variable (real wages, capital-intensity, mandays per employee, gross value added) we econometrically regressed with employment, and find that wage is the main cause for the slow growth of employment in the 80s. .

CHAPTER-IV

REGIONAL VARIATION IN ORGANISED MANUFACTURING SECTOR IN INDIA

In the previous chapter we have discussed about the growth and pattern of employment in the two-digit level industry group, the rural urban differences in the growth and pattern in the organised manufacturing sector between pre liberalisation period of 80s and post-liberalisation period of nineties in India. It is shown that in the eighties there is slow growth of employment, whereas there was faster rate of growth of output. This period is called as period of 'jobless growth'. In the 90s the growth rate of employment is higher than previous decade.

Now in this chapter in the first section we are going to study the growth of employment in two-digit industry group in various states. In the next section we will examine the pattern of industrial structure and in the final section we will show the pattern of inter regional industrial inequality and the changes therein over time in the organized manufacturing sector by taking certain variables with the help of inequality methods of measurement of Co-efficient of Variation, Theil's Index and Gini's co-efficient.

4.1 Growth of Employment

There is no homogeneity in the growth of employment in organized manufacturing as in other sector of the economy in the various states of India. It may due to the factors like physical setting, availability of infrastructure facilities and other socio economic variables. More over it is not a recent phenomenon but of historical fact of colonial legacy. According to Sharma and Chauhan(1969), 'The three presidency of Bombay, Calcutta and Madras accounted for nearly 68 per cent share of the companies at work in 1938-39'. So the inter state variation has been a colonial legacy, when the concentration of industries was observed in a few states, and other lagging far behind giving a lopsided pattern of growth. Table 4.1&2 portrays the growth of employment in

organized manufacturing in two-digit industry group for seventeen major states for two period of time i.e. 1980-81 to 1990-91 and 1990-91 to 1997-98.

In Andhra Pradesh in the period 1980-81 to 1990-91 the picture is not similar that of India. Here almost all the industry group increased significantly but highest growth rate observed in the manufacture of metal product and parts (13.42), rubber, plastic and petroleum products (13.72) and leather and leather product industry (10.98). Employment in other industry group like manufacture of non-metallic and mineral products and basic metal and alloy also grew at a faster rate. But in the next period, 1990-91 to 1997-98 fastest growth rate observed in the industry group of wood and wood products (26.08), food product industry also grew well, which saw negative growth rate of employment in the eighties. Rest picture is same as 80s except industry group of manufacture of basic metal and alloys and metal products and parts. In these two industry group in nineties there is negative growth of employment.

The southern state of Tamil Nadu has more or less, the same picture as Andhra Pradesh, where the total employment growth is 2.17 per cent per annum in the 80s but in the next period it increases to 4.65 per cent per annum. In the two-digit industry group manufacture of jute and other textiles and textile products recorded highest growth rate in 80s. The growth rate in manufacture of leather and leather products and other manufacturing industries is also moderate in the eighties. In the nineties the growth pattern is same, as eighties but the value of growth rate are little bit higher. In Tamil Nadu the manufacture of cotton textile is a prominent industry, which grows to 5.73 per cent per annum in 90s.

In Kerala the manufacture of food product industry is prominent. More than one third of total manufacturing employment engaged in this sector, there was negative growth rate of employment here. In the 80s there was negative growth rate in most of the

Table 4.1 Growth of Employment in Various States in Two-digit NIC (19980-81 to 1990-91)

STATES	20+21	22	23	24	25	26	27	28	29	30	31	32	33	34	35+36	37	38	Total
Andhra Pradesh	-0.25	2.52	2.04	4.11	-0.62	6.11	-2.32	3.19	10.98	-2.64	13.72	8.95	7.49	13.41	3.76	-3.65	3.99	2.72
Assam	-1.42	2.74	-3.73		-2.06	-9.79	0.43	-3.29		-16.07	11.35	14.35	1.59	5.37	9.00	-13.77		-0.64
Bihar	-8.81	11.17	-2.30	0.30	-4.02	1.87	5.25	-8.31	1.39	-2.04	-0.52	1.36	1.84	1.70	2.71	1.15		-0.04
Gujarat	-0.17	-3.61	-6.64	5.49		5.95	-4.73	1.02	3.17	3.30	5.91	1.10	0.16	2.65	1.47	-0.42	3.48	-0.56
Haryana	6.70	4.63	-0.56	2.05		5.68	4.72	1.08	18.77	1.12	2.54	10.08	-0.89	-2.58	2.08	6.38	5.19	3.53
Himachal Pradesh	4.14	3.42		25.44			-10.80	5.93		1.50	14.23	9.55	15.55	26.78	3.07		10.25	9.33
Jammu & Kashmir	1.73	4.37		-6.10		-19.14	-10.84	-0.79		1.45	6.90	-14.27	17.68	8.07	0.01		-5.86	-2.94
Karnataka	-4.24	-0.80	-3.20	3.47		14.25	-4.95	1.56	25.49	0.09	4.30	0.49	-1.79	6.62	2.88	3.89	5.67	0.83
Kerala	-2.33	6.87	-0.62			-3.00	-3.16	-1.67		1.73	1.17	1.12	2.54	1.35	1.07	-0.45	8.41	0.11
Madhya Pradesh	21.04	16.27	7.59	20.20		2.42	11.72	12.81	22.67	15.16	35.43	18.70	13.06	6.16	1.93	4.70	8.80	11.09
Maharashtra	-1.68	0.64	-3.96	-0.37		-0.40	-5.89	-1.24	7.61	-0.07	-0.17	0.85	-1.76	-0.97	-0.24	-2.34	0.04	-0.87
Orissa	-2.32	-1.08	4.22		-17.69	28.68	-1.70	-2.05	12.32	5.53	10.17	0.30	0.19	13.31	4.55	6.22	0.33	1.03
Punjab	4.16	3.48	3.88	6.09		12.47	-6.30	9.93	9.25	4.50	10.42	3.64	-0.85	1.01	2.61	6.21	-2.43	4.29
Rajasthan	-2.79	-0.08	-0.22	8.33		0.09	7.22	0.74	3.78	-2.48	13.74	5.67	1.24	3.95	3.58	-2.72	10.57	4.01
Tamil Nadu	-1.61	2.15	1.68	-6.08	17.32	10.86	-1.84	2.15	9.08	3.02	3.10	1.79	-1.59	0.56	2.73	2.69	6.87	2.17
Uttar Pradesh	-2.84	-3.26	-1.71	3.18	-4.61	9.35	3.31	4.03	4.38	4.28	13.38	0.68	-0.15	3.91	4.63	0.31	8.05	0.62
West Bengal	-2.40	-5.17	-6.44	1.15	-3.34	-5.13	-1.08	-4.40	-3.28	-2.43	0.03	-2.10	-0.64	-2.12	-1.94	-5.15	-0.69	-2.72

Sources: Annual Survey of Industries, Summary Result for Factory Sector, Ministry of Planning and Programme Implementation, GOI.

Table 4.2 Growth of Employment in Various States in Two-digit NIC (1990-91 to 1997-98)

STATES	20+21	22	23	24	25	26	27	28	29	30	31	32	33	34	35+36	37	38	39	Total
Andhra Pradesh	4.37	4.34	3.02	7.43	-8.85	26.08	2.82	-0.12	-9.78	10.86	8.02	2.12	-0.60	-2.11	-2.70	9.85	2.22	6.60	3.46
Assam	0.64		0.90	47.12	-0.19	-35.27	-1.04	11.91		26.21	1.39	12.24	2.32	5.64	0.28	38.07		-2.40	2.95
Bihar	-5.41	-11.45	-1.17	-34.70	-1.45	-7.45	14.47	7.29	-3.04	-3.60	-1.34	-0.30	-2.99	-1.97	-8.29	-4.73	-5.02	1.01	-2.95
Gujarat	3.31	-6.96	-4.14	5.58		0.89	6.33	1.84	-0.24	10.36	6.10	2.80	8.17	5.01	2.27	8.48	3.17	7.72	3.81
Harayana	-0.84	-5.98	-0.49	1.91		27.27	2.39	-6.45	32.84	7.28	5.33	-3.42	-0.77	10.92	1.38	9.26	13.10	-0.11	3.32
Himachal Pradesh	33.71	6.24		2.09		11.28	-0.52	2.56		3.17	3.59	0.32	2.21	5.00	8.57		-1.80	-10.92	8.73
Jammu & Kashmir	3.79	2.12	1.49	11.15		23.35	18.49	17.01		-3.57	20.53	32.39	-0.07	-4.62	13.38		14.24	5.05	8.76
Karnataka	0.89	4.23	-2.26	8.14	-6.41	19.87	-11.00	-0.28	16.42	5.58	6.25	-0.68	3.91	3.96	2.76	-1.65	3.72	36.50	6.21
Kerala	4.77	-1.99	4.33		14.24	2.10	5.60	11.39		4.51	13.68	3.94	3.88	2.31	3.73	-4.83	-6.74	9.73	4.34
Madhya Pradesh	3.58	-6.17	-0.17	6.28	1.33	6.14	-0.66	2.56	-1.43	0.86	6.04	-0.80	3.06	5.48	0.47	6.56	6.86	20.80	1.95
Maharashtra	2.62	3.18	-0.38	-1.86		3.27	1.48	3.40	4.15	2.85	7.06	-2.02	1.76	5.22	2.43	2.84	12.05	2.42	2.43
Orissa	7.12	6.06	-2.08		37.77	3.10	-4.10	2.80		2.07	24.38	0.48	5.48	-2.15	-1.36	-4.86	4.60	21.28	3.55
Punjab	0.87	3.70	-0.20	-3.72		-0.10	11.14	1.58	8.43	3.63	4.30	-1.55	0.60	5.36	-0.01	2.60	16.23	8.30	1.21
Rajasthan	3.34	13.00	-1.54	7.34		10.76	27.96	0.90	-1.22	7.65	-0.78	5.62	0.28	-1.92	2.53	-2.12	5.11	-2.11	3.16
Tamil Nadu	3.43	-0.75	5.37	1.03	7.80	16.07	-1.97	3.81	1.00	4.92	3.59	0.90	5.85	3.45	3.29	-0.35	5.30	13.95	4.67
Uttar Pradesh	-1.96	0.54	-1.08	3.21	1.30	9.96	5.28	3.58	-0.37	2.38	2.73	-8.17	1.46	-0.61	-0.92	1.69	11.87	-0.95	02
West Bengal	13.91	28.05	-1.63	-6.24	1.35	-1.46	0.51	1.41	-1.23	-1.02	-1.46	-1.69	-1.87	-0.99	-5.75	1.02	-1.29	20.18	1.54

Sources: Annual Survey of Industries, Summary Result for Factory Sector, Ministry of Planning and Programme Implementation, GOI.

industry groups and particularly in the agro-based industries. Manufacture of chemical and chemical products and non-metallic mineral products, which have substantial amount of employment, have moderate growth. So basically the slow growth in Kerala during the 80s was because of low or negative growth in the prominent industry group. But in the 90s the growth rate in Kerala is more than all India growth rate because the manufacture of food product, beverages and tobacco and cotton textile grow at a higher rate, which have employment more than half of total manufacturing employment. Other industries also performed well in terms of employment growth during the 90s.

Karnataka is an emerging industrial state and its growth pattern is same as Kerala i.e. low growth in the 80s but high growth in the 90s of manufacturing employment. Manufacture of food products, cotton textile and machinery and equipment industry has about half of total manufacturing employment. Out of this three industry group initial two have negative growth of -4.22 and -3.20 per cent per annum in the 80s, but employment in manufacture of machinery and equipment industry grow at a rate of 2.88 per cent per annum. In post reform period, employment growth rate in Kerala is highest in comparison to other industrially developed states. Manufacture of repair of capital industry grows at a fastest rate of 36.50 per cent per annum and this also have substantial amount of employment percentage (14.69 per cent in 1997-98).

The industrially backward states of Bihar, Orissa and Madhya Pradesh have same growth pattern. These states are rich in mineral resources and resource based industries are prominent here. Bihar has negative growth of employment through the study period. Manufacture of basic metal and alloy and non-metallic mineral products industries are prominent in Bihar, and it includes half of the total manufacturing employment. In spite of positive growth of employment in these two industry groups there was negative growth of employment in organized manufacturing sector. In the 90s in almost all the

industry group in Bihar, there is negative growth of employment. In the 80s high growth rate observed in Madhya Pradesh, but in the 90s the employment growth rate came down to 1.95 per cent per annum. In Orissa the growth pattern is same as Bihar, but in both the period of study there is positive growth of employment.

The growth rate of employment in Himachal Pradesh is high for both the period and it was 9.33 per cent per annum in the 80s and 8.73 per cent per annum in the 90s. But for Jammu and Kashmir there is negative growth rate in the 80s and 90s and the employment growth increased as much as Himachal Pradesh. In Jammu and Kashmir the manufacture of wool, silk, man-made fibre textile is a prominent industry group. There was negative growth of employment in this industry group, which attributed to negative growth in total manufacturing employment along with downfall of employment in other industry group. The disturb situation in this state also caused for the negative growth of employment.

Northeast state of Assam faced a negative growth of manufacturing employment in the 80s, where manufacture of food product is prominent and about two third of employment engaged here. The negative growth of 80s is because of the negative growth in food product industry group. Wood and wood products, which is also an important industry group grows very little in the 80s and negative growth in the 90s. In the 90s highest growth rate observed in the manufacture of transport equipment (38.07 per cent per annum).

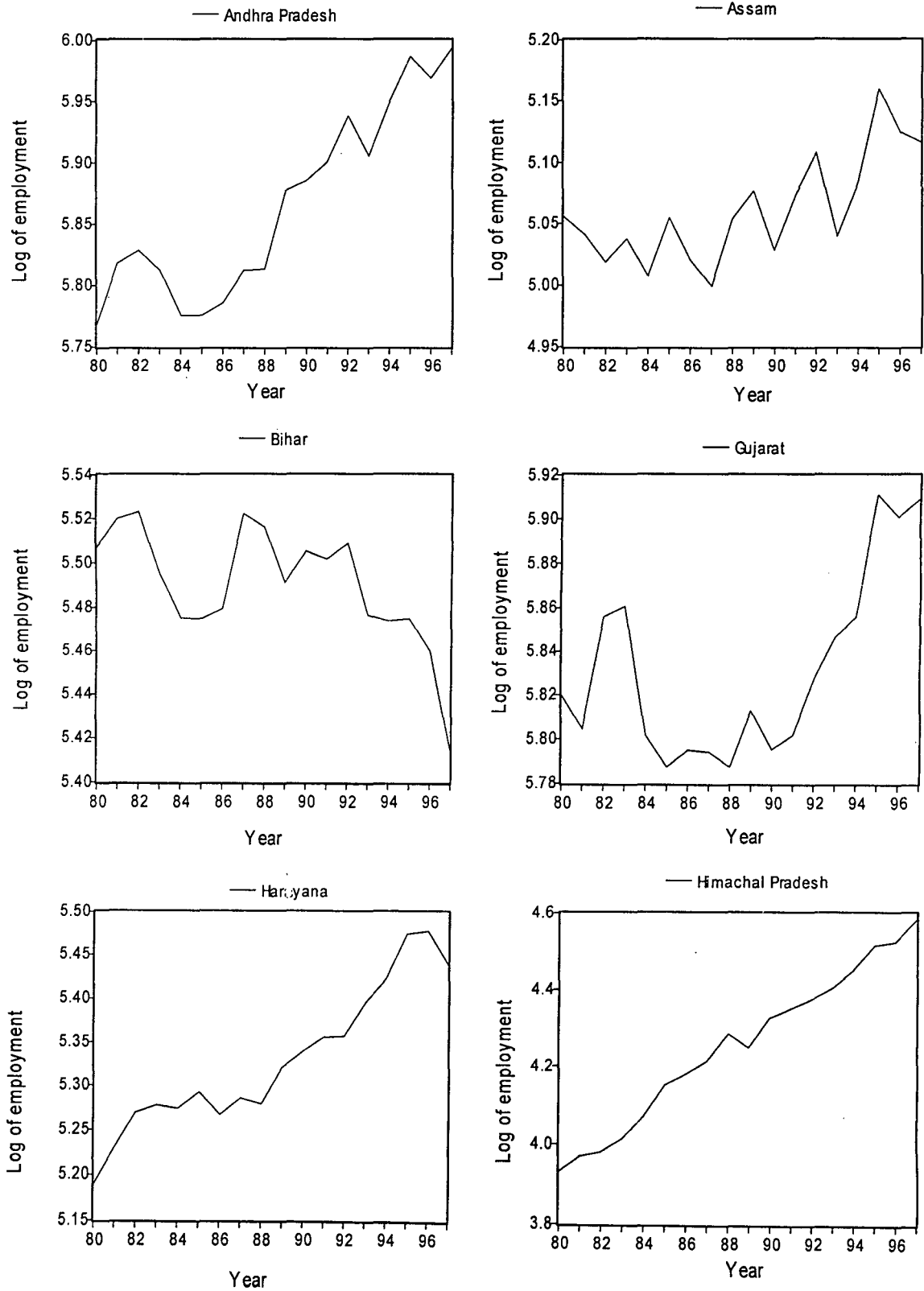
An important point to be noted in case of West Bengal, an industrially developed state that there is negative growth rate of employment in the 80s. This is because of bad work culture prevailed here. The labour unions are also very strong. Manufacture of jute and other textile industry group is a prominent industry and about one fourth of the industrial employment engaged in this industry group. In the 80s this industry

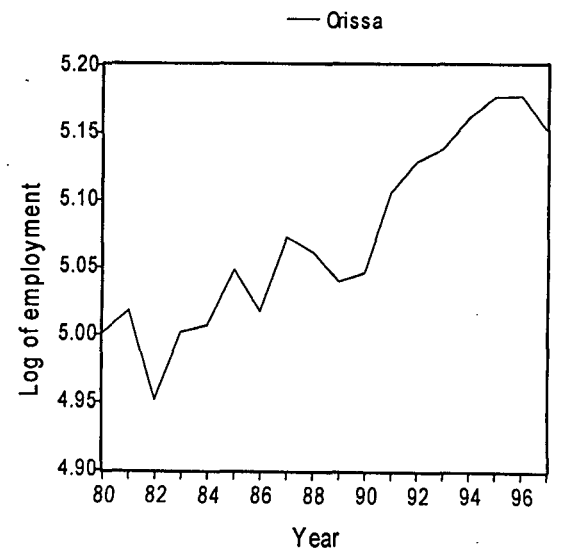
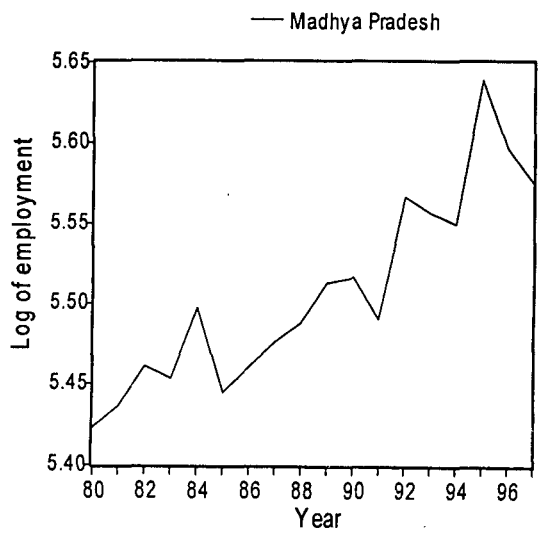
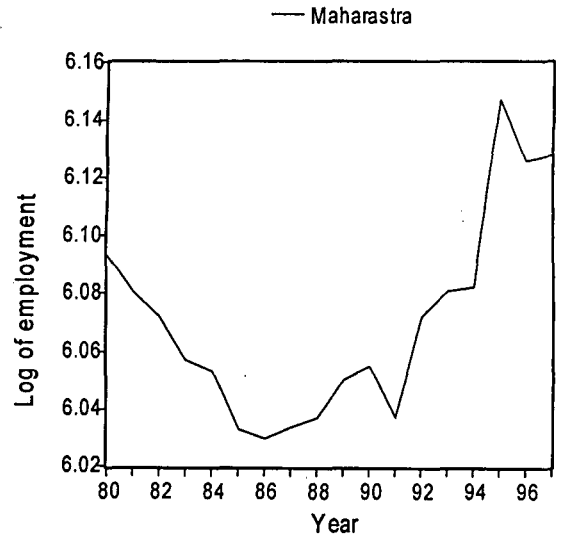
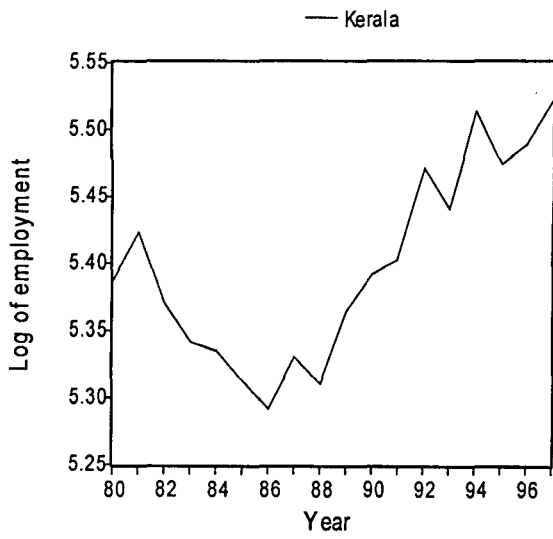
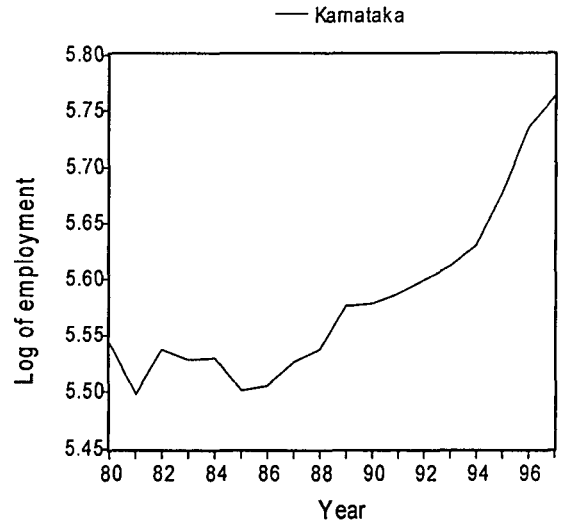
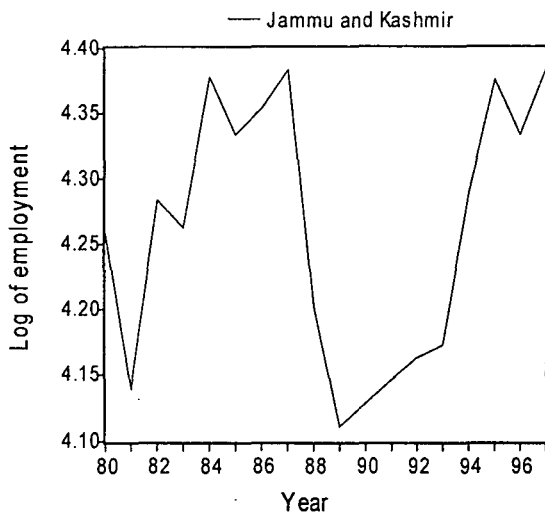
group with almost all other industry groups saw negative growth of employment. In the 90s the growth rate of total manufacturing employment is 1.54 per cent per annum and this is because of high growth of employment in the manufacture of food products and beverages and tobacco industries along with positive growth in jute and other textile industry group.

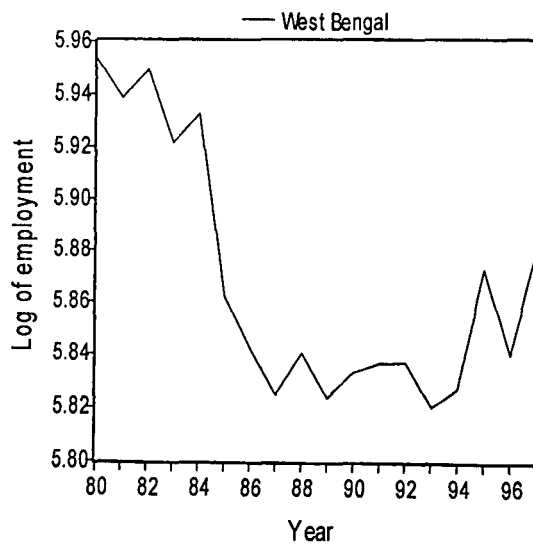
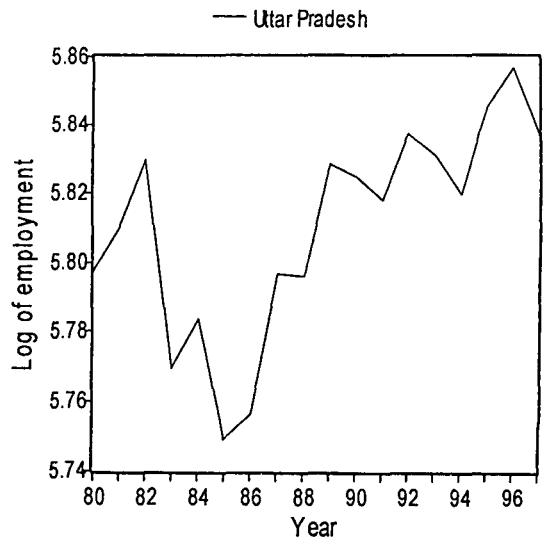
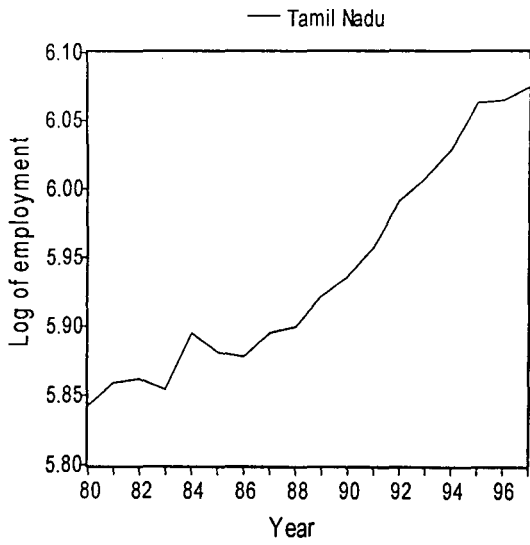
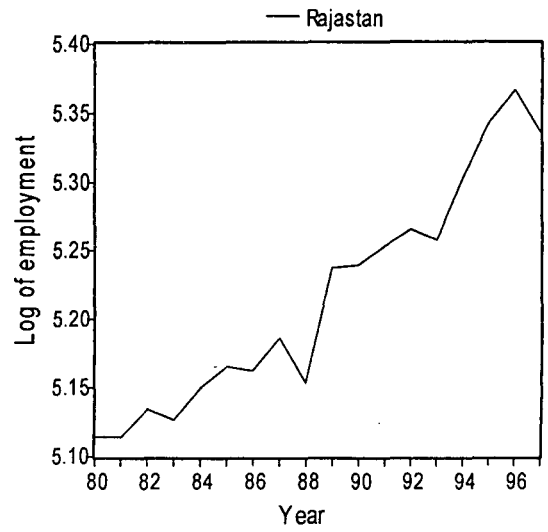
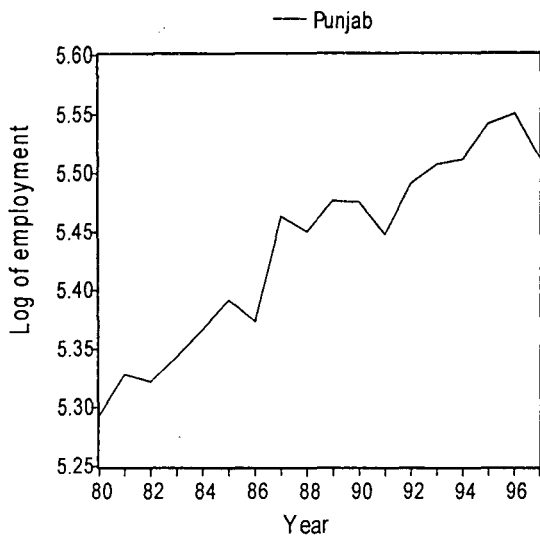
Industrially developed and major shareholders of industrial employment states of Maharashtra and Gujarat have negative growth of total manufacturing employment in the 80s. Manufacture of cotton textile is important industry here, and a reasonable percentage of employment engaged in this industry faced negative growth of employment in the 80s. This is because of shut down of many textile mills in these states. In the 90s there is shift of employment from textile industries to other industry group. Therefore in spite of negative growth rate of employment in cotton textile industry group the employment growth rate is high in the 90s. Rajasthan which has same industrial pattern with the western states of Maharashtra and Gujarat saw positive growth rate of employment in both the period of time. But like these two states there is negative growth rate observed in the cotton textile industry group.

The growth pattern of agriculturally well developed states of Haryana and Punjab have same growth pattern in the 80s. There is high growth of total manufacturing employment but in the 90s the growth rate is higher in Haryana than Punjab. The growth rate of Punjab for 80s was 4.29 per cent per annum and it was 1.21 per cent per annum in 90s. In Uttar Pradesh for both the period of time the growth rate is very minimal i.e. 0.62 per cent per annum for 80s and 0.002 per cent per annum for 90s. Manufacture of food products, which is a important industry group in Uttar Pradesh has negative growth of employment throughout the whole period.

Fig:4.1 Trends of Employment in Various States in Two-digit Industry Groups in Organised Manufacturing Industries







Thus it is concluded from this section of our study that, the growth pattern of various states differs from one another. The southern states (Andhra Pradesh, Tamil Nadu, Karnataka and Kerala) have done well in terms of employment growth. There is high growth rate observed in these states in comparison to other states. Other industrially developed states of Maharashtra, Gujarat and West Bengal have negative growth of employment in 80s. The base industries of manufacture of cotton textile for Maharashtra and Gujarat, jute and other textile industry group for West Bengal have negative growth rate throughout the study period. High growth rate of manufacturing employment is observed in Himachal Pradesh in both period of post and pre liberalisation.

4.2-The Pattern of Industrial Structure

This section of the present chapter will be devoted to the structural changes in the pattern of industrial development in India over the period of study. The relevance of structural changes in the pattern of industrialisation has been widely discussed by many scholars and the most significant among them being Hoffman(1985), Chenery(1960), and Kuznets(1971). The common ideas that seen through their discussion are the fact that there has been a continuous structural change in the pattern of industrialisation with the level of development. In other words, the process of industrialisation involves a significant change in the economic activities of different regions along with an overall change in the industrial structure.

Here the study would mainly remain confined to gathering some ideas regarding the industrial structure of the region (states), considered in the study. In fact, it tries to give an idea regarding the industrial bases of the various states, over the study period and if any changes that have taken place in those regions, if any. Here we take up the two-digit industry groups to observe the changes in the industrial bases of the regions.

As discussed earlier, the industrial bases of the regions were mainly studied on the basis of Location Quotient (LQ), as done by Alagh et.al (1971) and the extent of diversification of industries in a particular region with respect to national economy has been studied by coefficient of specialization. Though specialization coefficient gives an idea of the extent of diversity but LQ usually does not provide a clear idea of the extent of concentration of a particular industry in a region. If the value of LQ is greater than one it gives the idea that the industry is prominent in that region. Hence, to overcome this problem in our study, we have considered very simple measure, to show the level of concentration of various manufacturing industries at the two-digit industry group. In fact, we have simply taken the percentage of employees in the particular industry to that of the total industrial employment in the state, which is presented in the table-4.3.

As Papola (1981) reveals, with the progress of industrialization of a region gradually, the extent of concentration of the resources based industries declines and industrial structure becomes much more broad and diversified covering many capital as well as intermediate goods along with the consumer goods. Here the study reveals that as many as 14 states have a substantial share of their total organized industry employment in the manufacture of food products and ten of these fourteen states have even more than 10 per cent of the total employment of the state in 1980-81. In the next period of study, though the relative share of the manufacture of food products in total industrial employment has gone down, but the numbers of states have almost remained the same. It is a noticeable fact also that, in all the periods under study, more than 50 per cent of the total industrial employment has been provided by the manufacture of food products for Assam.

One can look carefully into the fact that in 1980-81, nearly three fourth of the total employment in Assam had been generated by the manufacture of food products

and wood and wood products furniture and fixtures. An increase is observed in 1990-91 in wood product furniture and fixtures but in 1997-98 again it declines. These two industry groups comprise nearly two-third proportion employment in the organised manufacture sector. Thus over the period of study, the industrial scenario of Assam was dominated by raw material based industries.

Another important issue revealed from the study provides that for Madhya Pradesh, Orissa, and Bihar a substantial employment is generated in the manufacture of non-metallic mineral products and basic metal and alloy industry. This can be explained reasonably that these three states are resource rich regions and a significant amount of public investment took place particularly after independence. In 1980-81, their share in employment has been 9.51, 37.92 and 37.46 per cent for Madhya Pradesh, Orissa and Bihar respectively. In the subsequent periods, no significant decline has been observed and rather for Madhya Pradesh and Bihar the share has increased gradually in 1990-91. But in 1997-98 for Madhya Pradesh again it declines. Another important industry, which contributed to the employment generation in these three states, was the manufacture of food products. In addition, manufacture of cotton textile has played a significant role for Madhya Pradesh and Bihar. The same role was played by the manufacture of paper and paper products, printing publishing and allied industries, which can be accounted to the fact that a substantial area in Orissa remains under forest giving way for the paper industries.

An interesting feature of the developed states of western India, i.e. Gujarat and Maharashtra, reflect major concentration of the manufacture of food products, cotton textile and chemical and chemical products. In 1980-81, the concentration in Gujarat was much more than Maharashtra, because these three industries have a share of 57.06 per cent of employment in Gujarat, and it was just 39.15 per cent in Maharashtra. Comparatively

the diversification in Maharashtra is more, where manufactures of transport equipment and parts also have a substantial share in total industrial employment. In fact, for both these states, the diversification has increased during 1990-91, where other industries have also come over the scene. As for Gujarat, manufacture of non-metallic mineral products and wool, silk and synthetic fiber textiles have played a significant role. The manufacture of wool, silk and synthetic fiber became also important in Maharashtra also in addition to basic metal and alloy industries. The year 1990-91 gradually observed a spread effect in industries which was further increased in 1997-98. The year 1997-98, observed a wide spread diversification in both these states, with five to six industries having more than 8 to 9 per cent of the total industrial employment and even more and many other having 4 to 5 per cent of the share of total industrial employment.

In the southern states, Andhra Pradesh, Kerala mainly specializes in manufacture of beverages, tobacco products while Tamil Nadu and Karnataka mainly specialize in cloth textile. In addition, all the four southern states have a substantial employment generated by the manufacture of food products. While food products and beverages, tobacco products provide 52.5 and 46.36 per cent of total industrial employment in Andhra Pradesh and Kerala respectively in 1980-81, manufacture of food products and cotton textile contributed for 35.77 and 33.36 per cent respectively for Tamil Nadu and Karnataka for the same year. Andhra Pradesh and Kerala have almost maintained the same position of concentration in 1990-91 though some employment was generated by the manufacture of cotton textile in Kerala. Karnataka and Tamil Nadu came up with high level of diversification, particularly specializing in wide spectrum of intermediate and capital goods covering every type of machinery and equipment on the one hand and petroleum, chemical, mineral products on the other. So the share of intermediate and capital goods increased at the cost of decline in the share of the

employment generated by the consumer goods as manufacture of food products and cotton textiles, though the decline was not significant. The share of these industries further increase and a widespread diversification was observed in 1997-98 for Tamil Nadu and Karnataka.

The northwestern states of Punjab, Haryana and Uttar Pradesh reflect a unique feature, and Uttar Pradesh mainly concentrates in manufacture of food products and cotton textile, whose share in total industrial employment stands at 43.23 per cent in 1980-81. This has in fact gone down in 1990-91 and further in 1997-98 giving way to machinery, machine tools and parts. The unique feature of Punjab and Haryana on the one hand reflects concentration of raw material based on food products and cotton textile and wool, silk man-made fiber textile, on the other hand it shows concentration of basic metal and alloy, machinery and equipment and transport equipment. The former group of industries in Punjab and Haryana is concentrated because these are the most agriculturally developed states and the latter group industries developed mainly because of certain regions of concentration of these industries. The type of industrial concentration, in Punjab and Haryana is often accounted for certain historical facts. (Pandit 1978).

Rajasthan on the other hand shows similarity with the other western states, due to the industrial base formed by the textile industries. On the other hand it also shows dissimilarity in the sense that it does not have any concentration of the manufacture of food products particularly because of the deserts which cover a substantial part of the state. Himachal Pradesh has a balanced structure because all the industries have by and large some proportion of employment to the total industrial employment. In fact a typical feature is observed that some of the industries could make headway but lost ground subsequently even not giving way to any other industries significantly. Jammu and Kashmir on the other hand has shown absolutely the type of industrial base formed

particularly in accordance with its climate. The year 1980-81 has shown a significant concentration of the manufacture of wool, silk, man-made fiber textile and textile products with a share of 31.37 per cent in the total industrial employment of the state. The year 1990-91 observed a drastic fall in the share of manufacture of textile products due to the disturbed situation in the state, since the output of this industry was mainly taken out for sale. Gradually the manufacture of textile products has given way to the food products, whose share has increased from 7.74 per cent in 1980-81 to 18.83 per cent in 1990-91. But again it declines in 1997-98. The year 1990-91 also observed the development of chemical and chemical products and basic metal and alloy industries in Jammu and Kashmir. But in 1997-98 again these two industries lost their ground. Thus, in Jammu and Kashmir, a significant change has been observed in the industrial base over the period of the study.

In spite of being considered a developed state, West Bengal could not show much significant diversification over time, as it was shown by Gujarat, Maharashtra, and Tamil Nadu. The year 1980-81 observed the concentration of the manufacture of jute and other textiles, basic metal and alloy, transport equipment with a share of almost half (49.61) of the total industrial employment of the state. This came down to 46.78 per cent in 1990-91 and further to 42.51 per cent in 1997-98, but the decline was quite insignificant. In 1990-91 of course a good share of employment has been generated by the machinery and equipment, which account for 10.22 per cent of the total industrial employment. Though the food products contributed 7.40 per cent of total industrial employment in 1980-81, its share has increased in 1990-91 to 7.46 and in 1997-98 it was 16.52 per cent. In fact the industrial base of West Bengal can be said to mainly concentration in the jute and other textile industries, which started earlier in the pre-independence period, particularly due to the favorable climate which helped its growing.

The study made in this section also reveals a significant feature of the industrial bases of various states. Though the major concentration of industries was mainly based on the raw material based industries for all most all the regions, it is a significant feature, that mainly a substantial proportion of employment is being generated in the manufacture of machinery and equipment and transport equipment, particularly for the developed states, like Maharashtra, Tamil Nadu and West Bengal. Even more concentration of these industries is being observed in Punjab, Haryana and Rajasthan. Here it is to seen that, the basic metal and alloy industries are mainly concentrated in the states where the natural resources are abundant, Bihar, Orissa, Madhya Pradesh form a substantial proportion of industrial employment in this particular industry group and to some extent, West Bengal which too has certain resources rich regions. Moreover, that though natural resources do play a significant role in bringing about the concentration of industries in different regions as has been seen in our study but for certain technologically improved industries, it is more the historical factors in general and the development of infrastructure in particular which has played a major role and consequently these industries got concentrated only in those areas which started coming up prior to independence. The colonial legacy, in fact, observed the concentration of these industries in the regions where certain advantages were found in those days and even more mainly industries get concentrated in the vicinity of these industrial areas.

The broad conclusions revealed by this part of the study can be mentioned as follows;

- In the whole period of study the industrial bases have more or less remained the same for almost all the states except for some states where one or two industries have been replaced by some other.

Table 4.3 Relative Shares of Each Industry in Two-digit NIC to Total Industrial Employment of the States. (Value in percentage)

(continue....)

STATES	20-21			22			23			24		
	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98
Andhra Pradesh	20.17	15.75	14.75	32.34	33.20	31.04	6.53	6.40	5.47	0.56	0.67	0.77
Assam	64.69	64.04	47.37	0.10	0.14	0	1.66	1.30	0.98	0	0.11	1.18
Bihar	14.57	6.14	5.50	1.19	3.65	2.06	1.12	0.94	1.15	0.22	0.24	0.02
Gujarat	9.91	10.09	9.81	1.85	1.32	0.62	37.35	19.46	11.21	5.37	9.49	10.75
Haryana	10.88	13.92	10.56	1.04	1.09	0.57	8.36	5.28	4.11	6.25	5.12	4.70
Himachal Pradesh	2.52	1.57	9.39	3.45	2.01	2.40	0	0	5.68	2.39	9.56	8.65
Jammu & Kashmir	7.74	18.83	7.72	1.46	4.61	1.69	0	3.43	1.20	22.04	24.09	15.95
Karnataka	20.75	12.72	9.08	3.22	2.81	2.52	12.62	8.63	4.93	1.41	1.88	2.18
Kerala	39.18	31.82	33.49	7.18	14.34	9.46	6.68	6.46	6.59	0	0	0.23
Madhya Pradesh	1.57	8.23	9.46	1.48	5.21	3.00	7.45	12.06	10.71	0.73	3.59	4.95
Maharashtra	11.10	10.11	10.24	4.67	5.37	5.65	18.15	13.08	10.77	4.95	5.15	3.82
Orissa	8.68	5.97	8.26	1.06	0.83	1.07	6.81	8.95	6.61	0	0.16	0
Punjab	17.40	15.34	14.38	1.43	1.18	1.34	9.24	7.93	6.90	9.26	9.80	6.64
Rajasthan	8.00	4.78	4.98	1.07	0.84	1.65	16.36	12.68	9.42	8.18	14.42	19.62
Tamil Nadu	17.30	12.15	11.64	1.18	1.20	0.86	18.47	18.03	19.68	1.98	0.87	0.71
Uttar Pradesh	34.06	24.93	22.31	3.12	2.19	2.34	9.26	7.61	7.25	1.16	1.55	1.99
West Bengal	7.40	7.45	16.52	0.58	0.44	2.21	6.24	4.12	3.27	1.10	1.59	0.90

Sources: Annual Survey of Industries, Summary Result for Factory Sector, Ministry of Planning and Programme Implementation, GOI.

(continue....)

25			26			27			28		
1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98
2.41	1.81	0.66	0.16	0.23	0.82	0.41	0.26	0.22	3.00	3.29	2.26
1.40	1.30	0.90	0.28	0.12	0	9.59	11.44	7.52	2.86	2.33	3.63
1.80	1.26	1.51	0.16	0.20	0.15	0.36	0.63	2.15	2.78	1.24	2.68
0.01	0	0	1.05	1.93	1.59	0.59	0.38	0.45	2.40	2.75	2.41
0	0	0	0.96	1.11	4.84	0.32	0.34	0.32	5.16	3.85	1.94
0	0	0	0	0.43	0.71	1.97	0.26	0.20	4.54	3.35	3.13
0	0	0	9.34	2.29	3.14	4.39	2.86	2.96	1.50	2.85	2.70
0	0.05	0.02	1.70	6.09	14.53	2.28	1.30	0.39	4.91	5.42	3.57
0	0.83	1.60	2.04	1.55	1.36	5.03	3.75	4.17	3.56	3.09	4.99
0	0.42	0.41	0.27	0.27	0.37	0.28	0.66	0.56	1.33	3.46	3.71
0.02	0	0	1.81	1.88	1.99	0.52	0.30	0.28	3.75	3.57	3.82
1.69	0.21	1.69	0.05	0.56	0.59	2.46	1.80	1.15	9.57	6.76	7.02
0	0.01	0	1.74	3.30	2.90	0.45	0.14	0.25	1.18	1.78	1.75
0.09	0	0	1.33	1.06	1.80	0.06	0.10	0.46	1.55	1.33	1.17
0.05	0.22	0.28	1.99	4.60	9.88	0.64	0.44	0.29	3.71	3.79	3.73
0.91	0.55	0.62	0.63	1.49	2.99	0.29	0.39	0.58	2.48	3.59	4.72
24.63	22.52	22.03	0.79	0.60	0.48	0.62	0.72	0.66	3.56	2.92	2.87

(continue...)

29			30			31			32		
1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98
0.18	0.41	0.14	4.95	3.03	4.33	0.47	1.36	1.62	2.87	5.41	4.35
0	0	0	3.58	0.71	2.56	1.33	4.45	3.47	1.36	5.93	9.41
0.66	0.80	0.85	5.19	4.47	4.58	6.25	6.29	7.57	9.89	12.00	15.54
0.08	0.12	0.09	9.81	14.06	21.71	1.67	3.07	3.59	6.61	7.64	7.18
0.07	0.28	1.62	3.79	2.84	3.73	4.19	3.60	4.17	4.64	8.11	5.12
0	0	1.07	6.09	2.93	2.86	0.74	1.16	1.17	4.55	4.71	3.76
0	0	0.13	3.82	9.04	2.21	0.35	1.41	1.64	3.65	1.61	3.61
0.12	1.08	2.10	4.43	4.23	4.15	1.71	2.47	2.53	5.87	5.83	3.73
0	0	0	5.91	7.21	7.46	2.93	3.38	6.31	5.00	5.75	5.73
0.08	0.48	0.39	1.27	4.07	3.88	0.10	1.67	2.27	1.96	8.48	7.21
0.14	0.31	0.34	9.78	10.48	10.79	3.21	3.41	4.64	2.83	3.33	2.44
0.05	0.15	0	3.87	5.76	5.69	0.33	0.75	2.95	11.57	10.36	9.16
0.42	0.59	0.92	3.32	3.02	3.43	1.92	3.04	3.60	0.46	0.39	0.31
0.15	0.17	0.13	4.70	2.90	4.02	1.18	3.38	2.65	7.87	10.82	13.15
2.80	5.51	4.47	9.41	10.47	11.09	2.26	2.53	2.45	3.16	3.11	2.51
1.34	2.01	2.01	3.45	5.12	6.21	1.00	3.42	4.24	5.16	5.39	3.05
1.67	1.53	1.25	4.42	4.44	3.68	2.88	3.71	2.99	2.27	2.36	1.86

(continue.....)

33			34			35-36			37		
1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98	1980-81	1990-91	1997-98
3.36	5.54	3.69	0.90	2.52	1.51	6.65	7.70	4.41	2.60	1.44	1.93
1.37	1.83	1.52	0.57	1.10	1.15	0.68	1.84	1.33	1.96	0.51	3.44
26.85	34.16	36.51	0.72	0.90	1.04	3.79	5.24	3.78	8.67	10.30	9.70
3.47	3.65	4.90	2.21	2.98	3.25	9.33	11.18	10.13	1.86	1.84	2.52
8.86	5.42	4.13	6.00	3.09	5.13	20.92	17.19	15.22	8.85	10.98	16.43
2.06	3.64	3.31	0.52	2.32	2.56	7.93	4.46	6.20	0	0	2.67
0.87	9.12	2.87	1.40	6.22	1.41	2.59	5.32	4.04	1.54	0	0
6.35	5.01	4.39	1.67	2.99	2.63	15.23	19.13	15.52	4.46	6.18	3.69
1.30	1.72	1.71	1.19	1.40	1.25	4.12	4.71	4.62	1.78	1.75	0.94
6.22	16.53	18.35	1.33	1.88	2.45	9.00	8.48	7.88	2.14	2.63	3.69
5.40	4.88	4.66	4.23	4.14	5.00	12.86	13.55	13.55	7.69	6.56	6.75
25.14	22.26	27.67	1.21	3.67	2.70	2.55	3.46	2.69	0.18	0.28	0.17
10.90	5.87	5.41	4.95	3.21	4.08	9.93	7.53	6.65	9.79	10.49	11.08
6.12	5.49	4.64	1.69	1.97	1.43	7.05	7.94	7.84	9.06	5.44	3.88
3.96	2.79	3.14	2.31	2.02	1.94	9.34	10.09	9.58	8.52	9.17	6.77
4.32	4.15	4.72	1.70	2.43	2.39	6.89	10.59	10.20	5.13	5.17	5.97
12.85	15.49	12.09	2.97	3.09	2.56	9.67	10.22	6.01	11.58	8.77	8.39

38			39		
1980-81	1990-91	1997-98	1980-81	1990-91	1997-98
0.56	0.66	0.54		2.60	2.82
0	0	0		0.78	0.46
0	0.11	0.10		0.29	0.41
0.88	1.28	1.24		1.17	1.52
1.21	1.34	2.56		3.02	2.41
2.40	2.64	1.82		0.65	0.22
4.36	4.90	3.93		2.47	1.10
1.31	2.15	1.86		2.48	14.69
0.62	1.44	0.67		1.52	2.21
0.15	0.27	0.39		0.42	1.42
1.49	1.62	3.03		3.84	3.83
0.13	0.12	0.14		0.50	1.65
1.16	0.53	1.35		0.42	0.65
0.76	1.65	1.94		4.90	3.50
0.52	0.84	0.91		1.82	3.44
0.56	1.18	2.66		2.87	2.76
1.03	1.23	1.00		0.71	2.29

- In all the periods of study, the industrial bases of the regions are mainly formed by the raw material based industries, particularly manufacture of food products and textile based industries, according to the availability of resources in the region.
- Though mainly industrial bases have been formed by the availability of resources in the regions, but for some of the regions, historical factors and developed infrastructure network have played a much more significant role in determining the industrial bases, particularly for the industries not much developed on natural resources, as in Punjab, Haryana, West Bengal and Maharashtra.
- Except for some of the states as Gujarat, Maharashtra, Karnataka and Tamil Nadu, no significant diversification of industries has been observed during 1980-81 and 1997-98. Though these states have diversified a lot but in early 1990s, the raw material based industries form a substantial proportion as seen from the employment aspect.

4.3-Pattern of Inter-regional Industrial Inequality

In the previous section of this chapter we have studied the pattern of industrial structure of India. Now in this part we are going to take a look at the pattern of inter-regional industrial inequality. The problem of inter-regional industrial disparities is a widely observed phenomenon over the worlds, though the extent being much higher in the developing countries. The problem has been a major issue of concern since the implementation of the planning process in India in 1951. In the pre independence period there was a wide diversity in the industrial sector. As a consequence, the process of industrialization in the post independence India began with the foundation of huge inter-regional industrial inequality.

The study is confined to the organized manufacturing as it is concern of both central and state government, the former where does played a major role. Consequently it contributes most in bringing about inter-regional industrial inequality

(Dholakia 1989). He also showed that the weighted coefficient of variation (weighted by population) over all states is 72.33 per cent of registered manufacturing sector, while the same value came out to be just 46.72 per cent for the whole secondary sector during 1984-85 and the same pattern of results was obtained also during 1979-80.

The procedure adopted to study the inter-regional industrial disparity for organized manufacturing is just to look at the shares of various states in all state total, of (a) value of output (b) net value added (c) employment (d) fixed capital employed, and the changes in it over time calculated for three point of time 1980-81, 1990-91, and 1997-98.

In the next section, various established measures have been used to assess the regional inequality. The inequality measures are (I) Coefficient of Variation (II) Theil's Index (III) Gini's Coefficient. These three indices are chosen because these satisfies majority of the properties of a good measurement. Coefficient of Variation satisfies three out of four properties and Theil's Index satisfies all the four properties whereas Gini's co-efficient satisfy only two properties. The indicators taken for the inequality measures are (a) value of output per worker (b) net value added per worker (c) average employment per factory (d) fixed capital employed per factory.

Table 4.4 shows that the four industrially developed states of Maharashtra, West Bengal, Gujarat and Tamil Nadu accounted for nearly 56.43 per cent of total output produced in the organised manufacturing sector in India in 1980-81. These states contributed more than half (54.01) of the employment in organised manufacturing sector. While they comprises just 28 per cent of total population of India. (as per the 1991 population census). A similar trend observed in 1990-91 except West Bengal position where a sharp decline of both output and employment. So there is a significant decline of output and employment in the four industrially developed states. And this decline is due to stagnation in industrial activities in West Bengal between 1980-81 and 1990-91. The

Table: 4.4 Relative Share of The States to All India Total in Organised Manufacturing. (Value in percentage)

STATES	Number of Employee			Value of Output			Fixed Capital Employed			Net Value Added		
	1980	90	97	1980	90	97	1980	90	97	1980	90	97
Andhra Pradesh	9.18	11.04	11.62	5.23	6.32	7.57	5.70	13.99	7.49	4.61	5.61	9.14
Assam	1.76	1.53	1.54	1.06	1.21	1.00	1.16	1.27	0.79	0.95	1.70	1.09
Bihar	4.97	4.60	3.07	5.00	5.04	3.79	17.66	6.89	4.15	4.15	5.76	6.41
Gujarat	10.21	8.97	9.57	11.94	10.63	14.08	10.72	11.71	18.15	10.59	8.84	9.82
Haryana	2.39	3.15	3.25	2.87	3.92	4.59	2.71	2.53	2.99	3.00	3.56	3.94
Himachal Pradesh	0.13	0.31	0.45	0.12	0.33	0.57	0.26	0.34	0.88	0.10	0.34	0.61
Jammu & Kashmir	0.29	0.19	0.29	0.18	0.19	0.15	0.16	0.08	0.09	0.18	0.18	0.14
Karnataka	5.39	5.45	6.82	4.14	4.71	5.74	5.30	4.34	6.41	5.14	5.53	6.16
Kerala	3.77	3.54	3.92	3.47	2.42	2.83	2.79	2.01	1.67	3.09	2.66	2.38
Madhya Pradesh	1.78	4.72	4.44	7.87	5.40	5.66	7.69	7.03	5.74	5.24	6.03	6.75
Maharashtra	19.15	16.31	15.85	23.58	23.52	19.81	16.36	17.71	20.12	27.03	24.06	23.11
Orissa	1.55	1.60	1.68	1.20	1.82	1.51	2.60	3.60	2.03	1.57	2.10	1.32
Punjab	3.04	4.30	3.84	4.00	4.85	4.25	3.38	2.73	2.43	2.66	3.68	3.39
Rajasthan	2.01	2.49	2.56	2.37	3.18	3.45	2.72	3.19	3.96	2.15	3.12	2.84
Tamil Nadu	10.77	12.41	14.02	10.90	10.61	11.20	7.48	8.46	8.46	10.56	11.82	9.78
Uttar Pradesh	9.70	9.60	8.12	6.05	9.73	8.98	5.40	7.92	9.54	6.34	8.36	8.37
West Bengal	13.88	9.79	8.94	10	6.13	4.81	7.92	6.21	5.10	12.64	6.66	4.78

Sources: Annual Survey of Industries, Summary Result for Factory Sector, Ministry of Planning and Programme Implementation, GOI.

stagnation is due to the number of strikes and lockout leading to the loss of production and employment. The total number of mandays lost due to the disputes in West Bengal stood at 42 per cent of the total mandays lost in India in 1987. But in 1997-98 only in Gujarat the percentage of output increased.

A further exploration into the same table shows that in the industrially backward states of Assam, Bihar, Himachal Pradesh, Orissa the percentage of output share has gone up between 1980-81 and 1990-91 but in the next period of post liberalisation again it decreases. However, for Andhra Pradesh an emerging industrial state, the share in both employment and output increases.

A major objective of the study was to enquire whether any decline in regional disparity has been observed in the organised manufacturing over 80s and 90s. It has been observed that there has been a continuous downward trend in the level of industrial inequality and basically, it can be accounted for the fast industrialisation and development of infrastructure facilities in the second level industrialized states (Andhra Pradesh, Uttar Pradesh, Haryana, Punjab), which contributed to bringing down the inter-regional industrial disparity by increasing their share of employment and output in organized manufacturing sector.

Net value added represents the similar behavior as that has been shown by employment and output and the fixed capital employed on the other hand shows a continuous decline in the inequality. Basically this is due to the fact that the industrially developed and infrastructurally well built areas do not require much of the investment for further development, particularly fixed capital. Hence it is much required for the underdeveloped areas to bring down in the level of industrial disparity. Thus it can be concluded that it was in early 80s, where the removal of regional inequality was given importance among other objective, in 90s i.e. after economic reform and privatization

Table 4.5 Value of the Indicator

STATES	Average Employment per Factory			Value of Output per Worker			Fixed Capital Employed per Worker			Net Value Added per Worker		
	1980	90	97	1980	90	97	1980	90	97	1980	90	97
Andhra Pradesh	54.46	51.48	53.35	1.28	2.59	3.98	0.41	1.91	1.72	0.20	0.41	0.87
Assam	75.13	71.32	75.73	1.36	3.55	3.94	0.43	1.25	1.37	0.22	0.90	0.78
Bihar	84.84	101.58	85.95	2.27	4.95	7.56	2.32	2.26	3.61	0.33	1.02	2.32
Gujarat	60.53	58.37	62.20	2.63	5.36	8.98	0.69	1.97	5.05	0.41	0.80	1.14
Haryana	63.22	71.71	71.67	2.70	5.64	8.63	0.74	1.21	2.45	0.50	0.92	1.34
Himachal Pradesh	70.29	91.67	95.77	1.97	4.81	7.66	1.24	1.67	5.17	0.30	0.91	1.51
Jammu & Kashmir	63.08	58.98	70.58	1.38	4.43	3.27	0.36	0.65	0.82	0.25	0.75	0.53
Karnataka	67.79	65.29	85.66	1.73	3.91	5.14	0.64	1.20	2.50	0.38	0.82	1.00
Kerala	83.68	72.44	69.28	2.07	3.08	4.40	0.48	0.85	1.13	0.33	0.61	0.67
Madhya Pradesh	34.26	86.22	94.16	9.99	5.17	7.79	2.83	2.25	3.44	1.18	1.04	1.68
Maharashtra	82.27	74.35	69.61	2.77	6.52	7.63	0.56	1.64	3.38	0.56	1.20	1.62
Orissa	67.82	79.75	92.56	1.75	5.14	5.53	1.10	3.40	3.23	0.40	1.07	0.87
Punjab	35.14	48.37	52.30	2.97	5.10	6.76	0.73	0.96	1.68	0.35	0.70	0.98
Rajasthan	50.48	53.21	45.34	2.65	5.77	8.25	0.89	1.93	4.12	0.43	1.01	1.23
Tamil Nadu	70.67	60.91	62.00	2.28	3.86	4.88	0.45	1.03	1.61	0.39	0.77	0.77
Uttar Pradesh	93.00	68.00	70.39	1.40	4.58	6.76	0.36	1.25	3.13	0.26	0.71	1.14
West Bengal	147.92	128.87	132.38	1.62	2.83	3.29	0.37	0.96	1.52	0.36	0.55	0.59

Sources: Annual Survey of Industries, Summary Result for Factory Sector, Ministry of Planning and Programme Implementation, GOI.

these objectives of removal of regional imbalance was hidden in the shadow of achieving higher growth rates objective.

Here some of the sophisticated inequality indices, which as mentioned earlier, will be taken up to measure the magnitude and the direction of inter-regional industrial inequality after having a broad idea regarding the same. Table-4.5 shows the four macro variables (a) value of output per worker (b) net value added per worker (c) average number of worker per factory and (d) fixed capital employed per worker. Here with the help of three inequality indices in terms of four variables, we will look the situation of inter-regional industrial inequality, which is shown in the table 4.6. It is revealed that all the three inequality indices taken for the study show a decline between 1980-81 and 1990-91 and increases between 1990-91 and 1997-98, except employment where there is continuous decline of inequality throughout the period. But between 1980-81 and 1990-91 the decline is high and in the next period of 1990-91 and 1997-98 there is significant decline of inequality.

Table-4.6 Indices of inter-state regional industrial inequality in India

	Value of Output per Worker		
	1980-81	1990-91	1997-98
Gini's Coefficient	0.2855	0.1324	0.1750
Theil's Indix	0.0834	0.0124	0.021
CV (%)	77.10	23.45	30.73
	Net Value Added per Worker		
	1980-81	1990-91	1997-98
Gini's Coefficient	0.2308	0.1342	0.2183
Theil's Indix	0.0471	0.0128	0.0328
CV (%)	53.27	23.73	40.14
	Average Employment per Factory		
	1980-81	1990-91	1997-98
Gini's Coefficient	0.1765	0.1426	0.0284
Theil's Indix	0.0246	0.0146	0.0146
CV (%)	35.04	26.99	26.63
	Fixed Capital Employed per Worker		
	1980-81	1990-91	1997-98
Gini's Coefficient	0.3657	0.2301	0.2696
Theil's Indix	0.1045	0.0372	0.0501
CV (%)	79.10	42.92	47.82

Sources: Compiled and calculated from table 4.5

Thus broadly this section of the study concludes that the inequality has been declined during the 80s but in the post-reform period of 90s it increases in the organized manufacturing industries. This can be explained on the background that the early 80s had the major concern of the removal of regional industrial inequality. But the economic liberalization period which opens its economy for the world market with the objective of achieving high economic growth and for which certain procedures and policies have been adopted by the government to help the industrially developed regions, increases the inequality in the organized manufacturing sector.

CHAPTER-V

PRODUCTIVITY IN ORGANISED MANUFACTURING SECTOR IN DIFFERENT STATES

Economic and Industrial growth is the result of the interaction of two key factors: investment in capabilities, which is a function of savings, and the productivity with which these capacities are utilised. In searching for explanations of India's hitherto lack-luster industrial growth, a low saving rate is not responsible, since that grew much more than expected. Therefore one possible reason can be the productivity of the investments, which were made.

In the 21st Century there has been an unprecedented race of advancement in all walks of life. As economist, we are more directly concerned with the changes that have come about in the economies. Advancement of knowledge, translated in to technological progress, define the direction and speed of growth of output in all sectors of any economy. Productivity, as a source of increasing levels of output as well as improvements in productivity as a result of superior technological choices available, are the foremost factors affecting economic growth.

A productive economy has comparatively a high ratio of surplus to capital, high level of labour productivity, low-level of capital output ratio and high levels of profit rate. If the productivity growth rate is high and rising, such an economy have large surplus, and can achieve poverty eradication, full employment and self-reliance in balance of payments.

Studies of productivity acquire great significance in the context of growth in developing economies as these economies are characterized by acute shortage of capital resources and must use available resources as best as they can. It was eventually due to

sustained productivity growth that the developed countries could succeed in wiping out mass poverty. Such productivity growth has made these countries less and less dependent upon capital accumulation.

Productivity is an important feature of modern day economics. In more recent years equal importance has been given to productivity growth along with capital accumulation, though the initial emphasis was only on capital accumulation as the central driving force of the process of development. Productivity growth is crucial in both the classical and structural forms of development. The classical forms of development maintains that the growth takes place as a result of the long term effects of capital accumulation, labour force, expansion and total factor productivity including technological change under conditions of competitive equilibrium. The structural form of development maintains that a shift of labour and capital from less productive sector can accelerate growth.

According to Kuznets(1966) the development and structural transformation of the new developed economies was due to the substantial contribution made by the growth of productivity. The demand-side factors reinforced the growth process in industry because the income elasticity of demand for industrial goods was higher than that for agricultural product. On account of competitive pricing, productivity increase led to a decline in the price of industrial goods comparative to that of agriculture. The price elasticity of demand for industrial goods also accelerated the demand for industrial goods and facilitated the shift of factors from agriculture to industry.

Productivity refers to a comparison between the quality of goods and services produced and the quantity of resources employed in turning out those goods and services. When the same resources as employed before give comparatively higher output or alternatively, to sustain the same output as before less resources are required than in the

past, we can say that productivity has increased. If productivity is increasing in an economy, it implies that improvements in the factor of production are manifesting themselves as increase in output efficiency.

Thus, productivity is a necessary element of economic growth. More over a rising productivity connotes several things – higher wage rates, larger and growing employment potential, price stability and great level of living.

5.1 Literature Review

The output of an industry is a result of an efficient combination of the different factors of production. The productivity of the industry can be measured in terms of the productivity of its constituent factors of production. Such as labour and capital however, the partial productivity measures have limitation as in situations where capital intensity is increasing over time. Partial productivity measures such as labours productivity may show an increase but this could be more a reflection rising capital-labour ratios rather than pure productivity increase. This problem is resolved by analysing total factor productivity growth, which encompasses the effect not only of technical progress but also of better utilization of capacities, learning-by-doing and improved skills labour (Ahluwalia 1991).

A review of studies exclusively concerned with total factor productivity (TFP) change in Indian Industries by various economists, Brahmanand(1982), Goldar(1985) Karishna(1987), Ahluwalia(1986 and 1991), Balakrishnan and Pushpangadan(1994), Rao (1996^a).

Krishna (1987) in his review of studies during the 1960s and 1970s observed that all studies agreed upon a deceleration in the TFP since 1960s. Ahluwalia(1991) observed a decline in TFP during the 1970s and a turnaround in the first half of the 1980s. Brahamananda's study covers all sectors in the Indian economy. He

works out partial and total factor productivity ratios for the year 1960-61, 1970-71 and 1980-81 with 1950-51 as base. According to his estimate the productivity performance during 1971-81 was worse than in the earlier two decades in all sectors. Between 1950-51 and 1970-71, the productivity growth was 1.8 per cent per annum, the total growth rate being 3.7 per cent. Thus, during the first two decades of planning in India, the contribution of productivity growth was nearly 50 per cent. The productivity growth rate declined to zero between 1970-71 and 1980-81.

Goldar's study (1985) covers the period 1951-79 and presents two sets of estimates. The first set related to the period 1951-65 covering the industries in the census to manufacturing industries (CMI), and the second set related to 1959-79, the main data source being the Annual Survey of Industries (ASI). During 1951-65, the TFP grew at 1.3 percent per annum, its contribution to growth in value added being about 21 percent. However, the productivity performance during 1956-65 was inferior to that during 1951-56, showing that as industrialization preceded productivity efficiency suffers a set back.

Goldar's estimation of productivity growth for the period 1959-79 as a whole and for three sub-periods relate to relatively large establishments in the registered sector. The rate of increase in capital intensify was highest in the sub-period, 1959-65 & 1965-70. In spite of decline in capital productivity in these two-sum periods, TFP growth was positive in these two sub-periods. According to him productivity performance in the 70s was better than in the 60s. His results indicate an improvement in productivity performance in the post-1965 period over the pre 1965 period.

Ahluwalia(1986) has worked out the solow and translog measures of TFP change at different levels of industrial aggregation for the period 1959-80 and for the two sub-periods 1959-65 and 1966-80. Ahluwalia presents four alternative estimates of TFP change for total industry, manufacturing and for the use-based and input-based

clarification of industries. Of these, one relates to the slow measure and three to the translog measure. The three-translog measure differs themselves. Slightly in regard to the Capital stock series used. The estimates of average annual TFP change over the period 1959-80 for aggregate manufacturing ranged between -0.2 and 0.3 per cent and total industry between -0.3 and 0.6 per cent the results show that during the periods of the 60s and 70s as a whole there was little change in TFP.

The second work of Ahluwalia(1991) analyses the trends in productivity performance in the organised manufacturing sector at a detail level of desegregations, with a view to understanding the productivity performance over time and across industries. For the manufacturing sector as a whole, the growth accounting estimates of TFP growth suggest virtually zero growth (-0.04 per cent per annum) in TFP over the period from 1959-50 to 1985 - 86. After two decades of industrial stagnation there was faster rate of industrial growth in the 1980s. Ahluwalia found a turn around in productivity growth in the period since 1982-83. For the manufacturing sectors the turnaround was a negative and negligible growth in TFP in 60s and 70s to a significant 3.4 per cent per annum in the first half of 80s.

So according to Goldar's estimates, TFP growth was 1.3 per cent per annum and according to Ahluwalia it lay in the range of -0.6 to 0.3 during 1960-80. However the result of Ahluwalia has been contested on the ground that the use of appropriate induces to deflate the value added would lead to the opposite result, a slower growth in the 1980s than in the earlier decade (Balakrishnan and Pushpangadan 1994, Rao 1996a)

Till the studies reviewed above are related to the growth of productivity in the industrial or manufacturing sector at all India level, the main objective of this chapter is to analyse the inter-state variations in the rates of growth of partial productivity and total

factor productivity in the organised manufacturing sector during the period 1980-81 to 1997-98.

5.2 Database and Methodology

The basic source for time series data on value added, Capital stock, employment, share of wayer for organised manufacturing industries is the Annual Survey of Industries.

The methodology used to calculate the total factor productivity is growth accounting technique. Using a translog production function, the rate of growth of total factor productivity TFPG, is given by

$$TFPG(t) = \Delta \ln V(t) - [(S_l(t) + S_l(t-1))/2] \Delta \ln L(t) - [(S_k(t) + S_k(t-1))/2] \Delta \ln K(t)$$

Where V= Value added

L= Labour input

K= Capital input

$S_l(t)$ = share of labour income in value added in period t

$S_k(t)$ =share of capital income in value added in period t

The share of capital income in value added in period t is defined as $(1 - S_l(t))$.

5.3 Appropriate Deflator

Since the industrial data given by ASI was at Constant prices, we used the wholesale price indices for the nearest relevant category as deflators in obtaining value added, wages paid, Capital stock at constant prices. The whole data was converted to data at 1980-81 constant prices.

5.4 Growth in Organised Manufacturing Sector

The trend in growth of value added, employment and capital in organised Manufacturing sector for various states are presented in table 5.1 for two period of time 1980-81 to 1997-98. The growth of employment in post-reform period of 90s is higher than pre-reform period of 80s for all the states. But the growth of capital for Andhra

Table 5.1 Growth of Value Added, Employment and Capital.

STATES	Value Added		Employment		Capital	
	1980-81 to 1990-91	1990-91 to 1997-98	1980-81 to 1990-91	1990-91 to 1997-98	1980-81 to 1990-91	1990-91 to 1997-98
Andhra Pradesh	6.85	15.69	2.72	3.46	9.74	1.53
Assam	16.18	0.09	-0.64	2.95	16.83	5.59
Bihar	10.78	7.99	-0.04	-2.95	-1.09	6.25
Gujarat	6.87	13.47	-0.56	3.81	8.73	23.00
Haryana	7.53	12.39	3.53	3.32	8.60	16.99
Himachal Pradesh	18.17	18.53	9.33	8.73	14.10	30.31
Jammu & Kashmir	4.86	2.81	-2.94	8.76	5.12	12.71
Karnataka	8.01	10.14	0.83	6.21	8.30	18.91
Kerala	7.44	6.46	0.11	4.43	5.44	9.87
Madhya Pradesh	6.70	12.05	11.09	1.95	8.07	13.31
Maharashtra	5.99	9.70	-0.87	2.43	9.52	16.52
Orissa	12.45	1.58	1.03	3.55	20.22	5.54
Punjab	9.94	8.09	4.29	1.21	7.27	12.18
Rajasthan	8.49	8.28	4.01	3.16	11.85	17.06
Tamil Nadu	7.43	6.68	2.17	4.67	9.83	15.31
Uttar Pradesh	10.69	9.05	0.62	02	10.61	16.52
West Bengal	-0.48	3.10	-2.72	1.54	3.97	8.21

Pradesh, Assam, Orissa declined and in the remaining all the states it increases. Higher growth of capital observed in the states of Gujarat (8.75 to 23.00), Himachal Pradesh(14.10 to 30.31) and Maharashtra(9.52 to 16.52).

A trend of increasing growth rate in value added over the previous period is observed for the industrially developed states. In Andhra Pradesh the growth of value added increased from 6.85 to 15.69 per cent per annum. Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra and West Bengal have increasing growth rate of value added. In all other states have positive and substantial growth of value added but the value is low in compared to pre-reform period of 80s.

5.5 Growth of Productivity

5.5.1 Partial Factor Productivity

Labour productivity and capital productivity are two measures of partial factor productivity. Sometime the different partial productivity move in opposite directions and render a judgment of overall efficiency impossible. But they do provide fair idea, whether any saving in inputs is achieved overtime and have been used to answer the question to source of growth of output.

The growths in partial factor productivity are dominantly affected by the growth in capital intensity. It is important to note that in a situation where the growth of capital intensity is increasing overtime, the analyses of partial productivity changes would overstate the increase in labour productivity and understate the increase in capital productivity. A change in labour productivity may also be due to a combined effect of a change in three factors. The efficiency of factor use may have changed; secondly, the amount of capital employed per worker may have changed and finally, the quality of labour may have changed.

Table 5.2 shows the growth of labour productivity, capital productivity and capital intensity for two period of time of 1980-81 to 1990-91 to 1997-98 for various states of organised manufacturing industries. During the pre-liberalisation period of 1980-81 and 1990-91 there is high growth of labour productivity observed in all most all states except Madhya Pradesh, where the growth rate is minimal of 0.42 percent per annum. In the same period highest growth of labour productivity is seen in Assam (12.33), Himachal Pradesh (10.05) Jammu & Kashmir (11.04), Orissa (11.04) and Uttar Pradesh (12.12). In the remaining states the growths of labour productivity range between 5.35 to 8.63 percent per annum. In the Post-liberalisation period of 1990-91 to 1997-98 the growth rate of labor productivity declined from the previous period in all states. The growth rate did not touch the double figure. In Jammu and Kashmir there is negative labour productivity growth of -6.40. After 1990 Jammu and Kashmir is the most disturbed part of India and it effects industrial sector and particularly industrial labour heavily. Assam and Orissa are two states where the labour productivity growth is minimal of 0.94 and 0.02 per cent per annum respectively. In all other states the labour productivity growth rate ranges from 2.43 to 7.41 per cent per annum.

The growth of capital productivity shows a diversified picture for various states. Capital productivity is directly affected by capital intensity. So in the states where the growth of capital intensity is high, the growth of capital productivity is low or negative. In the pre-reform period of 80s states the following states have negative growth rate, Assam (-6.94), Gujarat (-2.37), Madhya Pradesh (-1.07), Maharashtra (-3.00), Orissa (-5.91). Rajasthan (-1.22) and Tamil Nadu (-2.29).

In the reform period of the nineties, an increase in capital intensity and decline in capital productivity is observed in all states in organised manufacturing sector. In Andhra Pradesh, there is a decline of growth of capital intensity from 8.54 to - 1.91 percent per

Table:5.2 Growth Rate of Labour Productivity, Capital Productivity and Capital Intensity (Percent per annum)

STATES	Labour Productivity		Capital Productivity		Capital Intensity	
	1980-81 to 1990-91	1990-91 to 1997-98	1980-81 to 1990-91	1990-91 to 1997-98	1980-81 to 1990-91	1990-91 to 1997-98
Andhra Pradesh	8.63	5.81	0.08	7.86	8.54	-1.91
Assam	12.33	0.94	-6.94	-1.54	16.55	2.52
Bihar	6.25	5.08	7.09	-3.65	-0.78	9.06
Gujarat	7.20	7.05	-2.37	-9.18	9.80	17.88
Haryana	7.20	6.80	0.93	-4.44	6.21	11.73
Himachal Pradesh	10.05	7.47	5.92	-10.20	3.90	19.68
Jammu & Kashmir	11.04	-6.40	5.46	-8.64	5.29	2.45
Karnataka	7.81	3.57	0.14	-7.30	7.66	11.72
Kerala	7.06	4.30	-0.39	-1.30	7.48	5.67
Madhya Pradesh	0.42	4.74	-1.07	-4.59	1.51	9.79
Maharashtra	7.76	3.78	-3.00	-8.00	11.03	12.80
Orissa	11.04	0.02	-5.91	-1.88	18.01	1.94
Punjab	5.35	3.07	2.88	-5.75	2.40	9.36
Rajasthan	7.80	0.85	-1.22	-5.78	9.13	12.34
Tamil Nadu	5.51	3.76	-2.29	-5.62	7.98	9.93
Uttar Pradesh	12.12	6.20	1.28	-8.34	10.71	15.87
West Bengal	5.98	2.43	-1.95	-4.16	8.08	6.88

Source: Computed and calculated from Annual Survey of Industries, Summary Results for Factory Sector.

annum and growth of capital productivity increases from 0.08 to 7.86 per cent per annum. In the post reform period there is negative growth rate of growth of capital productivity observed, and the negative growth rate is high in Maharashtra, Gujarat, Uttar Pradesh, Himachal Pradesh and Jammu and Kashmir, Punjab, Rajasthan and Tamil Nadu. This shows that the capital intensity growth is higher in these states. Thus the economic reform and induction of capital-intensive techniques lower the growth of labour productivity.

5.5.2 Total Factor Productivity

The partial factor productivity, labour and capital are not sufficient indicators of efficiency since the increase in labour productivity could be due to change in the capital-labour ratios. The total factor productivity (TFP), or technical change, captures growth in value added not accounted for by the growth in inputs such as labour and capital. TFP growth is a residual productivity growth and includes the effect of technological changes, better utilization of capacities, skills and organisation.

Table: 5.3 Total Factor Productivity Growth

STATES	1980-81to 1990-91	1990-91to 1997-98
Andhra Pradesh	1.25	1.17
Assam	-0.89	-1.12
Bihar	-1.02	-2.25
Gujarat	2.35	1.84
Haryana	0.97	0.03
Himachal Pradesh	-1.87	-2.01
Jammu & Kashmir	-1.99	-3.3
Karnataka	0.86	0.36
Kerala	1.21	1.15
Madhya Pradesh	1.41	1.45
Maharashtra	1.01	1.21
Orissa	0.28	-1.53
Punjab	0.95	-0.05
Rajasthan	-0.94	-1.03
Tamil Nadu	1.13	0.79
Uttar Pradesh	1.18	0.17
West Bengal	0.60	-0.97

The total factor productivity growth for the period 1980-81 to 1990-91 and 1990-91 to 1997-98 for various states of organised manufacturing sector shown in table 5.3. The table reveals that there is diversified productivity growth rate among different states. In the pre reform period of 80s in Andhra Pradesh Gujarat, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh high growth of total factor productivity observed. In the Industrially backward states there is negative growth rate observed. In the 90s there is decline in the growth of total factor productivity in all most all the states. In the 90s there is substantial growth of labour and capital resulting in high growth efficiency in the use of resources, resulting in a lower TFP growth.

It is concluded from this chapter, that the growth of value added, employment and capital in the organised Manufacturing sector for almost all the states surged forward after the introduction of economic reforms. However, this growth was achieved with an inefficient use of resources as reflected in declining of both partial factor productivity (labour and capital) and total factor productivity. The pre liberalisation period of 80s has shown high growth of productivity in every state. But after reform the growth of capital intensity is high and the labour productivity and capital productivity is low in comparison to pre-reform period. For majority of the states the total factor productivity was high in 1980-81 to 1990-91 and for the subsequent period it goes downward.

CHAPTER-VI

CONCLUSIONS

Economic growth requires transformation from a state of the dominance of the agricultural sector to that of the industrial sector. Economists have always realised the need for structural changes with the process of economic development. It is felt that economic development proceeds by big spurts rather than by gradual changes. And the big spurt is the process of industrialisation. The most common characteristic of high per capital income countries has a high degree of industrialisation and vice-versa.

Employment and productivity are two important concepts in the study of industrialisation. Proper employment for every able-bodied person has always been regarded as the prime goal of development activity in a state or region as this ensures the fulfillment of all basic human needs. The Indian economy is predominantly agricultural in character but the industrial sector has a wider scope in India because of the availability of manpower and raw material. Industrial sector can be solved the problem of unemployment and underemployment in India. Employment in the organised manufacturing sector is more preferable than unorganised sector because of higher wages, greater social security and other benefit. So this sector is given more priority. The balanced regional development and in particular balanced industrial development is an important topic for discussion. The industrial structure of India is also found to be a consequence of colonial legacy. So there is a wide variation in the industrial bases seen in India. The workers in India are not much mobile because of socio-cultural condition prevailed in the society. Thus the importance of the removal of regional industrial inequality, calls for a clear understanding of the regional economies.

Productivity is the mantra in the age of globalization. In case of India this is even more necessary to be able to compete in the global market. The changing aspirations of the people and faster growing domestic market too make it imperative. Productivity is a necessary element of economic growth. Moreover a rising productivity connotes several things- higher wage rates, larger and growing employment potential, price stability and great level of living.

The present study is basically undertaken to understand the growth and structure of employment at two-digit level industry groups of organised Manufacturing sector for India and at state level, the differences in the rural-urban dichotomy in the growth of employment in organised manufacturing sector, employment growth in the different size of industry categories and to find out the causes of fluctuation of employment growth. We have also studied the industrial bases of various regions and measured the inter-regional industrial inequality. And finally we measured the productivity growth in various states in the organised Manufacturing sector.

The conclusions derived from the chapter third are that there has been a jobless growth in the pre-liberalisation period of the 80s. Negative growth of employment is seen in this period for organised manufacturing sector. But the picture is different for the two-digit industry groups. Negative growth rate of employment has been seen in the majority of agro-based industry groups in comparison to non-agro based industry groups. In the post-liberalisation period the growth rate of employment is positive for all the industry groups. One important fact has been seen in the manufacture of textile industry, which has registered high growth rates of 5.63 and 11.37 per cent per annum for both the periods respectively. The pattern of employment in the resourced based industries of food

product, cotton textile, jute and other textile industries the employment percentage declined over the periods. The percentage share of employment increases in the manufacture of chemical products, rubber, plastic and petroleum products.

The rural-urban differences in the growth and structure of employment has shown that there is decline of employment percentage in the rural areas in the Secondary sector but in the organised manufacturing sector the percentage share of employment increases over the period. In the distribution of employment by factory size for the whole manufacturing sector, there is a gradual shift of employment from large size factory to small and medium size factory. In the last section we have tried to show the causes of growth of employment in the organised manufacturing sector. By taking four independent variables, viz- real wages, capital intensity, mandays per employee and gross value added, we econometrically regressed employment, and found that wage was the main cause for the fluctuation of employment.

Chapter fourth concluded that, the growth pattern of various states differs from one another. The southern states (Andhra Pradesh, Tamil Nadu, Karnataka and Kerala) have done well in terms of employment growth and high growth has been observed here in comparison to other states. In the 80s most of the states had negative growth rate. The industrially developed states of Maharashtra, Gujarat and West Bengal had negative growth of employment in the 80s. After the economic reforms, i.e. the period of the 90s has shown positive and substantial growth of employment in every states except Bihar(-2.95). The base industries of manufacture of cotton textile for Maharashtra and Gujarat, jute and other textile for West Bengal have negative growth of employment

throughout the study period. High growth of employment is observed in Himachal Pradesh in both the period of pre and post liberalisation.

An attempt has also been made to explore the industrial bases of the various regions. This is basically done with the help of the percentage of total employment in the various organised manufacturing sector in two-digit level industry groups. This is a fact which has been explained in the second section of chapter fourth, that the beginning of the planning period has been observed with a relatively narrow industrial base, basically confined to certain raw material based industries oriented to consumer demand. However, the later years were expected to show some sort of broadening of the industrial base covering various intermediate and capital goods. The period under the present study, however, showed that even after the ninths plan period, no significant diversifications of industrial base were observed. Most of the regions after economic liberalisation remain confined to the raw material based industries particularly food products and textile based industries. The developed states of Maharashtra, Gujarat, Tamil Nadu and Karnataka, though have a substantial proportion of industrial employment in the raw material based industries, have shown some extent of diversified industrial structure particularly towards the engineering and modern equipments industries. In the rest of the regions, the industrial bases have more or less remained the same particularly towards the raw material based industries, according to the availability in the respective areas.

In order to have an idea regarding the inter-regional industrial inequality, the study has been undertaken on the basis of certain inequality measures for some of the macro-economic indicators for organised manufacturing sector. This shows that in the pre-liberalisation period of the 80s there was a decline of regional variation in the organised

manufacturing sector. This can be explained on the background that the 80s had the major concern of the removal of regional industrial inequality. But the economic liberalisation period of the 90s, which opens its economy for the world market with the objective of achieving high economic growth and for which procedures and policies have been adopted by the government to help the industrially developed regions, increase the inequality in the organised manufacturing sector.

It is concluded from the fifth chapter, that the growth of value added, employment and capital in the organised Manufacturing sector for almost all the states surged forward after the introduction of economic reforms. However, this growth was achieved with an inefficient use of resources as reflected in declining of both partial factor productivity (labour and capital) and total factor productivity. The pre liberalisation period of 80s has shown high growth of productivity in every state. But after reform the growth of capital intensity is high and the labour productivity and capital productivity is low in comparison to pre-reform period. For majority of the states the total factor productivity was high in 1980-81 to 1990-91 and for the subsequent period it goes downward.

APPENDIX

CONCEPTS AND DEFINITIONS

1. **WORKERS** are defined to include all persons employed directly or through any agency whether for wages or not, and engaged in any manufacturing process or in cleaning any part of the machinery or premises used for manufacturing process or in any other kind of work incidental to or connected with the manufacturing process or subject of the manufacturing process. Labour engaged in the repair or maintenance or production of fixed assets for factory's own use or labour employed for generating electricity or producing coal gas is included. However, persons holding positions supervisions or management or employed in administrative office, store keeping section and welfare section, sales department as also those engaged in the purchase of raw materials etc. and in production of the fixed assets for the factory and watch and ward staff are excluded.
2. **NET VALUE ADDED** is the increment to the value of goods and services that is contributed by the factory and is obtained by deducting the value of total inputs and depreciation from value of output.
3. **GROSS FIXED CAPITAL FORMATION** is obtained by adding depreciation to net fixed capital formation (net fixed capital formation represents the excess of net fixed capital at the end of accounting year over that at the beginning of the year).
4. **FIXED CAPITAL** represents the depreciated value of fixed assets owned by the factory as on the closing day of the accounting year. Fixed assets are those which have a normal productive life of more than one year. Fixed capital covers all types of assets, new or used or own constructed, deployed for production, transportation, living or recreational facilities, hospitals, schools, etc. For factory personnel. It includes the fixed assets of the head office allocable to the factory ad also the full value of assets

taken on hire-purchase basis (whether fully paid or not) excluding interest element. It excludes intangible assets and assets solely used for post manufacturing activities such as sale, storage, distribution etc.

5. **MANDAYS** represent the total number of mandays worked and not mandays paid for by the factory during the accounting year. It is obtained by summing-up the number of persons of specified categories attending in each shift over all the shifts worked on all days (working and non-working).
6. **WAGES** are defined to include all remuneration capable of being expressed in monetary terms and also payable more or less regularly in each pay period to workers (defined above) as compensation for work done during the accounting year. It includes (a) direct wages and salary(i.e. basic wages/salaries, payment of overtime, dearness, compensatory, house rent and other allowances), (b) remuneration for period not worked (i.e. basic wages, salaries and allowances payable for leave period, paid holiday, lay-off payments and compensation for unemployment, if not paid from sources other than employers), (c) bonuses and ex-gratia payment paid both at regular and less frequent intervals(i.e. incentive bonuses, good attendance bonuses, productive bonuses, profit sharing bonuses, festival or year-end bonuses etc.). It excludes lay off payment which are made from trust or other special funds set up expressly for this purpose i.e., payments not made by the employer. It also excludes imputed value of benefits in kind, employer's contribution to old age benefits and other social security charges, direct expenditure on maternity benefits and creches and other group benefits. Travelling and other expenditure incurred for business purposes and reimbursed by the employer are excluded. The wages are expressed in terms of gross value i.e. before deduction for fines, damages, taxes, provident fund, employee's state insurance contribution etc.

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