SPATIAL DIVERSIFICATION OF ORGANISED MANUFACTURING INDUSTRIES IN INDIA AN INTER-STATE ANALYSIS

Dissertation submitted to the Jawaharlal Nehru University
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1996

*Dedicated
to
my parents*

जवाहरलाल नेहरू विश्वविद्यालय
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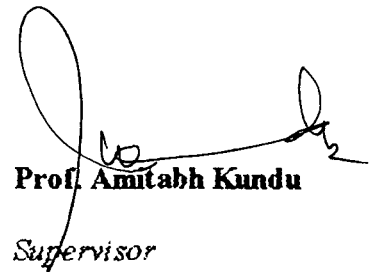## NEW DELHI - 110067

SCHOOL OF SOCIAL SCIENCES

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DECLARATION

This to certify that the dissertation entitled " SPATIAL DIVERSIFICATION OF ORGANISED MANUFACTURING INDUSTRIES IN INDIA : AN INTER-STATE ANALYSIS " submitted by Soumen Bagchi in partial fulfilment for the award of the degree of **Master Of Philosophy (M.Phil.)** of this University is his own work and may be placed before the examiners for evaluation . This dissertation has not been submitted for the award of any other degree of this University or of any other University .

17/7/96

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19th July,1996.
New Delhi.

(Soumen Bagchi)

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INTRODUCTION

Chapter I

Regional Industrial Disparity:
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Introduction

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 other lagging far behind giving a lopsided pattern of growth. "The three presidencies of Bombay, Calcutta and Madras accounted for nearly 68 per cent share of the companies at work in 1938-39" (Sharma & Chauhan, 1969). The concentration of industrial activities continued to be glaring even in 1949, as shown by the Census of Manufacturing Industries; 1949. As a consequence, the process of industrialization in the post-independence India began with the foundation of a huge inter-regional industrial inequality. Today, when India stands as the tenth most industrialized nation of the world with an industrial structure covering broadly the entire

range of consumer, intermediate and capital goods, how far India has succeeded in removing the inter-regional industrial disparity.

Some Issues:

It follows from the above that since the inception of the planning in India, regional disparity has been a major topic of discussion among scholars, planners and administrators. The question has often been raised, as how far the government has succeeded in bringing down the regional industrial disparity through planned development.

The studies by Dhar & Sastry (1967), Lahiri (1969), Sardamoni (1969) and Anuradha & Rao (1990) have shown that inequalities have declined between 1950 and 1965. While Dhar & Sastry's (1967) study has shown a decline in the value of co-efficient of variation for the level of power-consumption between 1951 and 1961, Sardamoni (1969) has shown an increase in the value of manufacturing employment diversification index[1] between 1950 and 1963, for all the states except Madras, Assam and the Union Territories, bringing about a decline in industrial inequality. Lahiri (1969) has come to the similar conclusion by showing a decline in the absolute difference between percentage share of population and percentage share of factory employment,[2] between 1956 and 1965. The study by Anuradha & Rao (1990) which covered the period 1970-71 to 1985-86 also showed a decline in inter-regional industrial disparity with

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three inequality indices as co-efficient of variation, Theil's index and Hirschman-Herfindahl index.

The conclusions emerging from these studies are subject to certain limitations since (i) these are based on data at two points of time, and (ii) the measurement is based on some inadequate data base. In recent past, some attempts have been made to overcome these limitations and hence reach the similar conclusions by Gupta (1973); Seth and Gulati (1974); Seth (1974); Dholakia (1979); Udai Shekhar (1983); Tewari (1988); Dholakia (1989) and Awasthi (1991). Gupta (1973) argued that public sector investment[3] has contributed in reducing the spatial income disparity between 1950-66. Seth and Gulati (1974) and Seth (1974) have shown a tendency of industries towards dispersal[4] between 1959 and 1965, considering fifteen individual industries.

Dholakia (1979) and Dholakia (1989) have also shown a decline in inequality over time, while the first study covered 1960-61 to 1970-71 as the period and showed the inter-state inequality has declined both in terms of capital and output in registered manufacturing sector, the second study showed that the inequality with respect to registered manufacturing sector is higher than the whole secondary sector between 1979-84.

Udai Shekhar (1983) 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

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industrialized states in manufacturing employment and net value added in manufacturing have gone down.[5] Tewari (1988) has shown that in spite of the fact that there has been no change in the inter-regional pattern of industrialization, a decline in disparity is observed between 1970-71 and 1980-81 by a decline in the level of coefficient of variation of the composite indices[6] of industrialization. Awasthi (1991), by using six inequality indices[7], has shown that developed states have lost some of their shares in favour of industrially backward states, consequently the inequalities across states in the distribution of industry have declined between 1961 and 1978. He, however, argues that this decline is more a result of deceleration of some industrially developed states than the gain by industrially backward states. Seth and Shangari (1977) reached similar conclusion shown by three distinct methods[8] for the spatial distribution of employment in the manufacturing sector between 1959 and 1965.

Some of the authors have, however, come to the opposite conclusion. According to them, the regional industrial disparity has gone up over time. Particularly this aspect has been taken up by Nadkarni (1969),Jhuraney (1976), Barthawal (1980) and Rakesh Mohan (1989). While Nadkarni (1969) found that inequalities have increased between 1960 and 1965 using the coefficient of variation in per capita value added,[9] Jhuraney (1976) reached the similar conclusion by showing the increase in the regional industrial inequality with the help of employment in the manufacturing

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sector (for both public and private sectors) between 1961 and 1974. Barthawal (1980) has also reached the similar conclusion, examining the distribution of the companies at work and their paid-up capital between 1975-76 and 1978-79. His study showed the maximum concentration for the companies and their paid-up capital between 1975-76 and 1978-79. His study showed the maximum concentration for the companies and their paid-up capital in Maharashtra followed by West Bengal and Tamil Nadu.Rakesh Mohan (1989) showed with the help of employment data from Annual Survey of Industries and the labour bureau that though 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 industrialised states maintained 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 industrialised states have continued to maintain their earlier position, according to him, the most dynamic states being Punjab and Haryana.

Thus, it can be well 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 showed an increase have reached it during early 60s and mid-70s. Of course till 1965, there

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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 different conclusions are being reached by various authors with different variables during the same period of time.

No less important in this regard is study of industrial bases of the regions. Here, the controversy is mainly centered around the fact that how far the industries have changed their location from the vicinity of raw materials and market to the places of high infrastructural development, in other words, in spite of government policies towards balanced regional development, why the industries tend to concentrate in certain metropolitan cities.

During the early stages of industrialization, industries mainly get concentrated in the resource rich regions or the areas very near to the market. "This is due to the fact hat in the initial stages, industrialization proceeds to begin with resource-based industries" (Papola, 1981). The traditional theories of location and spatial diversification were mainly based on the optimum location pattern determined by the balance between location of raw materials and market on the one hand and weight, distance characteristics of the material and output on the other. In contrast, "during the recent period of present century, infrastructural facilities have started playing a significant role in providing momentum to the spatial concentration of industries" (Satyanarayana, 1989). Thus, a well developed

transport net work, availability of power and financial institutions, and industrial estates as well as medical, health and educational facilities are crucial in the determination of the concentration of industrial activity. Here the major question of concern is, which of the industries form the industrial base of a particular region?

In this regard, a study by Alagh et.al (1971 a) can be taken under consideration, which portrayed the industrial base of 15 major states of India, using employment data.[10] The study observed that industrial scene in most of the states is still dominated by resource based industries. Here Alagh argues that there exists a clear relationship between the nature of specialization[11] and the extent of diversification.[12] According to him, "the less diversified regions in general specialize in resource-based industries and a broad spectrum of capital and consumer goods are covered by the regions which are more diversified".

Another study by Lakdawala et.al (1974), with the help of intput-output technique showed that Maharashtra has the most diversified industrial structure followed by Madras and Mysore. It has also shown that in spite of having a number of major central projects, Madhya Pradesh, Bihar and Orissa have failed to show signs of industrial diversification, around major industrial projects located within them. He also observed that "empirical spatial clusters"[13] are smaller than the "technological clusters"[14] and hence empirical spatial clusters are not

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technologically inter-dependent. Another study by Alagh et.al (1971 b),

further corroborated by Lakdawala et.al (1972) showed that while Uttar

Pradesh and Assam mainly specialize in "raw material based" industries,

West Bengal specializes in a wide array of consumer and capital goods

industries, Assam, with a highest value of specialization coefficient (0.70)

showing least diversification.

Another important issue which has received attention of the scholars

is the explanation of the nature and the causes of inter-regional industrial

disparity. In other words, the study of the factors leading to inter-regional

industrial disparity is equally important. The first group of scholars in

this respect answer the question going back to the economic history of the

region.

India remained under the British rule for a considerable period of

time and thus India was made to play the role of a mere supplier of raw

material for their imperialist master rather than the role of the producer.

While Industrial Revolution was sweeping through England, India was

undergoing a systematic process of de-industrialization (Bagchi, 1975).

Only those areas developed which served the economic interests of the

Britishers. Calcutta, Bombay and Madras developed because these regions

served as the port for transportation (Awasthi, 1991). After independence,

these port towns became the hub of industrial activities, though initially

these urban centres acted merely as outposts of the metropolitan economy

in the colony (Chattopadhyay & Raza, 1975). The development of three Presidencies, i.e., Calcutta, Bombay and Madras having three major port towns with the same name gave birth to a severe rural-urban dichotomy (Awasthi, 1991). It is also often argued that the development of presidencies took place at the cost of hinterlands as Assam, Bihar, Orissa and Maharashtra (excluding Bombay) (Thavaraj, 1972; and Savur, 1980).

Pandit (1978), on the other hand, observed the importance of some regional specific institutional factors in determining the inter-regional industrial variation. He showed that heavy public investments made by British in Punjab resulted in agricultural prosperity and brought about development of local skill and consequently industrialization of these regions.

The second group of researchers, on the other hand, spoke in favour of public policies as a factor determining regional variation in industries. It is often argued that government's policies, in post-independence period, have resulted in greater regional imbalance (Pathak, 1980). Most of the large industrial units have taken advantage of the colonial setting in which the axis of the development converged on the metropolitan cities, oriented to the ports (Kundu & Raza, 1981). Consequently, it is alleged that Indian planning, by and large, has limited to allocation of investment over time, sectors and sub-sectors, whereas there is no explicit spatial dimension in the formal planning models (Alagh, 1962).

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The Third Plan devoted one full chapter on balanced regional development in general and industries in particular. Process was to grant more licences for big industrial units in backward regions and at the same time, control the industrial expansion of already developed areas/towns (Krishniah, 1976). Contrarily, Mitra (1965) found that between 1953 and 1961, 35.77 per cent out of a total of 1978 licences issued, went to the top three industrial centres, i.e., Bombay, Calcutta and Madras. Thus, one can infer that the regional pattern of industrial licensing continues to be weighted in favour of high and middle income states (Koropekyj, 1978).

Earlier, it was postulated that the location of public sector undertakings in backward regions will benefit it in various ways. Some researchers argue that investments in public sector undertakings in the backward areas have reduced regional disparities (Gupta, 1973). It is also argued that public sector investment has been regionally regressive, particularly after the sixties (Alagh et.al, 1982; Udai Shekhar, 1983).

The crucial role of infrastructure was recognised during the Third Five Year Plan. The Government of India launched an industrial estates programme[15] in 1955 to spread infrastructure more widely. The success of the programme was studied during mid-sixties and early seventies and questioned (Bandyopadhyaya, 1969; Udai Shekhar, 1983). It was observed that most of the relatively successful industrial estates have links with the national economy (Kashyap et.al, 1975). Further, the distribution and

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pricing policy as a factor for bringing about regional imbalance was also questioned (Singh, 1983;). Last but not the least, the incentives to the industrially backward areas, mainly the financial incentives through commercial banks and non-banking financial institutions became also significant after the two committees were established in 1968.[16] The Committee suggested provision of capital subsidy for the backward areas, but the researchers considered the subsidy for the development of infrastructure to be more effective instead of capital subsidy (Alagh & Pathak, 1973).

The final group of scholars believed in the market forces as a factor in bringing about regional industrial disparity. One of the major factors in this respect is said to be the level of agricultural development. The level of agricultural development and its relation with industry is a well known fact (Rudra, 1964; Hayami, 1969; Raj, 1984). It is also argued that though in the initial stages, agricultural sector supports industrial sector, in the later stages even industries are found to support agricultural growth (Hayami, 1969). Often it is argued that regional variations in the level of industrial development is reflected by regional variations in the agricultural sector (Pandit, 1978; Kaur, 1983). It was also established empirically at the inter-state level by Alagh et.al (1982).

Another factor in this respect is the size of market usually denoted by the size of population and the purchasing power denoted by per capita

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income. Chenery (1960), using international cross-section data, showed that there exists a positive relationship between size of market and the level of industrial development. Sastry (1970) observed that per capita income, population and urbanisation explained inter-regional variations in net industrial output between 1951 and 1961.

The role of urbanisation and agglomeration economies as a factor leading to inter-regional industrial variation was also significant (Banerjee, 1969). Industries in fact get concentrated in the urban centres (Bose, 1969). Suri (1968) argued that urbanisation on the other hand is a by-product of industrial development. Contrarily, an increase in city size leads to an increase in industrial activity (Rao, 1975; Kashyap et.al, 1980). The impact of agglomeration economies was later studied by Lakdawala et.al (1974) and Godbole (1978).

The reason behind the concentration of industries in certain areas can be accounted for the external economies and the technological linkages imposed by the first phase of industrialization. Consequently, industries get attracted towards these regions resulting in regional variation (Alagh et.al, 1971a). Some other studies with the help of input-output technique have showed that inter-industry linkages have very little impact on the growth performance of regional industrial economies (Venkataramiah, 1983). Similar conclusion was also reached by Awasthi (1983).

The role of infrastructure in this respect is explained by Hashim (1978/79) and Kaur (1983). Specifically the impact has been observed in the large scale manufacturing sector between 1961 and 1965. Finally, the role of human factor as an explanation to inter-regional industrial disparity has been taken up by Seth (1975) and later by Pandit (1978). Pandit (1978) explained the concentration of industries in Punjab as a result of the incoming of the displaced population having entrepreneurial qualities.

Objective

In this study, it is proposed to cover the entire debate centering around the issues discussed above. An attempt has been made to explore into the pattern and the causes of regional industrial disparity across the states in India. More specifically, the objective of the study may be tabulated as follows:

(i)   To measure the extent and the direction of inter-regional disparity in terms of some selected indicators between 1980-81 and 1992-93.

(ii)   To study the pattern of changes in the industrial bases of various regions/states with respect to the national economy.

(iii) To go with a detailed analysis of the factors determining the regional industrial variation and the changes in it over time.

Coverage and Data Base

The earlier studies remained confined to mainly mid-eighties at most while this study has been extended to 1992-93, the latest year for which the data is available. Another improvement over other studies can be recognised from the fact that they were mainly based on certain variables, without those variables being converted into suitable indicators with the help of proper denominators. The study is confined to the organised manufacturing industries (summary results for Factory Sector)[17] because it is the organised manufacturing sector which mainly contribute in aggravating the inter-regional industrial inequality. Since the organised sector is a joint concern of the state and the central government, the latter playing the major role (Dholakia, 1989). With the objective of covering all the sub-sectors of the manufacturing industries, the study is based on 2-digit NI classification.[18]

The study covers the seventeen major states,[19] mainly the union territories are left out of the study. The period covered in the study is from 1980-81 to 1992-93. The union territories are left out of study for the problem arising in comparison, since some of these have become states in the later years.

To make it convenient, the study has been divided into five chapters along with this introduction. The second chapter is devoted to the organisational structure and institutional pattern of the Indian industries

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with respect to spatial analysis. The third chapter mainly concentrates on the analysis of the pattern and trend of inter-regional industrial disparity and the study of industrial bases of the regions along with the changes in it over the period of study, if any. The fourth chapter mainly remains confined to the discussion and an empirical study of the factors affecting the regional industrial variation in India. Finally, the last chapter will be devoted to the summary results and the conclusions of the study undertaken and further policy prescriptions, needed for the overcoming the problem of regional industrial variation in India.

Notes

1. The Diversification Index (DI) of the manufacturing employment is given by:

DI = 100.0 - $\sum$ (d)/2, where $\sum$(d) is the sum of all per cent point absolute deviation. It means greater the industrial diversification of a state, the smaller will be the sum of the absolute per cent deviation and hence the higher will be the value of DI.

2. P_i = percentage share of population for the ith state to national level.

P_i' = percentage share of factory employment for the ith state to the national level.

Thus, $|P_i - P'_i|$ indicates the level of industrialization in that state with respect to all India level.

And $\sum_{i=1}^{n} |P_i - P_i'|$ gives the index of inter-state disparity; the value in 1956 being 69.99 and that of 1965 is 62.00.

3. $\alpha = 1 - 0.00002$ C.N (t)% ; location co-efficient of economic activity in period `t',

where, C.N (t)% = $\sum [\sum N (t)\%]$
and C = the sum of the cumulative numbers.

And $\beta = [1 - 0.00002$ C.Q (t+1)%]; new location co-efficient in period (t+1) gives the inter-

regional and inter-sectoral pattern of investment for the whole economy.

$N_i(t)$ = regional national income of ith region in period t.

$Q_i(t+1)$ = total income of the ith region for investment all the sectors, and

$I_{iL}(t+1)K_L$ = incremental income generated in the ith region by investment in the ith sector.

Thus, $Q_i(t+1) = N_i(t) + \sum_{i-1}^{K} I_{iL}(T+1)K_L^1$;

where K = no. of sectors.

4. $b = r\dfrac{\delta^t}{\delta^o}$; r = correlation co-efficient of the relative share of different locations between base year and the terminal year; δ^t and δ^0 are the standard deviation in the corresponding period.

$$\frac{\delta^t}{\delta^o} = \sqrt{\sum_{i-1}^{n}(S_i^t)^2 \Big/ \sum_{i-1}^{n}(S_i^o)^2}$$

[Herfindahl index (HI) = $\sum(S_i)^2 + 1/N$]

$(S_i)^t$ and $(S_i)^0$ → deviations of the relative shares of the ith location in the base and the terminal period from their mean.

$$C(HI) = \frac{HI^t}{HI^o} = \frac{\sum(S_i^t)^2 + \dfrac{1}{N_t}}{\sum(S_i^o)^2 + \dfrac{1}{N_o}}$$

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$$\text{If } N_t = N = N_o \implies \frac{HI^t}{HI^o} = \frac{\sum(S_i^t)^2}{\sum(S_i^o)^2}$$

$$\therefore \sqrt{C(HI)} = \frac{\delta^t}{\delta^o}. \text{ Thus, } b = r\sqrt{C(HI)} \implies C(HI) = \left(\frac{b}{\delta}\right)^2$$

Thus, regression co-efficient b is a function of the correlation co-efficient `r' between terminal years relative share and ratio of HI between terminal year and the base year.

5. The Theil's inequality index is given by:

$$T = \sum p_i \, \log \, (P_i / q_i)$$

where, q_i = percentage share of the ith state in total population, and

P_i = the percentage share of the considered indicator.

The maximum value of $T = \infty$, iff $q = 0$ for some i's and the minimum value of $T = 0$, iff industries and population are exactly equally distributed.

6. Composite index of industrialization derived on the basis of following ten indicators:

(i) Value added in manufacturing/industrial worker.
(ii) Per cent contribution of the industrial sector to the SDP.
(iii) Value of industrial produce/KWH of electricity consumed.
(iv) Number of factories/lakh of population.

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(v) Number of factories/1000 sq.km. of area.

(vi) Total productive capital employed industrial worker.

(vii) Factory employment / lakh of population.

(viii) Factory employment/sq.km. of area.

(ix) Percentage of household industrial workers to total workers.

(x) Percentage of factory employment to total workers.

7. The six inequality indices used by Awasthi:

(i) Standard deviation of logarithm.

(ii) (a) Unweighted and (b) weighted co-efficient of variation.

(iii) Gini co-efficient.

(iv) Theil's inequality index.

(v) Hirschman-Herfindahl Index.

8. Three measures are:

$$\text{(a) Absolute Shift (I)} = \frac{L_i \Big/ \sum\limits_{i=1}^{n} L_i}{P_i \sum P_i}$$

L = Labour force of the ith region.

P = Population of the ith region.

N = no. of regions.

(b) Relative Shift = $\sum (L_i^t - \hat{L}_i^t) / 2$

L_i^t = Labour employed in the ith region in the terminal prd.

$\hat{L}_i^1 =$ Labour employed (to be derived hypothetically)

where $\hat{L}_i^1 = \alpha L_i^0$

L_i^0 = Labour employed in the ith region in the base period, and

$$\alpha = \text{rate of growth} = \frac{\sum L_i^1}{\sum L_i^0}$$

(c) Marginal Shift: Dispersal $\rightarrow L_i^0 > \sum_{i=1}^{n} L_i^0 / N$

and $\dfrac{L_i^0}{\sum_{i=1}^{n} L_i^0} > \dfrac{\Delta L_i^1}{\sum \Delta L_i^1}$, notations have their

usual meaning.

9. Co-efficient of variation is given by:

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

10. The categorisation of backward and non-backward states is based on the Report of the Working Group (1969) appointed by the Planning Commission to recommend the criteria for identification of the backward areas.

11. The employment data are based on the factory sector employment as published in the Annual Survey of Industries by the CSO, Department of Statistics, Ministry of Planning; Government of India.

12.   The nature of specialization has been computed to have an idea regarding the industrial base of the region,
with the help of location quotient:

$$LQ = \frac{e_{ij}}{\sum\limits_{i=1}^{m} e_{ij}} \bigg/ \frac{\sum\limits_{i=1}^{n} e_{ij}}{\sum\limits_{i=1}^{n}\sum\limits_{i=1}^{m} e_{ij}}$$

13. The extent of diversification is given by the specialization co-efficient; it is measured w.r.t. the national level:

$$Sp.\ Co. = \frac{1}{2}\sum \left[\left| \frac{e_{ij}}{\sum\limits_{j=1}^{m} e_{ij}} - \frac{\sum\limits_{i=1}^{n} e_{ij}}{\sum\limits_{i=1}^{n}\sum\limits_{j=1}^{m} e_{ij}} \right| \right] \times 100$$

where e_{ij} = employment in the jth industry in the ith region.

$\sum\limits_{i=1}^{m} e_{ij}$ = employment in the jth industry over all the regions.

$\sum\limits_{i=1}^{n}$ = employment in the ith region over all industries.

$\sum\limits_{i=1}^{n}\sum\limits_{j=1}^{m} e_{ij}$ = total industrial employment over all the regions.

14.   Empirical clusters of industries are those clusters or group of industries which tend to grow together in different regions.

15.   Technological clusters indicate the technological interdependence between industries and/or industry groups.

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16. The programme was initiated in 1955 following the recommendations of the SSI Board. A total number of 12 estates were sanctioned. The development of 10 among these was entrusted to the state government while two,

(i) Naini at Allahabad, and,

(ii) Okhla at Delhi were the responsibility of the National Small Scale Industries Corporation.

17. The two committees established were:

(a) The Pandey Committee for recognising the backward areas on the basis of certain criteria, and,

(b) The Wanchoo Group for suggesting incentives for the identified backward areas.

18. The seventeen major states covered under study are:

Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Kerala Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

19. Organised manufacturing industries (Factory Sectors) cover only those industries recognised by the Factories' Act of 1948. It covers the industries which employ 10 or more workers with power or 20 or more workers without using power.

20. This mode of classification has replaced the earlier mode of classification ISIC (Indian Standard Industrial Classification) in the year 1970.

CHAPTER II

ORGANISATIONAL STRUCTURE AND INSTITUTIONAL PATTERN OF INDIAN INDUSTRIES

Chapter II

Organisational Structure and Institutional Pattern of Indian Industries

Introduction:

Location of conomic activities in general and industrial activities in particular can be explained in terms of natural, historical or political factors.[1] Though natural resources do play a significant role in determining the location of economic/industrial activity, the historical forces often assume a strategic role in determining the pattern of economic development of certain areas (Awasthi, 1991). In India, the extent of regional imbalance in industrialization was glaring if one looks at the distribution of industrial units in 1913-14, by states. The total number of units in that year in the provinces of Bengal, Bombay and Madras were 973 (35.46%), 613 (22.3%) and 427 (15.6%) respectively. Taken together, these three states having three major port towns, accounted for more than 73 per cent of the companies at work in 1913-14 (Sharma & Chauhan, 1969). It is thus evident that the regional concentration of industries in India was more as a result of historical forces than due to the availability of raw materials. The industries mainly got concentrated in the regions which were nearer to the ports and were in easy access to transport. The British, however, developed these regions at the cost of the resource rich

hinterland of Orissa, Madhya Pradesh and Bihar by joining these areas with the port towns through railway network.

Evolution of the Organisational Structure to Curb Regional Imbalance Through Various Plans:

India inherited a lopsided industrial structure, with a few regions of industrial concentration, within the sea of several pauperised regions, at the time of independence in 1947. The planning process in India started in 1951, when the first Five Year Plan was launched. The Plan recognised the need for special schemes to promote industrial dispersal and to develop less industrialized areas. The First Five Year Plan, 1951-56, states that,

"The excessive concentration of industries brings in its train

certain economic and social disadvantages and a wider

diffusion of industries is desirable from this larger point of

view".[2]

It was the industrial sector which drew attention of the planners and obviously regional disparity in industrial growth was always given more importance as compared to agriculture from the very beginning of the planning period (Srivastava, 1994). The First Five Year Plan spelt out the causal factors underlying spatial concentration and its main policy thrust in the following words:

"If industrial development in this country is to proceed rapidly and in a balanced way, greater attention will have to be paid to areas which have so far remained backward. Under the Industries (Development and Regulation) Act, 1951, the government has the powers to regulate locations. The extent to which the pattern of industrial location in the country can be changed within a short period is undoubtedly limited. For any industrial undertaking to operate profitably, it must have easy access to raw materials, to labour, to powers and to markets. The tendency for industries to concentrate around certain areas where industrial development has already taken place is explained by the easy availability in those areas of a large number of 'external' economies to scale on account of the prior development of the ancillary services and facilities like banking, transport and communication. It is difficult, therefore, in the initial stages to induce private industry to choose a new location where such facilities are inadequate".[3]

The first major legislative control introduced in independent India was in 1952 in the form of Licensing Policy which came into force on 8th May 1952 as a part of the 'Industries (Development and Regulation) Act, 1951 with the objective of reducing disparity in the levels of development

in general and inter-regional industrial disparity in particular, in addition to certain other objectives. The obvious policy which was expected to be followed to achieve this objective was to grant more licenses for establishment of industries in the lagging regions and thus controlling the establishment of more industries in the developed regions. Regarding the success of above policy, a study conducted by Mitra in 1961, divided the districts into four levels of development and showed that out of a total of 4971 industrial licenses issued between 1953 to 1961, as many as 2293 (46.13%) licenses went to the districts of top level of development. As many as 1778 (35.77%) went to the three industrial cities of Bombay, Calcutta and Madras. The industrial licensing policy was a major failure in the sense that only 84 (1.69%) of the total licenses issued went to the districts at the bottom level of development.[4] The situation even worsened in 1967, when the Industrial Licensing Policy Enquiry Committee appointed in July 1967 under the chairmanship of Subimal Dutt, revealed that between 1956 and 1966, the four industrially advanced states of Maharashtra, Gujarat, West Bengal and Tamil Nadu accounted for 62.42 per cent of the licenses approved while that of the three resource rich states of Orissa, Bihar and Madhya Pradesh accounted for just 8.8 per cent of the total licenses approved.[5]

The beginning of the Second Five Year Plan coincided with the Industrial Policy Resolution, 1956. It was the Second Five Year Plan,

1956-61, which laid the foundation of modern industries in India, with the help of huge investments in the heavy and basic industries. The Second Plan, in addition to the development of modern industries in India, also kept the problem of inter-regional industrial disparity in view. As a consequence, most of the public investments were made to the resource rich under-developed regions. The share of the three resource rich backward states of Orissa, Bihar and Madhya Pradesh in the cumulative investment in public sector till March, 1977, amounted to Rs. 4648.30 crores, which stood at 40.6 per cent of the total cumulative investment in the public sector for all the states (Lakdawala, 1979).[6] As a result, in 1955, the three steel plants were established at Bokaro in Bihar, Bhilai in Madhya Pradesh, Durgapur in West Bengal and later at Rourkela in Orissa.

The Second Five Year Plan states:

In any comprehensive plan of development, it is axiomatic that the special needs of the less developed areas should receive due attention. The pattern of investment should be so devised as to lead to balanced regional development. The problem is particularly difficult in the early stages when the total resources available are very inadequate in relation to needs. But, more and more, as development proceeds and large resources become available for investment, the stress of

developmental programmes should be on extending the benefit of investments to under-developed regions ...".[7]

The Second Plan, 1956-1961, thus proposed to tackle the problem of regional disparity in general and industrial disparity in particular, through appropriate location of the public sector projects. The plan also emphasized continuous effort to bring about a decline in inter-regional industrial disparity, which had been a major feature prior to independence and continued even after independence.

The Third Five Year Plan, 1961-66, for the first time, explicitly dealt with the problems of unbalanced regional development. It devoted a full chapter to the problem of "regional imbalance". It states:

"Balanced development of the different parts of the country, extension of the benefits of economic progress to the less-developed regions and wide-spread diffusion of industry are among the major aims of planned development... As resources are limited, frequently advantage lies in concentrating them at those points within the economy at which the returns are likely to be favourable... In the interest of development itself, the maximum increase in national income should be achieved and resources should be made available for further investment".[8]

The industrial estates programme initiated in 1955 following the recommendations of the Small Scale Industries Board, though sanctioned a total number of twelve estates,[9] could make its headway only during the Third Five Year Plan since initially it was conceived only as a measure to promote small-scale industries, but later it was seen as an important means to ensure the industrial spread of industries and development of the backward areas. Though earlier the task of Industrial Estates Programme was confined to the development of small scale industries, under the new arrangements, the task of Industrial Estate Programme became threefold:

(a)   To promote the rapid development of small scale industries.

(b)   To help the industrialization of backward areas, and,

(c)   To stimulate industrial development in rural areas.

It was during the Third Plan that the schemes of industrial estates were classified into three categories, one, those in cities and large towns, or in vicinity there of were under URBAN ESTATES; two, those in semi-urban areas comprising small towns located at a reasonable distance from large cities and having population 5000 to 50,000, considered under the SEMI-URBAN ESTATES; three, those in villages with a population less than 5000 and situated at a sufficient distance from large cities and towns under the RURAL ESTATES AND WORKSHEDS.[10]

Although initially, all the industrial estates were established in urban areas, their share in these areas came down to 63.5 per cent by the

end of 1963 and to 46.5 per cent by the end of 1969. This was on account of the new role assigned to the programme in developing the rural and backward areas/regions.

Another measure adopted during the Third Five Year Plan was the Rural Industries Projects established in 1962 under the Rural Industries Planning Committee mainly with the objective of providing non-farm employment to the workers in the rural areas and stimulating the process of industrialization in those areas. This particular programme, in fact, considered the removal of regional industrial disparity as a derived objective with the development of the rural backward areas through industrialization.

Thus, the Third Plan outlined a much more comprehensive understanding of the problem of regional imbalance in comparison to the earlier two Five Year Plans, and it called for a diversified approach for the development of each region on the basis of its characteristic features. It further cautioned against excessive reliance on the large scale industries as an instrument for dispersal irrespective of the economic features of the regions under consideration. The plan promoted the concept of large projects acting as 'nuclei' of growth, through related and complementary programmes of development (Srivastava, 1994).[11]

It can be concluded that during the first fifteen years of planning, 1951 to 1966, regional dispersal of industries was sought to be achieved

through locational decisions. The regulatory mechanisms, particularly the Industrial Licensing Policy, for the private sector were expected to play a major role. On the one hand, these mechanisms could not make much headway to the removal of regional industrial imbalance, on the other hand, the policies and norms did not have clear-cut guidelines for the identification of backward areas. It prompted the National Development Council (NDC) to set up two committees in September 1968, under the chairmanship of B.D. Pandey and H.N. Wanchoo. While the former was appointed with the objective of developing a set of criteria for the identification of backward areas, the latter was devoted to propose fiscal and financial incentives for industrial development in backward regions.

Indices used by the Pandey Committee for the identification of industrially backward states were: (a) Total per capita income; (b) shares of industry and mining in the income generated for the regions; (c) number of persons working in the registered factories; (d) length of surfaced roads and railways in relation to (i) population and (ii) area, and (e) per capita consumption of electricity. Basically, the Pandey Committee recognised the criteria for identifying industrially backward regions in comparison to the criteria suggested by the first working group developed in 1964, which dealt with the overall backwardness. On the basis of these criteria, the following ten states and four union territories were classified as industrially backward: Andhra Pradesh, Assam, Bihar, Himachal Pradesh,

Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and Nagaland. The union territories include all except Chandigarh, Delhi and Pondichery.[12]

The Pandey Working Group also recommended the following criteria or indicators for identifying backward districts in each state:

(a)   Districts outside a radius of about 50 miles from larger cities and large industrial projects.

(b)   Poverty of people as indicated by low per capita income - at least 25 per cent below the state average.

(c)   Low percentage of population engaged in secondary and tertiary occupations, i.e. 25 per cent below the state average.

(d)   Low percentage of factory employment - 25 per cent below the state average.

(e)   Non-utilisation or under-utilisation of economic and natural resources like minerals, forests etc., and

(f)   Inadequate availability of infrastructural facilities like electric power, transport and communication facilities and water.

The Wanchoo Group, on the other hand, was set up to suggest suitable strategy for the industrialization of the backward regions. This working group recommended that incentives should be provided for attracting industries to the backward regions.

Following were the fiscal and financial incentives suggested by the Wanchoo Committee for the industrialisation of the backward areas:

(a)   Grant of higher development rebate to industries located in the backward areas.

(b)   Grant of exemption from income-tax including corporate tax for a period of five years.

(c)   Exemption from import duty on plant and machinery and components imported by a unit located in backward district.

(d)   Exemption of excise duties for a period of five years.

(e)   Exemption from sales tax for a period of five years.

(f)   Provision of transport subsidy for taking out the finished products for a period of five years, upto 400 miles.

On the recommendations made by Pandey Working Group, it suggested the selection of 20 to 30 districts in the whole country, limiting only to the backward states, for the provision of special incentives during the Fourth Plan period on the basis of Wanchoo Group recommendations, but the recommendation of the Pandey Working Group to be restricted only to backward states were not accepted and were rejected by all the states. Consequently, the NDC in its meeting in September 1969, decided that such concession should be made available to selected backward areas in all the states and union territories. Accordingly, the Planning Commission evolved the following criteria for the identification of industrially backward

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areas which made a significant departure from those recommended by the Pandey Committee:

(a) The per capita foodgrains/commercial crop production;

(b) Ratio of agricultural labour to total population;

(c) Per capita industrial output;

(d) Number of factory employees per lakh of population;

(e) Number of persons engaged in secondary and tertiary activities per lakh of population.

(f) Per capita consumption of electricity; and

(g) Length of surfaced roads and/or railway mileage in relation to population.

The Planning Commission, in consultation with the national financial institutions, constructed a weighted composite index for all the districts in each state and hence finally designed 246 districts to be eligible for concessional finance and other facilities in June 1972. In addition to a change in the criteria for identifying the backward areas, the overall prescription of incentives as suggested by the Wanchoo Group was replaced by only one incentive in the form of an outright subsidy amounting to one-tenth of the fixed capital investment,for projects in the backward areas, the only condition was that total fixed capital investment should not exceed Rs. 50 lakhs. Subsequently, for the units coming up after 1st March 1973, the subsidy was increased to 15 per cent of the fixed capital

or upto a ceiling of Rs. 15 lakhs, provided the total investment did not exceed Rs. 1 crore. Out of a total of 246 districts declared industrially backward by the Planning Commission, 101 districts were made to qualify for central investment subsidy scheme, having 6 districts each from the industrially backward states and three each from other states. "Thus, the Fourth Five Year plan, 1969-74 saw a reorientation of the strategy of dispersal towards direct promotional measures of development of industry in the backward areas" (Srivastava, 1994).[13] The Fourth Five Year Plan having assessed the impact of the previous policies on the removal of the regional industrial disparity states that;

"In terms of regional development, there has been a natural tendency for the new enterprises and investments to gravitate towards the already over-crowded metropolitan areas, because they are better endowed with economic and social infrastructure. Not enough has been done to restrain this process, while a certain measure of dispersal has been achieved, a much larger effort is necessary to bring about a much greater dispersal of industrial activity".[14]

The Fifth Five Year Plan, 1974-79 came forward with the argument that in spite of the specific "backward area development programmes", industrial dispersal had not taken place to the extent to which it was expected due to the lack of a proper organisational and institutional set up.

The Fifth Five Year Plan, hence proposed "to create an appropriate machinery that is capable of identifying industries suited to the needs and the potentialities of the backward areas through techno-economic surveys and feasibility studies undertaking integrated planning and development of infrastructure... in selected growth centres located in the backward areas/regions; providing a package of finance, marketing and other services to potential entrepreneurs for setting up new units in the backward areas".[15]

To examine the performance of the various backward area development programmes, the planning commission set up the National Committee on Development of Backward Area in November 1978. Evaluating the existing policy for industrial dispersal, the Committee notes that the central investment subsidy scheme and the scheme for concessional finance have benefitted a small number of districts, mostly in the vicinity of relatively developed industrial centres. The Committee submitted its report in October 1980. The major observation of the Committee was that most of the incentives given by the centre had been appropriated by the backward districts located in the industrially developed states (Seth, 1987).[16] The Committee found that out of the total subsidy given under the Central Investment Subsidy Scheme, over 55 per cent had gone to those states which were not considered industrially backward by the Pandey Committee. Even out of the financial concessions

given by the nation-wide, financial institutions (like Industrial Development Bank of India; Industrial Credit and Investment Corporation of India; Industrial Finance Corporation of India etc.) to different states till December 1979, 55 per cent of the concessional finance flowed to the units located in the states not considered as industrially backward regions by the Pandey Committee.[17] It may be accounted for not following the suggestion of Pandey Committee in toto and including even the developed states for the provision of incentives for the backward states and without restricting only to the backward states as was mentioned in the Pandey Committee report.

In addition to the evaluation of the performance of (i) Central investment subsidy scheme and (ii) Concessional finance scheme, the National Committee for the Development of Backward Areas was to formulate appropriate strategies for tackling the problems of backward areas. In view of the close link between infrastructural development, urbanisation and industrialization, and since the cost of building infrastructure from scratch was very high, the National Committee recommended that:

"What is wanted therefore is a growth centre approach. With a growth centre approach, there is a definite concentration of effort on selected centres whereas with an area approach, the effort is necessarily widespread. The policy should encourage

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the location of industries in suitable growth centres with due weightage for such growth centres in states which are industrially backward".[18]

With an objective of industrial dispersal, the National Committee (1980) suggested that existing urban centres with 50,000 or more population (as per 1971 Census Report) should be developed as growth centres. The selection of this size of urban agglomeration was based on the assumption that urban areas of this size should have quite an adequate level of infrastructural facilities which are essential for the development of modern industry. The Committee suggested three criteria for the selection of eligible centres:

(a) they should have a population of 50,000 or more;

(b) they should have less than 10,000 workers in non-household manufacturing; and

(c) they should not be near the existing industrial centres.[19]

During the Sixth Five Year Plan (1980-85), the National Committee for Development of backward areas suggested the creation of 100 such growth centres, 30 of these in the industrially developed states and 70 in the industrially backward states. Out of 70 proposed for the backward states, 10 were to be developed in the hill states of Jammu and Kashmir and Himachal Pradesh, the North Eastern states (except Assam) and the union territories. Rest of the growth centres were to be developed on the

basis of the share of each state to the total area and population, equal weights being assigned to both. The Committee also recommended the setting up of Industrial Development Authorities (IDA) in each of the growth centres. For the success of the growth centres procedure as a measure for the dispersal of industries, the Committee also recommended a package of incentives, which included:

(a) Extension of income tax concession to the units set up in the areas outside the area of influence of the "existing industrial centres";

(b) Modification of the Central Subsidy Scheme to cover such units, dispensing with the concept of "selectivity" in the existing subsidy and concessional finance scheme; and

(c) Linking the state subsidy schemes with the locational approach in the central subsidy and concessional finance schemes.[20]

The draft Sixth Five Year Plan (1978-83) came into operation well ahead of the completion of the Fifth Five Year Plan, because of a change of power at the centre. This plan again devoted an entire chapter on the patterns of regional development, it laid more emphasis on the village level development. To achieve industrial dispersal through small scale industries, a District Industries Centre (DIC) scheme was introduced in 1978. Under this scheme, it was suggested that various facilities should be provided to the entrepreneurs at one place for setting up of small village industries. This plan accepted that "the location of large capital intensive

industrial project is not a sufficient instrument for backward area development.[21] As put in the draft Sixth Five Year Plan, 1978-83:

"... The evidence presented in the previous section suggests that capital intensive industry is not by itself the sort of growth catalyst that backward areas used. A solution to the problem of inter-regional disparities and backwardness cannot emerge solely from a resource re-distribution and special schemes. What is required is a systematic attempt to identify barriers to development and concentrate all resources and efforts towards breaking those barriers".[22]

The Planning Commission constituted a high level National Committee for the Development of Backward Areas (NCDBA) on 30th November 1978, under the chairmanship of B. Sivaraman, (a) to examine the identity of backward areas; (b) review the working of existing schemes for stimulating industrial development in backward areas such as concessional finance, investment subsidy, transport subsidy etc. The NCDBA made a number of specific recommendations concerning the development of backward areas through industrialization. The Committee brought forward that:

(a)   the central investment subsidy scheme and the scheme of concessional finance had benefitted a small number of districts, mostly in close proximity to relatively developed industrial centres;

(b)   the industrial estates programme has not helped to relocate industries away from metropolitan areas; and

(c)   licensing policy, being a negative instrument, could not, by itself, promote industrial development in backward regions.

On the basis of this experience and also the natural tendency of industry to concentrate at certain locations, NCDBA recommended a policy of encouraging the location of industry to suitable growth centres with due weightage for such centres in industrially backward states. It also recommended the establishment of an Industrial Development Authority in these centres to provide the necessary infrastructure and to channel development funds allotted by the central and state governments. The Government of India considered all these recommendations of the NCDBA carefully and introduced them during the Sixth Plan (1980-85).[23]

As mentioned earlier, the Sixth Plan was redrafted because of a change in power at the centre and the revised Sixth Five Year Plan did not contain any chapter on regional development. The beginning of the Sixth Plan also saw the implementation of the "Industrial Policy" 1980. Among other objectives, the policy aimed at "Correction of regional imbalance through a preferential development of industrially backward areas". In order to correct regional imbalance, the Sixth Plan proposed to develop a few plants in each district to encourage the growth of ancillaries and small-scale industries around such nucleus and to further extend industrial

estates to backward regions. Basically the New Industrial Policy (1980) was guided merely by the considerations of growth. It liberalised licensing for large and big business but by removing the distinction between small-scale and large-scale industries, it sought to promote the latter at the cost of the former. In other words, the Industrial Policy, 1980 chose a more capital-intensive path of development without caring about the objective of removal of regional imbalance and employment generation.

The Seventh Five Year Plan (1985-90) not only reiterated the concept of growth centres, it also called for an evaluation of the role of special subsidy schemes. Instead, it emphasized the role of infrastructure and the industrialization of small district towns which have not industrialized so far. After 1985, further modification in the incentive structure took place as the asset limit for MRTP was increased from Rs. 20 crores to Rs. 100 crores. As a consequence, 112 companies came out of the purview of MRTP Act. 21 further industries were exempted from MRTP Act and 22 of these industries were delicensed for MRTP and FERA companies.[24]

In 1988, the government decided to establish 100 growth centres throughout the country. Each growth centre was to be provided with funds of the order of 25 crores to 30 crores for creating infrastructural facilities, particularly in respect of power, water, telecommunications and banking. To promote industrialization in backward areas, new industrial

undertakings established in declared backward areas, are entitled to the income tax relief under section 80HH of the Income Tax Act by way of deduction of 20 per cent of the profits available for a period of 10 years. Furthermore, under section 80-I of Income Tax Act, all new undertakings in the notified backward districts are entitled to an income tax relief by way of deduction of 25 per cent of the profits for the period of eight years.[25]

To avoid further concentration in and around metropolitan cities with population above four million (as per 1981 Census Report), location of plants were not permitted within 20 kms. of these cities. The distance was to be calculated from the periphery of the metropolitan areas. The rule was applicable to all centres and activities except for the prior designated industrial areas and for non-polluting industries such as electronics, computer software and printing. As per the New Industrial Policy of 1990, all new units upto an investment of Rs. 25 crores in fixed assets in non-backward areas and Rs. 75 crores in centrally notified backward areas, were to be exempted from requirement of obtaining license/ registration.[26] Thus, the Seventh Five Year Plan (1985-90) also adopted several measures to remove regional industrial disparity though the economy had entered the liberalization phase and the major objective in the industrial policies being growth.

The Eighth Plan which is in progress now and is to be completed in the next year commenced in 1992 because of the fall of the government at the centre which came to power in 1990. The Eighth Plan (1992-97) has almost ignored the problem of regional imbalance between all the states of the country. "Although in the eighties, some signs of improvement in certain less advanced states have been observed, regional disparities continue to exist. Development institutions and organisational capabilities in the backward regions of the country and the delivery system for development programmes would need to be strengthened to deal effectively with the problem of development and redistributed justice".[27] Even the New Industrial Policy (1991) did not take into account the problem of inter-regional industrial imbalance and was mainly devoted to introduce liberalization with the objective of integrating the Indian economy with the world economy.

An Assessment of the Existing System for Ensuring Balanced Regional Development:

In a federal form of government as in our case, the central government plays a significant role in regard to the spatial spread of industries. According to Seth (1987), the Central Government can influence the spread of industrial sector in three different ways: (i) some changes in location can be achieved through government regulations,

incentives and policies (industrial policy, fiscal policy and price policy); (ii)

changes in spatial pattern which may result from the state ownership and

controls of industries (public sector); and (iii) there could be locational

changes which occur as a by-product of government policies not directly

intended to change industrial location.[28] Manufacturing is affected to a

large extent by investment incentives which are offered in a variety of

ways. These incentives can be in the form of a long term finance at

subsidized rates, through various central and state financial institutions,

tax rebates and subsidised land.

In order to promote private investment in backward areas and to

tackle the problem of industrial backwardness, the central government has

provided (a) Income Tax concession, according to which new industrial

units located in backward areas set up after January 1971 are allowed a

deduction of 20 per cent of profit; (b) Central Investment Subsidy scheme,

provided an outright subsidy at the rate of 10 per cent subject to a

maximum of Rs. 5 lakh on fixed capital investment; (c) Transport Subsidy

Scheme provided 50 per cent transport subsidy on the expenditure incurred

for the movement of raw materials and finished goods to and from selected

rail heads to the location of industrial units, introduced in July 1971; (d)

From August 1972, the Central Government has been giving priority to

backward areas in the matter of issuing industrial licenses; and (e) The

government has also granted liberal concessions to MRTP/FERA companies

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for setting up certain types of industries at locations in centrally declared backward regional areas.

In addition to these, the state governments can also offer incentives to attract private investors to the backward regions. These can be in the form of provision of development plots with power and water on a no-profit no-loss basis, exemption from payments of water charges for some years, interest free loans on sales tax dues, exemption from octroi duties, exemption from payment of property taxes for some years, preferential treatment for the purchase of stores for units located in backward areas and subsidy on industrial housing scheme. The three major public sector financial institutions, i.e., Industrial Development Bank of India (IDBI), Industrial Finance Corporation of India (IFCI) and Industrial Credit and Investment Corporation of India (ICICI) provided concessional finance for the industrial projects located in the backward areas. Along with other measures, these financial institutions have been instrumental in setting up several Technical Consultancy Organisations (TCOs) throughout the country. They provide technical consultancy service, necessary for the development of backward areas.

An analysis of the various administrative stipulatory ordinances and legal restrictions placed on the location of the industries in India reveals that more or less the government depended on ad hoc decisions as suggested by various committees and working groups. These ad hoc bodies

often identified criteria for deleneating the backward regions and proposed various incentives for the industrialization of these regions/areas. It can be concluded from the previous section that the location of public sector enterprises, industrial licensing and encouragement to small-scale industries and agro-based industries in the backward regions, constituted the core of industrial dispersal strategy in 1950s and the 1960s. A number of large scale public sector projects were set up near the sources of raw materials in the industrially backward states of Bihar, Orissa, Madhya Pradesh and Andhra Pradesh (Srivastava, 1994).[29] Even some extent of success was also observed in the development of consumer goods industries (chiefly sugar and cotton textiles) in those states.

In spite of the various measures both at the centre as well as state level, the pattern of industrial dispersal has been very limited and even if it took place, it was observed mainly in certain urban agglomerations in the proximity of the earlier industrialized centres. A detailed study by Kundu and Raza (1982)[30] at the NSS region level showing the regional pattern of industrial growth, brought forward a pattern of 'agglomerated' and 'dispersed' industrialization (generally, capital-intensive large scale manufacturing units in a few activities and relatively less capital intensive, spread over small towns and rural settlements).[31] Thus, the main elements of the industrial pattern during 1950s and 1960s suggest a continuation and strengthening of the principal agglomerating factors,

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continued disjuncture between different forms of industry and industry and agriculture and limited impact of large public sector projects on spatial economies (Srivastava, 1994).[32]

On the basis of a detailed appraisal, the NCDBA report also confirms that the working of the main policy instruments strengthened the pattern of agglomerations and limited dispersal, as observed above, of the incentives instituted by the government. The NCDBA Working Group found that, of the total disbursement made till 1978-79 under Central Subsidy Scheme, over 55 per cent had gone to 25 eligible districts - areas of states which were not considered backward by the Pandey Committee. Four of the developed states of Gujarat, Tamil Nadu, Maharashtra and Karnataka accounted for 42 per cent of the same, among the backward states only Andhra Pradesh and Rajasthan received 12.1 per cent and 8.3 per cent of the subsidy disbursed, respectively.

The disbursement of concessional finance to backward areas/regions represents a similar picture; 22 of the 246 eligible districts got Rs. 10 crores or more by way of concessional finance and accounted for 49 per cent of the total disbursals ... All but two of these were in the developed areas of south or the west. Again, some of these were close to the existing industrial centres. However, evidence of successive years indicates a gradual mitigation in the concentration of industrial finance disbursals (VII Plan Vol. II, p. 15).[33] Statewise detail of the Industrial Estates

studied by the committee indicated that the three developed states of Maharashtra, Gujarat and Tamil Nadu accounted for 62.6 per cent of the total employment in the industrial estates. Further, 60 per cent of the employment in the industrial estates were concentrated around 14 towns and 30 per cent of the employment generated was in estates in close proximity to the developed industrial centres of Madras, Bombay and Ahmedabad.[34] It was also noticed that estates in backward areas were beset with problems concerning lack of entrepreneurial resources, skilled labour and market potential.

The policies, thus adopted by the government, no doubt, had its impact in bringing about 'spread effects' of industrialization, but the spread effects remained confined to the regions, states, districts, which are in close proximity to the main industrial centres or are very near to the second level industrial centres. The principal focus of such growth either remained confined to the north-west including Punjab, Haryana, Delhi and Western Uttar Pradesh and the southern states in general and Tamil Nadu and Karnataka in particular. Industrial growth has stagnated in West Bengal, while the other eastern states of Bihar, Orissa and Assam have lagged behind.

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CHAPTER III

PATTERN OF INTER-REGIONAL INDUSTRIAL INEQUALITY IN INDIA

Chapter III

Pattern of Inter-regional
Industrial Inequality

This chapter is largely confined to the analysis of the extent/magnitude and the direction of inter-regional industrial disparity during the period from 1980-81 to 1992-93. The first section of this chapter is mainly devoted to the discussion regarding the data-base and the methodology adopted for the empirical investigations. The second section presents the empirical results concerning the pattern of inter-regional industrial disparity and the changes therein over time. In the third and the final section, the industrial base of various regions (states) and the changes in it over time, if any, have been analysed.

Data Base and Methodology:

The study is conducted for the period 1980-81 to 1992-93, the year for which the latest published data is available. The study is mainly conducted at four points of time: 1980-81, 1985-86, 1990-91 and 1992-93. Considering the states to be regions, an inter-regional analysis is done to examine the industrial inequality taking the seventeen major states of 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. It has not been possible for us to include the north-eastern states,[1] 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 for Delhi, Chandigarh and Pondichery.

The study is confined to the registered manufacturing industries (factory sector)[2], primarily due to the fact that the registered industries are a concern of both central and state governments, the former playing the major role. Consequently, it contributes most in bringing about inter-regional industrial inequality (Dholakia, 1989).[3] He also showed that the weighted co-efficient of variation (weighted by population) over all states is 72.33 per cent for the registered manufacturing sector, while the same value comes out to be just 46.74 per cent for the whole of secondary sector[4] during 1984-85, the same pattern of result was obtained also during 1979-80. Thus the extent of industrial inequality with respect to only the registered manufacturing industries is much higher than that of the whole of secondary sector.

The major and the sole source of data for the part of the study covered in this chapter is the "Annual Survey of Industries", for the corresponding years for which the study is conducted, published by the "Central Statistical Organisation", Department of Statistics, Ministry of Planning, Government of India. The Annual Survey of Industries

publishes the data for the factory sector and the Census Sector[5] for each state and union territory for all the variables at both the 2-digit[6] and 3-digit level of the National Industrial Classification (NIC). The first part of the study in this chapter is done for the whole of registered manufacturing industries (with its 19 sub-groups)[7] together,; the second part, on the other hand, covers all the 19 sub-groups of the registered manufacturing sector individually. The study is done only at the 2-digit level to cover all the sub parts of the registered manufacturing industries.

The first and the foremost procedure adopted to study the inter-regional industrial disparity for the registered manufacturing industries is just to look at the shares of various states in the all India total of (a) value of output, (b) net value added, (c) employment, and (d) fixed capital employed and the corresponding changes in it over time, calculated for four points of time: 1980-81, 1985-86, 1990-91 and 1992-93, only for the registered manufacturing industries.

In the next section, various established measures have been used to assess the regional industrial inequality considering only the registered manufacturing sector. Here, these distinct measures of inequality (inequality indices) are taken into account for the indicators which are derived from the above mentioned variables. These are: (a) value of output per worker; (b) net value added per worker; (c) average employment per factory; and (d) fixed capital employed per worker. The inequality indices

used are: (a) co-efficient of variation (unweighted); (b) Theil's inequality
index; and (c) the Gini's co-efficient. These three measures are selected for
the measurement of industrial disparity because these satisfy almost all
the properties of a good inequality index (Sen, 1973).[8] The co-efficient of
variation is chosen because it satisfies three out of the four properties of
a good inequality index and can be computed very easily. It can be
algebraically put in the following form:

Co-efficient of variation (CV) =   Standard Deviation (SD)
(Relative Standard Deviation)   ----------------------------------
                                               Mean

where, SD = (variance)$^{1/2}$ =

$$\left[\sum \frac{(x_i-\bar{x})^2}{n}\right]^{1/2}$$

and

$$Mean = \frac{\sum x_i}{n} = \bar{x}$$

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 indicator).

While co-efficient of variation satisfies three of the four properties, Theil's index on the other hand satisfies all the four properties. The range of Theil's index lies between zero (0) and log n. The algebraic form of Theil's index is given by:

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

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

$$x_i = \frac{i^{th} \text{ value of the indicator } (i^{th} \text{ observation})}{\text{sum of all the values of the indicator}}$$

$$= \frac{x_i}{\sum\limits_{i=1}^{n} x_i}$$

Finally, Gini's co-efficient, though does not 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, which is usually denoted by

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$$G = 1 + \frac{1}{n} - \frac{2}{n^2 \bar{x}} [nx_1 + (n-1)x_2 + (n-2)x_3 + \ldots + n-(n-1)x_n]$$

where, n = number of observations (number of regions/states in our study),

x_1, x_2,..., x_n are the values of the indicators in ascending order, i.e., $x_1 < x_2 < x_3$, ... $< x_n$,

and $\bar{x}$ = mean of the values of the indicator taken for the

study.

The Patterns and Trends of Regional Industrial Disparity:

Before going to the detail of the trends observed in the inter-regional industrial inequality, we analyse here the trends in the organised[9] industrial sector in the Indian economy on the basis of certain macro level indicators. It would give a more vivid analysis of the magnitude and the direction of industrial inequality in comparison to the national economy as a whole. A capital feature is being observed by the organised manufacturing sector over the periof of study, i.e., from 1980-81 to 1992-93, for the Indian economy as a whole. It is an agreed fact that the highest industrial growth rate has been achieved in 1989-90, i.e., 10.5 per cent. The period between 1985-86 to 1990-91 shows the minimum compound annual growth rate of the organised sector perhaps due to much of the industrial growth being provided by the construction or some other category of industrial sector. The compound annual growth rate between 1985-86 to 1990-91 was 5.81 per cent. It increased to 12.93 per cent

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between 1990-91 and 1992-93, particularly due to the less number of years for which the average has been taken. Thus, the first period of study showed a decline in the growth rate from 8.40 per cent between 1980-81 and 1985-86 to 5.81 per cent between 1985-86 and 1990-91. On the other hand, employment has shown a negative growth rate between 1980-81 and 1985-86 of -0.40 per cent, while in the successive periods of study, it has shown an increase, to 2.12 per cent and further to 3.64 per cent. Almost a consistent picture is depicted by the net value added and the fixed capital employed during the period of study. Since almost same compound annual growth rates are being observed except for the net value added which showed a compound annual growth rate of 4.50 per cent between 1990-91 and 1992-93 showing a sharp decline from 8.65 per cent. The results so far as the performance of all India organised manufacturing sector is considered is summarised in Table 3.0. Thus, over the period, an increase in the growth rates has been observed for both the value of output as well as employment, though some sort of decline being observed for the value of output between 1985-86 and 1990-91.

Table 3.0

**Annual Compound Growth Rates for the Organised
Manufacturing Sector: All India
(1980-81 to 1985-86, 1985-86 to 1990-91 and
1990-91 to 1992-93)**

Variables --> Years	Value of Output	Net Value Added	Employ-ment	Fixed Capital Employed
80-81 to 85-86	8.40	8.22	-0.40	8.59
85-86 to 90-91	5.81	8.65	2.12	10.59
90-91 to 92-93	12.93	4.50	3.64	9.63

Source: Annual Survey of Industries (Factory Sector); CSO,
       Department of Statistics, Ministry of Planning, GOI.

We have overviewed that the first chapter took up in detail the
various studies conducted to observe the magnitude and the direction of
the regional industrial disparity, though most of the studies have reached
the conclusion that regional disparity in industrialization has decreased
over time, but there are certain studies which of course showed an increase
in regional industrial inequality. In this regard, some of the authors have
tried to analyse the factors which have led to such an increase, in other

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words, how far the measures adopted by the government have succeeded in bringing about industrial dispersal and consequently reduction in regional industrial inequality.

The idea regarding the performance of the public sector investment as a measure for the removal of regional industrial disparity can be had from the study made by Seth (1987).[10]   He showed that in 1961, the situation was more favourable to the backward states except for Assam. He, in fact, showed a negative correlation co-efficient between the Index of Regional Intensity of Public Sector Investment[11] and Index of Regional Intensity of Industrialization[12] for the years 1961 and 1981, though not very significant showing that the spatial spread of public sector investment is meant to help the less industrialised states. Table No. 3.1 and Table No. 3.2 give the ranking in terms of Index of Regional Intensity of public investment and Index of Regional Intensity of industrialization respectively. Awasthi (1991),[13] on the other hand, has showed that since the mid-seventies, the government seems to have given priority to the relatively modern sectors, as a consequence, this investment tends to favour some of the developed states.

While some sort of success has been shown by the public sector investment as a measure for the removal of industrial inequality among states, the industrial licensing policy was a major failure in this regard, as

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Table 3.1

Ranking of States in terms of Regional Intensity
of Public Sector Investment (R_p)

State	1961	1971	1981
Andhra Pradesh	10	11	12
Assam	8	8	4
Bihar	3	2	1
Gujarat	14	7	7
Karnataka	6	9	9
Kerala	11	6	11
Madhya Pradesh	2	3	2
Maharashtra	9	10	6
Orissa	1	1	3
Punjab	7	12	8
Rajasthan	12	14	13
Tamil Nadu	5	5	10
Uttar Pradesh	13	13	14
West Bengal	4	4	5

Source: V.K.Seth, Industrialisation of India, P.88.

Table 3.2

Ranking of States in terms of the Index of
Regional Intensity of Industrialization (R_i)

State	1961	1971	1981
Andhra Pradesh	8	8	6
Assam	6	9	10
Bihar	9	10	14
Gujarat	3	3	3
Karnataka	7	7	5
Kerala	5	5	8
Madhya Pradesh	13	11	12
Maharashtra	2	2	2
Orissa	14	14	13
Punjab	10	12	1
Rajasthan	12	6	9
Tamil Nadu	4	4	7
Uttar Pradesh	11	13	11
West Bengal	1	1	4

Source: V.K.Seth, Industrialisation of India, P.87.

put forward by Seth (1987)[14] in Table No. 3.3. He showed that almost the same ranks have been maintained between 1959-66 and 1976-80, so far as the percentage of industrial licences issued is taken under consideration. If at all there is any shift from the developed states, mainly it has gone in favour of the states, which were at the third level of development, as Punjab, Uttar Pradesh and Karnataka, rather than the backward states, which either maintained the share or a decline has been observed, Andhra Pradesh and Rajasthan being the exceptions.

Even within states, the spread effects of industrial growth were confined to regions either close to earlier agglomerations or second level industrial centres, i.e., Delhi, Bangalore, Jallundhar-Ludhiana or areas of heavy public investment with some historical growth antecedents as Jamshedpur-Dhanbad-Bokaro regions (Srivastava, 1994)[15]. He showed that the share of major industrial centre as Greater Bombay, Calcutta, including Howrah, Madras, Delhi, Ahmedabad and Bangalore in the gross value added in factory sector has gone up from 9.6 per cent in 1951 to 12.9 per cent in 1971. According to him, a decline in the co-efficient of variation in the gross value added per capita has been observed between 1961 and 1971 from 92.16 per cent to 64.16 per cent, and he explains this decline as a result of the relative importance of the secondary centres as Delhi, Hyderabad, Bangalore, Bhopal, Jallundhar and Ludhiana. Consequently, a certain extent dispersal was achieved.

Table 3.3

Ranking of States in terms of Number of Licenses Issued
(1959-1980)

State	1959-1966			1976-1980		
	Licenses Issued	Share %	Rank	Licenses Issued	Share %	Rank
Andhra Pradesh	121	3.2	9	154	6.7	8
Assam	30	0.7	14	16	0.7	14
Bihar	125	3.3	8	52	2.2	12
Gujarat	292	7.6	4	322	14.0	2
Karnataka	143	3.8	7	178	7.8	6
Kerala	85	2.2	11	70	3.0	9
Madhya Pradesh	110	2.9	10	59	2.6	11
Maharashtra	1248	32.8	1	612	26.8	1
Orissa	81	2.1	12	25	1.1	13
Punjab	275	7.8	5	187	8.2	3
Rajasthan	63	1.7	15	66	2.8	10
Tamil Nadu	320	8.4	3	184	8.0	5
Uttar Pradesh	206	5.4	6	185	8.1	4
West Bengal	703	18.5	2	171	7.4	7
Total	3802	100.0		2281	100.0	

Source: R.K. Hayami (1967), Industrial Planning and Licensing Policy, Vol.II, Part I, pp.72-77, Planning commission, Government of India.

The beginning of the period of the present study marks the initiation of the Sixth Five Year Plan (1980-85) and the implementation of the Industrial Policy of 1980. The Industrial Policy, in addition to others, also had the objective of "correction of regional imbalance through a preferential development of the industrially backward areas".[16] Though the share of various states in the (i) total value of output, (ii) net value added, (iii) total employment and (iv) total fixed capital employed, at any point of time, does not show industrial inequality, however it gives an idea regarding the changes over time in the inequality observed in the registered

manufacturing industries between the states. The earlier chapters have already shown that, as a result of the colonial legacy, prior to 1947, the industrial activities were mainly concentrated in the port towns of Bombay, Calcutta and Madras. These port towns later became the nuclei for the industrialization of the states of Maharashtra, West Bengal and Tamil Nadu and became the hub of industrial activities.

The present study also starts with a similar picture of the Indian industrial scenario. The results are being summarised in Table No. 3.4 which shows that even after three decades of planning, the three industrially developed states of Maharashtra, West Bengal and Tamil Nadu along with Gujarat, which joined the group later on, accounted for nearly 56.77 per cent of the total output produced in the registered manufacturing industries in India in 1980-81. These states contributed more than half of the (51.36%) total registered manufacturing employment, while it comprises just 28 per cent of the total population in India (as per 1991 Census). A remarkable feature is that Maharashtra alone accounted for nearly one-fourth (23.72%) of the registered manufacturing output and 18.21 per cent of total registered manufacturing employment.

Almost a similar trend is observed during early 90s, though a marginal decline in the share of these four industrially developed states in total output and employment has been revealed by the study. The share of total output has gone down to 48.72 per cent while the share of these

four states in registered manufacturing employment has gone down to 45.55 per cent. It is a noticeable fact that, if West Bengal is kept out of analysis for the time being, then the decrease in the share of Maharashtra, Tamil Nadu and Gujarat between 1980-81 and 1992-93, do not appear significant. Thus, the major decline in the share of the four states can be accounted for the stagnation in the industrial activities in West Bengal between 1985-86 and 1990-91. The stagnation in West Bengal can be explained by several factors and major role has been played by the number of strikes and lock-outs leading to the loss of production and employment. The total number of man-days lost due to disputes in West Bengal stood at 42 per cent of the total man-days lost in India in 1987.[17]

A further exploration into the Table No. 3.4 shows that the share of industrially backward states of Assam, Bihar, Himachal Pradesh, Orissa and Madhya Pradesh in the all India registered manufacturing employment and output has marginally gone up from 11.89 per cent to 12.67 per cent and 10.13 per cent to 13.49 per cent respectively. The increase in the share of the industrially backward states is due to the industrialization of some of the regions of Madhya Pradesh but such industrial area did not develop in any other states mentioned above particularly during the period of study. This was made possible due to the substantial amount of public investment in Madhya Pradesh. The share of Madhya Pradesh in cumulative investment in central public undertaking

in 1980 stood at 14.70 per cent, only after Bihar which had a share of 20.7 per cent.[18] Bihar, in spite of huge public investment, could not come up with a strong industrial base. It may be perhaps due to the lack of infrastructural facilities which Madhya Pradesh could develop over time unlike Bihar. The share of the backward states though increased marginally in manufacturing output but it has shown a decline for registered manufacturing employment between 1980-81 and 1992-93 if Madhya Pradesh is kept out of analysis.

The year 1990-91, as revealed by the study, represents that though the share of the four developed states in employment has decreased with respect to that of 1985-86, their share in the total output has gone up to 57.18 per cent from 52.57 per cent in 1985-86. On the other hand, the share of the backward states in the registered manufacturing employment has gone down marginally from 12.61 per cent in 1985-86 to 12.35 per cent in 1990-91. Thus, a typical feature of the early nineties, i.e. 1990-91 is shown by the fact that employment share has gone down for both the developed and the backward states, the decline being more significant for the developed states. On the other hand, the share of both backward and developed states has gone up in the registered manufacturing output, the increase being much more significant for the developed states. The above feature can be accounted for the fact that the years between 1985-86 to 1990-91 observed substantially high rate of growth of the industrial sector,

the maximum growth rate was achieved during 1989-90. It was around 10.5 per cent followed by the previous year's 8.7 per cent be in 1988-89.[19] This, on the one hand, brought about an increase in the productivity of the industrial sector for the developed states and on the other hand succeeded in creating certain employment opportunities for the backward states. In fact, the inequality was no doubt brought down during the period which further aggravated between 1990-91 and 1992-93.

A major objective of the study was to enquire whether any decline in regional disparity has been observed at all in the registered manufacturing sector over the eighties and early nineties. 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 industrialization and the development of the infrastructural facilities in the second level industrialized states. The second level industrialized states have mainly contributed in bringing down the inter-regional industrial disparity, in other words, if there has been any significant reduction in the share of the developed states, it has more gone to the states of Karnataka, Punjab, Haryana, Andhra Pradesh and Uttar Pradesh. Their shares in manufacturing employment and output have gone up from 28.26 per cent to 32.49 per cent and 22.51 per cent to 33.19 per cent respectively between 1980-81 and 1990-91. However, it further came down to 32.27 per cent and 28.45 per cent respectively. In fact, the

downfall in the shares during 1992-93 is an overall phenomenon because of the decline in the growth rate of the industrial sector, particularly after 1989-90. In other words, the relative shares of the industrially developed states came down in 1992-93, after reaching a high level in 1990-91. Thus, the study, in fact, shows that the industries have mainly concentrated to the regions either very near to the already existing industrial centres or where the basic necessities for industrial development are prevalent, rather than to the really backward areas and/or the remote areas where industries are yet to come up.

The present study also reveals the fact as shown in Table No. 3.4 that though the net value added almost represents the similar behaviour as has been shown by the employment and the output in the registered manufacturing sector, 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 investment. Hence, fixed capital which mainly includes building materials, machineries and other infrastructure are mainly required by the underdeveloped areas and thus bringing about a decline in the level of industrial disparity. Thus, it can be concluded that, it was in early eighties when the removal of regional industrial inequality was given importance among other objectives, but the late eighties and mainly early

TABLE 3.4 RELATIVE SHARES OF THE STATES TO ALL INDIA TOTAL IN FACTORY SECTOR - YEARS 1980-81, 1985-86, 1990-91 AND 1992-93

STATES	VALUE OF OUTPUT (%)				NET VALUE ADDED (%)				EMPLOYMENT (%)				FIXED CAPITAL (%)			
	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93
ANDHRA PRADESH	5.18	6.12	7.1	6.75	4.49	5.16	5.45	5.84	8.73	9.22	10.68	11.24	5.58	6.66	13.76	12.18
ASSAM	1.07	1.62	1.35	1.12	0.93	2.28	1.65	1.36	1.67	1.75	1.48	1.66	1.14	1.42	1.25	1.18
BIHAR	3.25	5.63	5.65	4.24	4.04	5.97	5.6	4.51	4.72	4.61	4.45	4.18	17.31	11.61	6.78	5.78
GUJARAT	12.04	11.4	11.95	11.41	10.31	9.91	8.6	11.97	9.71	9.47	8.65	8.71	10.5	11.93	11.52	11.2
HARYANA	3.05	3.47	4.41	3.6	2.92	3.12	3.46	2.74	2.28	3.04	3.05	2.95	2.65	2.98	2.49	2.4
HIMACHAL PRADESH	0.12	0.25	0.36	0.34	0.18	0.28	0.33	0.36	0.13	0.22	0.3	0.31	0.25	0.49	0.33	0.45
JAMMU & KASHMIR	0.18	0.22	0.21	0.2	0.17	0.24	0.17	0.16	0.27	0.33	0.19	0.19	0.15	0.28	0.08	0.08
KARNATAKA	4.16	3.94	5.3	4.7	5	5.1	5.37	5.44	5.13	4.9	5.27	5.15	5.19	4.84	4.28	3.77
KERALA	3.49	2.61	2.72	2.68	3.01	2.54	2.4	2.54	3.59	3.18	3.43	3.83	2.73	2.97	1.97	1.76
MADHYA PRADEH	4	4.47	6.07	5.72	5.11	4.5	5.87	4.95	3.89	4.3	4.57	4.78	7.54	9.35	6.93	8.25
MAHARASHTRA	23.72	22.51	26.43	21.22	26.32	26.31	23.39	23.87	18.21	16.68	15.78	15.23	16.03	16.79	17.43	17.28
ORISSA	1.69	1.7	2.64	2.07	1.53	1.35	2.05	1.88	1.48	1.73	1.55	1.74	2.55	3.09	3.53	4.01
PUNJAB	4.03	4.34	5.45	4.54	2.59	3.14	3.58	3.06	2.89	3.81	4.16	4.02	3.31	2.93	2.69	2.71
RAJASTHAN	2.38	2.79	3.68	3.06	2.09	2.28	3.03	2.82	2.11	2.51	2.68	2.67	2.67	3.91	3.14	3.43
TAMIL NADU	10.95	10.92	11.92	10.65	10.29	10.37	11.49	11.21	10.24	12.45	12.01	12.71	7.33	10.23	8.37	8.57
UTTAR PRADESH	6.09	7.39	10.93	8.84	6.17	6.19	8.13	8.45	9.23	8.67	9.29	8.91	5.29	6.75	7.79	7.2
WEST BENGAL	10.06	7.74	6.88	5.44	12.31	8.77	6.47	5.83	13.2	11.26	9.48	8.9	7.73	7.85	6.11	7.68

Source: Computed from the "Annual Survey of Industries" (Factory Sector), CSO, Department of
       Statistics, Ministry of Planning. The values of Jammu and Kashmir for the year 1992-93
       excludes the Srinagar area because it could not be surveyed as a result of distirbance in the region.

nineties, the objective of the removal of regional imbalance in general and achievement of regional industrial equality in particular became an issue of lesser concern, the predominant objective being the achievement of higher growth rates.

Here some of the sophisticated inequality indices will be taken up to measure the magnitude and the direction of the inter-regional industrial inequality after having a broad idea regarding the same. The study aims at calculating the inequality indices for the four indicators: (a) value of output per worker; (b) net value added per worker; (c) fixed capital employed per worker, and (d) average employment per factory as shown in Table 3.5. It has been shown in the previous study that the inter-regional industrial inequality has decreased during early eighties, but the late eighties and early nineties has shown an increase in the inequality. Here, with the help of the inequality indices almost a similar conclusion has been reached. It is shown in Table No. 3.6 that all the three inequality indices taken for the study show a decline between 1980-81 and 1985-86, while between 1985-86 and 1990-91 as well as between 1990-91 and 1992-93 successive increase in the inequality indices has been observed for the value of output per worker. On the other hand, successive decline in the values of the inequality indices is seen between 1980-81 and 1985-86 as well as between 1985-86 and 1990-91, but an increase is seen during 1990-91 and 1992-93 for both net value added per worker as well as fixed capital

TABLE 3.5 THE VALUES OF THE INDICATORS DETERMINED FROM ASI DATA

STATES	VALUE OF OUTPUT PER WORKER				NET VALUE ADDED PER WORKER				FIXED CAPITAL EMPLOYED PER WORKER				AVERAGE EMPLOYMENT PER FACTORY			
	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93	1980-81	1985-86	1990-91	1992-93
ANDHRA PRADESH	0.57	1.33	2.3	3.03	0.09	0.2	0.37	0.46	0.18	0.43	1.7	1.96	54.46	47.77	50.78	49.94
ASSAM	0.64	1.89	3.22	3.4	0.1	0.48	0.82	0.74	0.2	0.49	1.13	1.29	75.13	62.61	71.32	77.92
BIHAR	0.76	2.1	4.78	5.56	0.17	0.52	0.98	1.05	1.22	2.68	2.18	2.72	84.72	65.06	101.5	94.64
GUJARAT	1.23	2.49	5.1	7.25	0.19	0.4	0.76	1.35	0.32	0.78	1.88	2.56	60.53	61.2	58.37	60.64
HARYANA	1.44	2.52	5.68	7.07	0.25	0.41	0.92	0.96	0.37	0.65	1.22	1.69	63.22	65.9	71.71	73.04
HIMACHAL PRADESH	1.01	2.57	4.82	6.21	0.15	0.52	0.91	1.17	0.63	1.54	1.67	2.94	70.29	72.31	91.67	87.22
JAMMU & KASHMIR	0.66	1.39	4.28	5.72	0.12	0.28	0.72	0.8	0.16	0.54	0.62	0.79	60.81	62.47	58.98	56.82
KARNATAKA	0.86	1.77	3.96	5.23	0.19	0.42	0.83	1.08	0.32	0.65	1.22	1.51	67.79	60.51	65.29	66.94
KERALA	0.94	1.67	2.71	3.46	0.15	0.29	0.5	0.58	0.22	0.57	0.75	0.82	83.68	69.01	72.52	76.42
MADHYA PRADEH	1.11	2.27	5.21	6.88	0.26	0.41	1.04	1.06	0.62	1.43	2.27	3.57	79	72.08	85.19	95.22
MAHARASHTRA	1.44	3.1	6.7	8.21	0.29	0.66	1.23	1.64	0.29	0.69	1.68	2.4	82.27	74.78	74.35	72.33
ORISSA	1.21	2.2	5.01	6.48	0.2	0.32	1.04	1.04	0.54	1.2	3.31	4.51	67.82	80.11	82.41	90.06
PUNJAB	1.38	2.32	4.73	6.13	0.16	0.3	0.64	0.73	0.34	0.47	0.89	1.31	35.14	43.8	48.37	48.68
RAJASTHAN	1.18	2.38	5.12	6.46	0.19	0.35	0.9	1.06	0.39	1.01	1.71	2.6	55.78	56.94	57.33	53.19
TAMIL NADU	1.08	1.91	3.59	4.45	0.18	0.33	0.72	0.83	0.21	0.54	0.96	1.29	70.67	67.62	60.81	56.55
UTTAR PRADESH	0.68	1.81	4.47	5.6	0.13	0.27	0.69	0.95	0.17	0.5	1.21	1.64	93	80.64	68	71.1
WEST BENGAL	0.79	1.44	2.73	3.33	0.18	0.3	0.53	0.63	0.18	0.44	0.92	1.7	142.92	136.42	128.87	125.57

Source: Annual Survey of Industries, Factory Sector, CSO, Department of Statistics, Ministry of Planning. Government Of India.

employed per worker. So far as the average employment per factory is taken under consideration, no specific direction of the change in the inter-regional industrial disparity is observed.

Thus, broadly this section of the study concludes that the major inequality that has been observed mainly showed a declining trend during the eighties but with the beginning of 90s, the industrial inequality measured for the organised sector was at an increase. This can be explained on the background that the early eighties had the major concern of the removal of regional industrial disparity, though policies were not adopted to hit directly the problem of regional imbalance but it was never ignored. But the beginning of the decade of 90s saw India open in front of the world market. The nineties came simultaneously with the new economic policy in general and the new industrial policy in particular, which let open the Indian economy and connected it with the world market. The major objective being growth, the problem of regional imbalance no more remained a subject of concern. The new industrial policy had in fact remained naive with respect to the problem of regional imbalance in general and industrial inequality in particular. Certain procedures and policies adopted by the government had only been taken up to help the industrially developed regions. The industrial licensing has been removed for almost all the industries. Approval has been given for direct foreign investment upto 51 per cent for the priority industries, the

TABLE NO. 3.6   INDICES OF INTER-STATE REGIONAL INDUSTRIAL INEQUALITY IN INDIA   (1980-81, 1985-86, 1990-91 AND 1992-93)

	VALUE OF OUTPUT PER WORKER			
	1980-81	1985-86	1990-91	1992-93
1. Co-efficient of Variation	0.2803	0.2328	0.2581	0.2693
2. Theil's Index	0.0173	0.0119	0.0151	0.0166
3. Gini's Co-efficient	0.1608	0.1324	0.1654	0.1514

	NET VALUE ADDED PER WORKER			
	1980-81	1985-86	1990-91	1992-93
1. Co-efficient of Variation	0.3	0.2924	0.2661	0.2958
2. Theil's Index	0.0197	0.018	0.016	0.019
3. Gini's Co-efficient	0.1664	0.1602	0.15	0.1617

	FIXED CAPITAL EMPLOYED PER WORKER			
	1980-81	1985-86	1990-91	1992-93
1. Co-efficient of Variation	0.6808	0.4985	0.441	0.4644
2. Theil's Index	0.0794	0.0485	0.0393	0.0447
3. Gini's Co-efficient	0.3604	0.2598	0.236	0.2538

	AVERAGE EMPLOYMENT PER FACTORY			
	1980-81	1985-86	1990-91	1992-93
1. Co-efficient of Variation	0.2994	0.2782	0.2668	0.2642
2. Theil's Index	0.0179	0.0579	0.0143	0.0088
3. Gini's Co-efficient	0.1488	0.1267	0.1407	0.1445

Source: Based on the Data provicded in Table 3.5

government also decided to provide automatic approval for technology agreements even foreign technology agreements related to high priority industries. Lastly, the public sector was simply made to play the role of a mere spectator. Its sphere of action became limited with the opening of the Indian economy and excessive role assigned to market forces with the privatisation.

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 industrialization has been widely discussed by many scholars, the most significant among them were Hoffman (1958)[20], Chenery (1960)[21] and Kuznetz (1971).[22] The common idea that remained behind their discussion is 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 gather some idea regarding the industrial structure of the regions (states), considered in the study. In fact, it tries to give an idea regarding the industrial bases of the

various regions and to show the changes that have taken place in those regions, over the period of study, if any. Here, we take up the 2-digit National Industrial Classification (NIC) to observe the changes in the industrial bases of the regions over the period of study.

As discussed earlier, the industrial bases over the regions were mainly studied on the basis of Location Quotients,[23] as done by Alagh et.al (1971a)[24] and the extent of diversification of industries in a particular region with respect to national economy has been studied by co-efficient of specialization.[25] Though specialiation co-efficient gives an idea of the extent of diversification but location quotient usually does not provide a clear idea of the extent of concentration of a particular industry in a region. Since a value of location quotient greater than one obviously gives the idea that the industry is concentrated in the region but does not give the magnitude of concentration. 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 2-digit NIC level. In fact, we have simply taken the percentage of employees in the particular industry to that of the total industrial employment in the state. As Papola (1981)[26] reveals that with the progress of industrialization of a region, gradually the extent of concentration of the resource-based industries decline and the 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 its total organised industry employment in the manufacture of food products, 11 of these fourteen states have even more than 10 per cent of the total employment of the state, in 1980-81. In the next three periods of study, though the relative share of manufacture of food products in total industrial employment has gone down, but the number of states have almost remained the same. It is a noticeable fact that in all the four periods under study, more than 50 per cent of the total industrial employment has been provided by manufacture of food products for Assam.

One can look carefully into the aspect that in 1980-81, nearly three-fourth of the total employment in Assam has been generated by manufacture of food products and manufacture of wood and wood products furnishers and fixtures. In 1985-86, though it came down but even then it remained quite higher than two-third of the total employment. An increase is observed in 1990-91 and in 1992-93, it has just gone down the two-third proportion. 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 resaonably that these three regions

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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 20.30 per cent, 36.00 per cent and 36.70 per cent for Madhya Pradesh, Bihar and Orissa respectively. In the subsequent periods, no significant decline has been observed rather for Madhya Pradesh and Bihar, the share has increased gradually and for Orissa, finally there is an increment though it decreased in 1985-86. Another important industry which contributed to the employment generation in these three states were 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 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 manufacture of food products, manufacture of cotton textile and manufacture of chemicals and chemical products. In 1980-81, the concentration in Gujarat being much more than Maharashtra, as these three industries have a share of 57.06 per cent of employment in Gujarat while it is just 39.15 per cent in Maharashtra. Comparatively the diversification in Maharashtra is more, where manufacture of transport equipments and parts also have a

substantial share in total industrial employment. In fact, for both these states, the diversification has increased during 1985-86, where other industries have also come over the scene. As for Gujarat, manufacture of non-metallic mineral products and manufacture of wool silk, and synthetic fibre textiles have played a significant role. The manufacture of wool, silk and synthetic fibre became 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 1992-93. The year 1992-93, observed a wide spread diversification in both these states, with five to six industries having more than 8 per cent to 9 per cent of the total industrial employment and even more and many other having 4 per cent to 5 per cent of the share of total industrial employment.

In the southern states, Andhra Pradesh and Kerala mainly specialize in manufacture of beverages, tobacco and tobacco products, while Tamil Nadu and Karnataka mainly specialize in manufacture of cloth textiles. In addition, all the four southern states have a substantial employment generated by the manufacture of food products. While manufacture of food product and manufacture of beverages, tobacco and tobacco products provided 52.5 per cent and 46.36 per cent of the total industrial employment, in Andhra Pradesh and Kerala respectively, in 1980-81, manufacture of food products and manufacture of cotton textiles contributed for 35.77 per cent 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 1985-86 though some employment was generated by the manufacture of cotton textiles. 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 machineries and equipments on the one hand and petroleum, chemical, mineral products on the other. The year 1990-91 not only maintained the position achieved in 1985-86 but the share of intermediate and capital goods increased at the cost of a decline in the share of the employment generated by the consumer goods as manufacture of food products and the manufacture of cotton textiles, though the decline was not significant. The shares of these industries further increased and a wide spread diversification was observed in 1992-93 for Tamil Nadu and Karnataka.

The north-western states of Punjab, Haryana and Uttar Pradesh reflect a unique feature. Of course, UP mainly concentrates in manufacture of food products and manufacture of cotton textiles, whose share in total industrial employment stands at 43.32 per cent in 1980-81 which has in fact gone down in 1985-86 and further in 1992-93 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 manufacture of food products and manufacture of cotton textiles, and also

manufacture of wool, silk and synthetic fibre textiles, on the other hand it shows concentration of basic metal and alloy industries, manufacture of machine tools and parts and manufacture of transport equipment and parts. The former group of industries in Punjab and Haryaya is concentrated because these are the most agriculturally developed regions and the latter group of 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).[27]

Rajasthan on the one 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 a dissimilarity in the sense that it does not have any concentration of food product industries particularly because of the deserts which cover a substantial area of the state. Himachal Pradesh has a balanced structure as 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 of the 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 sgnificant concentration of the manufacture of wool, silk and synthetic fibre textiles

and manufacture of textiles products including weaving apparel with a share of 31.37 per cent in the total industrial employment of the state. The year 1985-86 observed a drastic fall in the share of manufacture of textiles products including weaving apparel particularly due to the disturbed situation in the states, since the output of this industry was mainly taken out for sale. Gradually the manufacture of textile products including weaving apparel has given way to the manufacture of food products whose share has increased from 6.68 per cent in 1985-86 to 16.96 per cent in 1992-93. The year 1992-93 also observed the development of basic metal and alloy indusrtries in Jammu and Kashmir which, in fact, started in 1990-91 and the share being more than that of 1992-93. Thus, in Jammu and Kashmir, a significant change has been observed in the industrial base over the period of 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 hemp and mesta textiles, basic metal and alloy indusries and manufacture of transport equipment and parts with a share of almost half of the total industrial employment of the state (49.06 per cent). This came down to 46.38 per cent in 1985-86 and further to 45.17 per cent, but the decline was quite insignificant. In 1992-93, of course, a good share of employment has been generated by the

manufacture of electrical machinery, apparatus, appliances and supplies and manufacture of machinery, machine tools and parts, which account for 9.09 per cent of the total industrial employment. Though the manufacture of food products contributed 7.76 per cent of total industrial employment in 1985-86, it again lost ground in 1992-93, but not much substantially. In fact, the industrial base of West Bengal can be said to mainly concentrate in the manufacture of jute, hemp and mesta textiles, which started as early as in the pre-independence period, particularly due to the favourable climate which helped its growing.

The study made in this section also reveals two more significant features of the industrial bases of various regions. Firstly, though the major concentration of industries was mainly based on the raw material based industries for almost all the regions, it is a significant feature, that mainly a substantial proportion of employment is being generated in the manufacture of machinery, machine tools and parts, manufacture of electrical machinery, apparatus, appliances and supplies and manufacture of transport equipments and parts, particularly for the developed states, mainly Maharashtra, Tamil Nadu and West Bengal. Even more concentration of these industries is being observed in Punjab and Haryana. Here it needs mentioning that, on the other hand, the basic metal and alloy industries are mainly concentrated in the regions where the natural resources are abundant. Bihar, Orissa and Madhya Pradesh form a

substantial proportion of industrial employment in this particular industry and to some extent, West Bengal which too has certain resource rich regions. Here, it is to be mentioned thatthough natural resources do play a significant role in bringing about the concentration of industries in different regions as has been seen in our study also 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 observed in those days and even now mainly industries get concentrated in the vicinity of these industrial areas.

The second factor revealed by the study also shows that due to the substantial growth rate of the industrial sector for some of the years between 1985-86 and 1990-91, though the share of the employment in the resource based industries in the less diversified areas (where one or two industrial activity generates maximum employment) have increased in 1990-91 but due to overall diversification particularly for the top level industrialized states and the states at the next level of industrialization have shown a gradual shift in the proportion of the dominating industries in employment to some other. Thus, it is seen that the share of

employment in the resource-based industries has increased for many states during 1990-91 but a gradual increase in the share of other industries as a whole has been observed over the four points of time considered under the study.

The broad conclusions revealed by this part of the study can be tabulated as follows:

(a)   In all the four periods 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.

(b)   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 resource in the region.

(c)   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 infrastructural 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 and Haryana, and West Bengal and Maharashtra.

(d)   Except for some of the states as Gujarat, Maharashtra, Karnataka and Tamil Nadu, no significant diversification of industries has been observed during 1980-81 to 1992-93. Though these states have diversified a lot but even in early 90s, the raw material based industries form a substantial proportion as seen from the employment aspect.

TABLE NO. 3.7   RELATIVE SHARES OF EACH INDUSTRY TO THE TOTAL INDUSTRIAL EMPLOYMENT OF THE STATES (1980-81)

2-DIGIT NIC INDUSTRY CODE	20.21	22	23	24	25	26	27	28
STATES								
ANDHRA PRADESH	20.17	32.33	6.53	0.56	2.41	0.16	0.41	3
ASSAM	64.69	0.09	1.66	0*	1.4	0*	9.59	2.86
BIHAR	14.57	1.19	1.12	0.22	1.79	0.15	0.36	2.78
GUJARAT	9.91	1.84	37.34	5.37	0.01	1.04	0.59	2.39
HARYANA	10.88	1.04	8.35	6.25	0	0.96	0.32	5.1
HIMACHAL PRADESH	2.52	3.45	0	2.39	0	0	1.97	4.54
JAMMU & KASHMIR	7.73	1.46	0**	22.03	0	9.34	4.39	1.5
KARNATAKA	20.74	3.22	12.62	1.41	0	1.7	2.28	4.91
KERALA	39.18	7.18	6.68	0.73	0	2.04	5.02	3.55
MADHYA PRADEH	11.02	4.85	19.78	2.31	0	0.96	1.06	4.16
MAHARASHTRA	11.1	4.66	18.15	4.95	0.01	1.8	0.51	3.75
ORISSA	8.68	1.06	6.81	0	1.69	0.05	2.46	9.57
PUNJAB	17.4	1.43	9.24	9.26	0	1.74	0.45	1.18
RAJASTHAN	8	1.07	16.36	8.18	0.09	1.33	0.06	1.55
TAMIL NADU	17.3	1.18	18.47	1.98	0.05	1.99	0.64	3.71
UTTAR PRADESH	34.06	3.12	9.26	1.16	0.91	0.62	0.29	2.48
WEST BENGAL	7.4	0.58	6.24	1.1	24.63	0.79	0.62	3.56

Source: Annual Survey of Industries, Factory Sector (Summary Results).
        Department Of Statistics;Ministry Of Planning.
        * Included in industry group 29.
        ** Included in industry group 40, which is not a part of manufacturing industry.

Table 3.7 (Contd.)

29	30	31	32	33	34	35	36	37	38	39
0.18	0.47	4.95	2.87	8.36	0.9	3.25	3.39	2.6	0.56	0
0.28	1.33	3.58	.1.36	1.37	0.57	0.68	0**	1.96	0	0
0.65	6.25	5.18	9.89	26.8	0.67	2.28	1.46	8.65	0	0
0.08	1.67	9.81	6.61	3.47	2.21	6.75	2.57	1.86	0.88	0
0.07	4.19	3.79	4.64	8.86	6	15.51	5.41	8.85	1.21	0
0	0	6.1	4.56	2.1	0.52	7.13	0.79	0	2.4	0
0**	0.35	3.81	0	0.87	1.39	1.44	1.14	1.54	4.36	0
0.12	1.76	4.52	6.11	6.34	1.66	5.97	9.27	4.46	1.31	0
2.93	0*	5.9	5	1.3	1.19	1.33	2.79	1.78	0.62	0
0.29	0.36	3.93	6.24	14.26	1.32	1.38	7.62	2.14	0.15	0
0.13	3.29	9.9	2.92	5.4	4.23	7.79	5.07	7.69	1.49	0
0.05	0.33	3.87	11.57	25.13	1.21	1.85	0.7	0.18	0.13	0
0.41	1.92	3.32	0.46	10.9	4.95	7.42	2.51	9.79	1.16	0
0.15	1.18	4.7	7.87	6.12	1.69	3.61	3.44	9.05	0.76	0
2.8	2.26	9.41	3.16	3.96	2.31	6.71	2.63	8.52	0.52	0
1.34	1	3.45	5.16	4.31	1.7	2.09	4.8	5.13	0.56	0
1.67	2.88	4.41	2.27	12.85	2.97	5.45	4.22	11.58	1.03	0

TABLE NO. 3.8 RELATIVE SHARES OF EACH INDUSTRY TO THE TOTAL INDUSTRIAL EMPLOYMENT OF THE STATES (1985-86)

2-DIGIT NIC INDUSTRY CODE	20.21	22	23	24	25	26	27	28
STATES								
ANDHRA PRADESH	15.9	29.07	8.27	0.28	2.45	0.22	0.31	4.15
ASSAM	59.49	0.22	1.67	0	0.47	0	11.38	1.07
BIHAR	4.74	1.24	1.22	0.32	1.25	0.2	0.64	1.67
GUJARAT	9.57	1.57	23.79	8.23	0.07	1.6	0.41	2.57
HARYANA	11.42	1.2	5.33	3.7	0.07	0.59	0.36	4.26
HIMACHAL PRADESH	2.22	2.13	2.89	3.2	0	0.22	0.47	3.82
JAMMU & KASHMIR	6.68	1.68	0	15.65	0	3.4	2.97	2.17
KARNATAKA	12.62	2.49	10.22	2.12	0	2.22	2.14	4.05
KERALA	30.16	7.99	7.78	0.34	0	2.66	5.15	3.8
MADHYA PRADEH	8.54	5.21	15.56	3.18	0.59	0.41	1.11	3.13
MAHARASHTRA	8.83	4.4	14.97	6.07	0.01	1.65	0.44	4.58
ORISSA	5.57	0.9	10.35	0	1.68	0.19	2.05	9.46
PUNJAB	16.11	1.41	6.34	12.9	0.16	2	0.22	2.1
RAJASTHAN	5.74	0.91	13.03	10.19	0.02	1.85	0.07	1.63
TAMIL NADU	12.23	1.16	18.89	1.16	0.03	3.1	0.62	4.09
UTTAR PRADESH	24.27	1.73	10.87	1.36	0.82	0.79	0.32	3.23
WEST BENGAL	7.76	0.59	5.9	1.27	22.18	0.75	0.62	3.12

Source: Annual Survey of Industries, Summary Results (Factory Sector).

* Included in industry group 38.

Table 3.8 (Contd.)

29	30	31	32	33	34	35	36	37	38	39
0.32	1.19	5.56	5.45	3.11	1.32	4.07	4.93	3.1	0.58	--
0.49	3.49	4.33	7.22	1.57	0.79	1.16	0.62	2.8	0	--
0.73	6.53	7.06	12.37	31.25	0.84	5.17	1.62	9.93	0.11	--
0.09	2.12	12.55	8.53	4.85	2.45	7.23	3.14	1.95	1.28	--
0.33	4.14	2.97	10.57	6.86	4.3	12.47	4.98	8.8	0.67	--
0	0.35	4.98	4.87	2.27	0.64	4.67	0.99	0.93	3.54	--
0.27	0.67	4.08	3.81	1.64	1.67	2.07	1.86	0.34	3.78	--
0.35	1.87	4.38	6.8	6.93	2.14	7.53	11.09	5.52	1.83	--
0.05	3.67	7.28	6.52	1.89	1.74	2	4.23	2.04	0.85	--
0.48	0.56	5.07	8.82	15.29	1.16	1.55	7.54	2.27	0.11	--
0.31	3.22	9.92	3.31	5.63	3.98	7.82	5.97	7.27	1.49	--
0.17	0.42	3.48	7.88	24	2.74	2.4	1.34	0.45	0.31	--
0.62	2.55	3.69	0.51	8	4.2	6.27	2.05	9.04	0.76	--
0*	1.26	6.43	9.95	6.77	1.78	4.34	2.91	7.3	0.57	--
3.63	2.44	10.98	3.57	3.61	2.25	7.94	2.85	9.86	0.48	--
1.77	1.96	4.57	6.92	4.79	2.01	4.52	5.05	6.18	0.99	--
1.55	2.37	4.76	2.41	14.64	2.51	4.9	4.48	9.56	0.91	--

TABLE NO. 3.9: RELATIVE SHARES OF EACH INDUSTRY TO THE TOTAL INDUSTRIAL EMPLOYMENT OF THE STATES (1990-91)

2-DIGIT NIC INDUSTRY CODE	20.21	22	23	24	25	26	27	28
STATES								
ANDHRA PRADESH	15.75	33.2	6.4	0.67	1.81	0.23	0.26	3.29
ASSAM	64.04	0.14	1.3	0**	1.3	0.12	11.44	2.35
BIHAR	6.14	3.65	0.94	0.24	1.26	0.2	0.63	1.24
GUJARAT	10.1	1.32	19.47	9.49	0	1.93	0.38	2.75
HARYANA	13.92	1.01	5.28	5.12	0**	1.11	0.34	3.85
HIMACHAL PRADESH	1.57	2.01	0	9.56	0	0.43	0.26	3.35
JAMMU & KASHMIR	18.83	4.61	3.43	24.1	0	2.29	2.86	2.85
KARNATAKA	12.72	2.81	8.63	1.88	0.05	6.09	1.3	5.42
KERALA	31.82	14.34	6.46	0**	0.83	1.55	3.75	3.09
MADHYA PRADEH	8.21	5.21	12.06	3.59	0.42	0.27	0.66	3.46
MAHARASHTRA	10.11	5.37	13.08	5.15	0	1.88	0.3	3.57
ORISSA	5.97	0.83	8.95	0.16	0.21	0.56	1.8	6.76
PUNJAB	15.34	1.18	7.92	0.98	0.01	3.3	0.14	1.78
RAJASTHAN	4.78	0.85	12.68	14.42	14.42	1.06	0.1	1.33
TAMIL NADU	12.15	1.21	18.02	0.87	0.22	4.6	0.44	3.79
UTTAR PRADESH	24.93	2.19	7.62	1.55	0.55	1.5	0.39	3.59
WEST BENGAL	7.46	4.12	4.12	1.59	22.52	0.6	0.95	0.29

Source: Annual Survey of Industries, Summary Results (Factory Sector).

** Included in industry group 38.

Table 3.9 (Contd.)

29	30	31	32	33	34	35	36	37	38	39
0.41	3.03	13.58	5.41	5.54	2.52	3.13	4.57	1.44	0.66	2.6
0	0.71	4.45	5.93	1.83	1.1	1.22	0.62	0.51	0.11	0.78
0.8	4.47	6.29	12	34.16	0.9	3.8	1.46	10.3	0.11	0.29
0.12	14.06	3.07	7.64	3.65	2.98	7.56	3.62	1.84	1.28	1.17
0.28	2.84	3.6	8.11	5.42	3.09	13.3	3.89	10.98	1.34	3.02
0**	2.93	1.17	4.71	3.64	2.32	3.38	1.08	0**	2.65	0.65
0**	9.04	1.41	1.61	9.12	6.22	3.09	2.23	0**	4.9	2.47
1.08	4.23	2.47	5.83	5.01	2.99	6.95	12.18	6.18	2.15	2.48
0**	7.21	3.38	5.75	1.72	1.4	1.59	3.13	1.75	1.44	1.52
0.48	4.07	1.67	8.48	16.53	1.88	1.63	6.85	2.63	0.27	0.42
0.31	10.48	3.41	3.33	4.88	4.14	7.8	5.75	6.56	1.62	3.84
0.15	5.76	0.75	10.36	22.26	3.67	1.81	1.65	0.28	0.12	0.5
0.59	3.02	3.04	0.39	5.87	3.21	4.52	3.01	10.49	0.53	0.42
0.17	2.9	3.38	10.82	5.49	1.97	4.53	3.41	5.44	1.65	4.9
5.52	10.47	2.53	3.11	2.79	2.02	7.5	2.6	9.17	0.84	1.82
2.01	5.12	3.42	5.39	4.15	2.43	2.4	8.19	5.17	1.18	2.87
1.53	4.44	3.72	2.36	15.47	3.09	5.68	4.54	8.77	1.23	0.71

TABLE NO. 3.10   RELATIVE SHARES OF EACH INDUSTRY TO THE TOTAL INDUSTRIAL EMPLOYMENT OF THE STATES (1992-9:

2-DIGIT NIC INDUSTRY CODE	20.21	22	23	24	25	26	27	28
STATES								
ANDHRA PRADESH	15.38	34.99	5.89	0.85	1.12	0.23	0.32	3.19
ASSAM	55.8	0**	1.83	1.53	1.14	0**	10.03	3.32
BIHAR	5.92	2.88	0.86	0.16	1.13	0.25	0.76	1.21
GUJARAT	8.95	1.17	15.96	9.22	0**	1.84	0.38	2.66
HARYANA	11.55	1.24	5.71	5.72	0**	0.93	0.3	4.06
HIMACHAL PRADESH	2.22	1.92	2.87	8.75	0	0.32	0.22	3.16
JAMMU & KASHMIR	16.96	6.67	3.34	23.04	0	3.59	2.18	3.8
KARNATAKA	11.96	2.74	7.66	1.81	0.07	8.23	1.25	4.78
KERALA	38.44	11.56	5.86	0**	0.74	0.82	3.23	3.63
MADHYA PRADEH	8.78	5.52	7.22	3.6	0.68	0.33	0.75	3.07
MAHARASHTRA	10.51	5.55	12.72	4.6	0	0.2	0.28	3.42
ORISSA	6.68	0.72	7.56	0.14	1.5	0.49	1.34	8.14
PUNJAB	14.94	1.33	7.5	8.79	0	2.76	0.14	1.76
RAJASTHAN	5.09	1.7	11.74	14.65	0	1.16	0.13	1.27
TAMIL NADU	12.17	0.96	17.91	0.75	0.26	5.4	0.49	3.89
UTTAR PRADESH	26.32	2.17	7	2.03	0.63	1.24	0.38	3.69
WEST BENGAL	7.72	1.28	3.82	1.02	22.54	0.71	0.72	3.02

Source: Annual Survey of Industries, Summary Results (Factory Sector).

* Includes industry group 36.
** Included in industry group 38.

Table 3.10 (Contd.)

29	30	31	32	33	34	35*	36	37	38	39
0.38	4.36	1.47	4.9	4.63	2.37	7.16	--	1.2	0.7	3.62
0	3.59	4.22	7.77	1.35	1.18	1.08	--	1.9	0.07	2.4
0.71	4.05	6.74	13.15	31.97	1.49	5.45	--	11.32	0.12	0.43
0.13	16.52	3.32	7.38	4.9	2.9	11.35	--	2.57	1.4	1.84
0.38	3.39	2.94	6.74	5.16	4.21	16.42	--	11.47	2.13	3.39
0.42	3.21	0.48	5.08	2.68	1.16	5.21	--	0**	2.47	0.45
0**	7.03	2.19	1.46	8.66	4.87	7.72	--	0**	5.23	2.41
1.05	4.25	1.95	6.27	4.83	2.53	20.28	--	5.45	2.32	3.25
0**	6.17	4.58	5.52	1.3	1.02	4.73	--	1.69	0.99	1.69
0.46	5.24	2.27	8.66	20.31	1.43	8.83	--	2.69	0.26	0.96
0.3	10.54	3.79	3.16	4.86	4.46	13.34	--	6.13	1.97	3.99
0.1	5.41	2.29	10.32	22.75	2.57	3.11	--	0.29	0.13	1.65
0.58	2.87	3.78	0.34	5.73	3.48	0.72	--	11.13	0.57	0.57
0.31	3.67	2.22	11.21	5.41	1.97	8.35	--	5.94	1.07	3.18
5.72	11.35	2.67	3.01	3.15	1.91	9.86	--	8.95	1	2.36
1.91	5.8	3.09	5.53	4.04	2.39	11.71	--	6	1.15	2.34
1.39	4.57	3.76	2.18	14.85	2.72	9.09	--	7.78	1.13	2.22

Notes and References

1. The North Eastern states left out of study are: Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim.

2. The registered manufacturing sectors (Factory Sectors) are those which are being registered under the Factories Act of 1948 and which employ 10 workers or more with the use of power and/or 20 or more workers without the use of power.

3. Dholakia, R.H. (1989), "Regional Aspects of Industrialization in India", Economic and Political Weekly, Nov. 18, 1989.

4. Ibid., p. 2563.

5. The Census Sector covers those industries with 100 or more workers and rest are classified under non-census sector.

6. Since the ASI of 1973-74, the National Industrial Classification (NIC 1970) is being followed for classification of the factories in 2-digit and 3-digit frame.

7. The nineteen sub-groups according to 2-digit NIC are:

   20-21: Manufacture of food products.
   22: Manufacture of Beverages, Tobacco and Tobacco products.
   23: Manufacture of cotton textile.
   24: Manufacture of wool silk and synthetic fibre textiles.
   25: Manufacture of jute hemp and mesta textile.
   26: Manufacture of textile products including wearing apparel.
   27: Manufacture of wood and wood products, furnishers and fixtures.
   28: Manufacture of paper and paper products, printing, publishing and allied industries.
   29: Manufacture of leather and fur products.
   30: Manufacture of rubber, plastic, petroleum and coal products.
   31: Manufacture of chemicals and chemical products.
   32: Manufacture of non-metallic mineral products.
   33: Basic metal and alloy industries.
   34: Manufacture of metal products and parts.
   35: Manufacture of machinery, machine tools and parts.
   36: Manufacture of electrical machinery, apparatus, appliances and supplies.
   37: Manufacture of transport equipments and parts.

38:    Other manufacturing industries.

39:    Repair Services.

8.   See, Amartya Sen (1973); Measures of Inequality; Ch. 2; pp. 24-31.

9.   In the present study, the organised sector and the registered sector will be used synonymously.

10.   See, V.K. Seth (1987); Industrialization in India: Regional Perspective; Ch. 3; p. 87.

11.   Ibid., pp. 87-88.

12.   Ibid., p. 88.

13.   See, D.N. Awasthi (1991), Regional Patterns of Industrial Growth in India; Ch. 2.

14.   V.K. Sethi, op.cit., p. 85.

15.   See Ravi Srivastava (1994); "Planning and Regional Disparities in India", in Terence J. Byres (ed.), The State and Development Planning in India, p. 175.

16.   Government of India, Sixth Five Year Plan (1980-85); Planning Commission.

17.   Government of India: Indian Labour Statistics, Labour Bureau, Ministry of Labour; 1987-90.

18.   D.T. Lakdawala, "Plan Finances in a Federal Economy", Yojana, May 16, 1979, p. 13.

19.   "Handbook of Industrial Statistics" (1992), Ministry of Industry, Government of India [Office of the Economic Adviser].

20.   W.G. Hoffman, The Growth of International Economies, Manchester University Press, 1958.

21.   H.B. Chenery (1960), "Patterns of Industrial Growth", American Economic Review.

22.   S. Kuznetz, Economic Growth of Nations: Total Output and Production Structure, Cambridge Mass., Harvard University Press, 1971.

23.

$$\text{LOCATION QUOTIENT} = \cfrac{e_{ij} / \sum\limits_{j=1}^{n} e_{ij}}{\sum\limits_{i=1}^{m} e_{ij} \Big/ \sum\limits_{j=1}^{n} \sum\limits_{i=1}^{m} e_{ij}}$$

24.   Alagh, Y.K., K.K. Subramanian and S.P. Kashyap (1971a), "Regional Industrial Diversification in India: Some Factual Analysis", Economic and Political Weekly, Vol. VI, No. 5.

25.

$$\text{Specialization co-efficient} = \frac{1}{2} \sum \left[\frac{e_{ij}}{\sum\limits_{i=1}^{m} e_{ij}} - \frac{\sum\limits_{j=1}^{n} e_{ij}}{\sum\limits_{i=1}^{m} \sum\limits_{j=1}^{n} e_{ij}} \right]$$

e_{ij} = employment in the ith industry in the jth region

$\sum\limits_{j=1}^{n} e_{ij}$ = employment in the ith industry over all the regions (n = number of regions).

$\sum\limits_{i=1}^{m} e_{ij}$ = employment in the jth region over all the industries (m = number of industries).

$\sum\limits_{i=1}^{m} \sum\limits_{j=1}^{n} e_{ij}$ = total industrial employment of the region.

26.   Papola, T.S., Spatial Diversification of Industries: A Study in Uttar Pradesh (1981).

27.   Pandit, M.L. (1978), "Some Lesser Known Factors Behind Recent Industrial Change in Punjab and Haryana", Economic and Political Weekly, Vol. 12, No. 47.

CHAPTER IV

DETERMINANTS OF INTER-REGIONAL INDUSTRIAL DISPARITY

Chapter IV

Determinants of Inter-regional Industrial Variation

The discussion taken up in the last chapter came up with two interesting findings: (i) the inter-regional inequalities in the level of industrial development though revealed a tendency to decline during eighties, have shown an increase during the early nineties, and (ii) except some of the developed states, the industrial bases of the regions were mainly remained confined to some raw material based industries. The present chapter of the study will largely remain confined to the factors determining inter-regional variation in the level of industrial development in India. It will also try to observe the shifts in the factors determining industrial variation, if any, over the period of study, i.e. between 1980-81 and 1992-93. The factors which make some of the regions more attractive and some other less for industrial development are mainly explained on the basis of the location theories. The earlier location theories mainly explained the concentration of industrial/economic activity in a particular region on the basis of the availability of raw materials in the region and nearness to the market which is considered to be a proxy for the required transport costs. With further development of industrial and economic activity, several other factors have also started explaining the regional

concentration of industries. As discussed in detail in the first chapter of the present study, infrastructural facilities such as power, banking, transport network in a particular region and historical forces have played significant roles in bringing about industrial concentration. Historical forces became important in the determination of the industrial activities since India remained under foreign rule for a substantial period of time. Some of the authors, however, assigned much more importance to the market forces in determining the concentration of industrial activities, while some other have tried to bring forward the significance of government participation as a major factor in determining inter-regional industrial variation.

Some of the earlier studies have tried to explain the regional industrial variation on the basis of various factors. In a pioneering study, Chenery (1960)[1] tried to explain the varied industrial growth performances of various countries in a deterministic framework using international cross-section data for the 1950s. With the help of regression technique, he tried to find an answer to the sources of inter-regional industrial variation in terms of population, factor proportions, income distribution and governmental policies, along with per capita income. His findings are (i) the greatest variation in output levels was found to be in the capital and intermediate goods sector; and (ii) size of the country (in terms of population) is of crucial importance. In context of inter-regional

industrial economy of India, the study done by Sastry (1969)[2] is of great importance. He also used regression procedure to explain inter-regional industrial variation in India for the period 1951-61. The major findings brought forward by Sastry, based on a cross-section of states using step-wise regression method, are: (i) per capita income and urban population explained nearly 80 per cent of the total variations in 1961; and (ii) variation in the cost of electricity across states is of no major consequence. Gupta (1971)[3], using Chenery-Taylor framework, argued that large size states perform better because of economies of state, urbanization and market size. He also observed that government participation was of no consequence as a determinant for industrial variation.

A study by Seth (1987)[4] divided the factors into supply and demand orientations. He considered two supply side orientation, i.e. labour orientation and material orientation and one demand side orientation i.e. market orientation. His study conducted in the years 1951, 1961, 1971 and 1981 showed that both the supply side orientations were highly insignificant. On the other hand, the demand side orientation shown by market orientation came out to be significant for all the periods under study except for 1961. He considered the censal years for study because demand side factors are mostly available for these years. An important study in this regard was conducted by Awasthi (1991)[5]. His study was a wide spread discussion of the factors affecting inter-regional industrial

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variation. He also adopted the regression method and took up as much number of indicators possible to explain the regional concentration of industries for the period 1961 and 1978. He broadly classified the factors into two groups, the supply factors and the demand factors. His study showed clearly that there had been a distinct shift from supply factors to demand factors between 1961 and 1969, which further became much more reinforced over time. His study also brought forward a negative association between agriculture and industry. The public policies have been shown to have insignificant impact in bringing about industrial concentration.

The Choice of Variables

Dependent Variable: The level of industrialization in the present study has been defined in terms of per capita net value added (at current prices generated in the registered (organised) factory sector. This not only reveals the level of industrialization across regions but also helps to avoid the size factor of the state, which might have acted if the whole of net value added would have been taken.

Independent or Explanatory Variables: The independent variables considered for the study are being taken keeping in mind a broad spectrum of factors which affect the inter-regional industrial variations. In certain

cases, if direct indicators are not available, some of the proxies have been taken. Of course, the study did face the problem of lack of availability of data and hence certain factors which might have thought to be affected, particularly during the early nineties, could not be introduced in the study.

One of the most powerful impetus to industrial development comes from the financial resources available to the economy for investment. Saving of the economy depends, among other things, on the level of income, hence per capita income i.e. the per capita net state domestic product has been used as a proxy for saving. Per capita income has also been considered since it gives an idea of the purchasing power of the people in a state. In some of the recent studies, it has been emphasized that the size of the market plays a significant role in the growth of manufacturing industry. The total size of the population is considered to be a very right estimate of the size of the market. Some of the authors have claimed that the more appropriate proxy for the size of the market would have been the proportion of urban population to total population. Since most of the demand for manufacturing goods emerges from the urban population, but this view is not valid for all the manufacturing output   Some of the manufacturing outputs are equally in demand by the rural and the urban population. The assumption for considering population of the state to represent market size is that it is the local market which determines the growth of industry (Sastry, 1970).[6] It is obviously very clearly alleged that

availability of electricity is an important factor for the promotion of manufacturing industries. But here one point is worth mentioning that what part of the total cost of production of the final output in the manufacturing sector is constituted by electricity. So, this factor becomes important only for the power intensive industries.[7] Here we have taken the per capita consumption of electricity as a measure for the amount of electricity made available in the state.

Several other studies have given importance to various other factors bringing about regional industrial concentration. In the present study, the contribution of the agricultural sector to the net state domestic product has been considered which in fact is considered to be a proxy for the availability of raw material in a particular region. Another factor which is being considered to play a significant role in the promotion of manufacturing industries, is the infrastructural facilities. Here in our study. the number of scheduled commercial banks in the states have been taken as a measure of banking facility. The availability of power has also been considered earlier as another infrastructural development indicator. The last and the final factor considered for the present study which is supposed to have an impact on the regional concentration of industrial activities, is the role of the state or the government participation. The role of the government has been considered on the basis of (a) assistance sanctioned per capita by all the non-banking financial institutions such as

State Financial Corporations, Industrial Development Bank of India, Industrial Finance Corporation of India, All India Financial Institutions, Small Industries Development Bank of India, Industrial Credit and Investment Corporation of India, etc. and (b) Industrial licenses issued to the various states. This in fact gives an idea regarding the indirect government participation. The direct government participation on the other hand has been represented by the public sector outlay for the industry and minerals, annually.

Data Base and Methodology:

In order to study the impact of some of the factors affecting the regional industrial variation in India, in certain cases, some of the proxies were also taken into account. Thus data related to the population of various states and the proportion of urban population to total population in the state was obtained from the various issues of the Census of India: Registrar General and Census Commissioner of India. The values for the total population and percentage of urban population to total population for the non-censal years, i.e., 1985-86 and 1992-93 are being projected from the available figures with the help of compound annual growth rates. The data for the per capita net state domestic product at current prices was obtained from the various issues of Economic Survey, Ministry of Finance, Government of India, for the corresponding years. The data related to per

capita electricity consumed was obtained from the Statistical Abstract, Central Statistical Organization, Department of Statistics, Ministry of Planning, Government of India for the years 1980-81 to 1985-86; while for the years 1990-91 and 1992-93, it is obtained from Centre for Monitoring Indian Economy (CMIE).

On the other hand, the data related to the proportion of the agricultural sector to the net state domestic product has been obtained from the Estimate of State Domestic Product and Fixed Capital Formation under the National Accounts Statistics, Central Statistical Organization, Department of Statistics, Ministry of Planning, Government of India, for the years 1980-81 and 1985-86. The corresponding data for the years 1990-91 and 1992-93 have been collected from the Central Statistical Organization, which has not been officially published.

The data which relate to the per capita assistance sanctioned by all financial institutions is obtained from the various issues of Report on Development of Banking in India, Industrial Development Bank of India, while that of the number of scheduled commercial banks has been obtained from the various issues of Banking Statistics, Department of Statistical Analysis and Comparative Services - RBI, and the data related to state-wise industrial licenses issued was made available by the Handbook of Industrial Policy and Statistics, Ministry of Industry, Government of India. The data for the per capita net value added at current prices for the

various years have been obtained from the Centre for Monitoring Indian Economy (CMIE). Finally, the data for the public sector outlay for industry and minerals is obtained from the various Annual Plans published by the Planning Commission, Government of India.

As mentioned earlier, basically the chapter will mainly deal with the factors explaining inter-regional variations in the level of industrial development between 1980-81 and 1992-93. Thus, we focus our attention on the empirical verification of the extent to which inter-state variation in the level of industrial development arises due to variations in the level of various factors. The analysis is based on a cross-section of the states at four different points of time, i.e., 1980-81, 1985-86, 1990-91 and 1992-93. We have estimated single equation linear models using the method of ordinary least square, and have followed step-wise regression procedure. The usual assumptions of the classical general linear regression model about the disturbance term are made. The simultaneity bias is recognised only to be ignored.

Specification of the Variables: All the variables considered to explain the inter-regional industrial variation are specified as

1.   Dependent variable,i.e. per capita
      value added generated in the
      organised manufacturing sector (Rupees) Y

2.   Size of the market as reflected by
      the population of the states (Number) X_1

3. Purchasing power of the buyers as
    reflected by per capita net state
    domestic product of the region (Rupees) X_2

4. Region specific availability of raw
    material given by per cent contribution
    of agricultural sector to the net state
    domestic product (per cent) X_3

5. Government participation shown by per
    capita assistance sanctioned by all
    financial institutions (Rupees) X_4

6. Government participation also reflected
    by the number of industrial licenses
    issued (Number   ) X_5

7. Number of scheduled commercial banks
    per thousand square kilometers showing
    availability of banking facility (Number/
    1000 km^2 X_6

8. Per capita electricity consumed showing
    the availability of electricity in the
    state (Kw/hour) X_7

9. Percentage of urban population to total
    population showing the extent of urbani-
    sation (per cent) X_8

10. Public sector outlay for industry and
    minerals showing the direct government
    participation (Rupees Lakhs) X_9

The variables specified above, i.e., X_1 to X_9 represent as far as

possible, a wide array of the factors which affect the concentration of

industrial/economic activities or these are the factors taken for the

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empirical study as determinants of inter-regional industrial variation. The linear equation has been postulated accordingly.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + u$$

where Y is the per capita net value added in the registered (factory) sector of the states. In the analysis, the estimated equations are presented for each of the four years under study, i.e., 1980-81, 1985-86, 1990-91 and 1992-93.

Empirical Results:

The regression results show that the values of R^2 ($\overline{R}^2$ adjusted for degree of freedom)[8] are statistically significant at one per cent level for all the years under study except for 1985-86, where it is significant at just a little higher than the one per cent level rather at five per cent level. The results show that in the year 1980-81, the model explains approximately 81 per cent of the total variation in the level of industrial development across the states in India as shown in Table 4.1. Mainly this explanation is offered by the factors as Industrial Licenses Issued (INDLIIs) and per capita net state domestic product (PCNSDP). While the former is significant at five per cent level, the latter is significant only at ten per cent level of significance, with right signs as postulated, i.e. they

have contributed in bringing about industrial concentration. The industrial licenses issued which can be considered as a proxy for the indirect government production explain approximately 68 per cent of total variation, INDLIIs and PCNSDP together explain nearly 82 per cent of the total variation. The other two factors which have significant impact on the regional industrial development are per cent contribution of the agricultural sector to net state domestic product (NSDPAG) and the per capita power consumption (PCPC). However, the former has a negative impact but the latter has a positive impact significant only at the ten per cent level. Quite contrary to the study made by Sastry (1969), the size of the market shown by total population of the state (TOTPOP) and its urban counterpart, i.e. per cent of urban population to total population (UPTP) have no significant impact in early eighties.

The above pattern of result can be explained on the ground that, obviously, the infrastructural development contributes to industrial development as shown by PCPC. On the other hand, the government policies also could not bring down inter-regional industrial disparity, as shown by the impact of INDLIIs. The purchasing power as shown by the PCNSDP, however, has a significant impact in inter-regional industrial variation. The raw material availability, however, has gradually played an opposite role in regional industrial development since in spite of raw material based industries being concentrated in various states, its

importance has gradually gone down and other capital and intermediate goods have taken the place instead. Thus, in 1980-81, according to the objective of the Sixth Five Year Plan (1980-85), to bring about decline in regional imbalance, industrial licensing as a measure of government participation could do only some thing which were in favour of industrially developed states.

An absolutely different picture is observed for the year 1985-86. Here, the explanatory power of the model has decreased to 75 per cent, where the number of scheduled commercial bank offices per thousand square kilometre (SCBANK) and per capita power consumption has even brought about a decline in the explanatory power. Assistance sanctioned per capita by all financial institutions (ASPERCAP) has contributed almost 59 per cent of the explanation in the variation in regional industrial development, as shown in Table 4.2. In addition, PCNSDP along with ASPERCAP explain 70 per cent of the total variation. These two factors are significant at one per cent and five per cent level respectively. NSDP on the other hand plays the same role, as it did in the year 1980-81, the co-efficient being negative, it in fact represents a gradual decline in the importance of raw material in bringing about regional industrial variation. While in 1980-81, the INDLIIS was the most significant factor in bringing about variation in regional industrial development. It has become significant only at the ten per cent level. The industrial licenses could in

itself explain just two per cent of total regional variations in the level of industrial development. Though the total population has no significant impact, so also the proportion of urban population to total population. The public sector outlay has a negative significant impact, of course only at the ten per cent level of significance. Thus, it becomes clear that though indirect government participation has contributed in aggravating regional concentration of industries, the direct participation has played a role in declining the regional variation in industrial development, as discussed in the earlier chapters that the public sector investment has been the highest for the backward states, particularly, Bihar, Madhya Pradesh and Orissa. Thus, in 1985-86, while ASPERCAP, PCNSDP and INDLIIS have contributed significantly, though at various levels of significance, in aggravating the variation in regional industrial development, NSDPAG and public sector outlay for industry and mineral (PUSEOUT) approved have significant impact in reducing it. Other factors taken for the analysis in this study do not show any significant impact so far as the inter-regional industrial variation is considered.

The industrial licensing which was the major contributor in bringing about regional industrial variation during early eighties, lost its ground in 1985-86, because of the sea change in terms of liberalisation of licensing policy in favour of large business houses made by the New Government which came to power in 1984. The ASPERCAP, on the other hand,

became important because of the various measures adopted for rendering help the industrial development and mainly these reached the developed states, as for example, automatic increase was granted to units wanting to achieve economies of scale and a 49 per cent rise in capacity due to modernisation was allowed. On the other hand, the per capita net state domestic product reflecting the purchasing power has as usual contributed as it was during 1980-81. Since it is the purchasing power of the people which in fact brings about a higher demand for the manufacturing products in a much more diversified pattern.

The beginning of the decade of 90s shown by an analysis for the year 1990-91, represents almost a similar picture as was observed during 1980-81, but a noticeable change that is observed is that the explanatory power of the model has substantially gone up from 81 per cent to 93 per cent. Here, one more fact is to be noticed is that, of the nine factors considered for the study, only four factors have contributed significantly. However, only two of them, in fact, have contributed in bringing regional variation in industrial development. As it was in 1980-81, in 1990-91 also, only INDLIIS explains a major 67 per cent of the total variation, while the other factor, which shows a significant positive impact is PCNSDP (which had remained common for both the previous years of study also) shows in addition to INDLIIS an explanatory power of 86 per cent as shown in Table 4.3. The other two factors which have lived to curb the regional

industrial variation having a negative sign with their co-efficients, have increased the explanatory power of the model to 95 per cent. These two factors are NSDPAG and percentage of urban population to total population. The three factors which have contributed in bringing down the explanatory power of the model are SCBANKS, ASPERCAP and PUSEOUT, while total population shows a negative co-efficient, in spite of being insignificant, so also PCPC which shows a positive co-efficient, however, the value is insignificant.

Thus the year 1990-91 again observed the importance of the factors INDLIIS and PCNSDP in bringing about regional concentration of industries, both of which are significant at one per cent level. In other words, indirect government participation and purchasing power of the people for the manufacturing items have resulted in regional concentration of industries. On the other hand, the factors having negative impact in fact which have contributed in bringing about a decline in regional concentration of industrial development are significant only at the five per cent level of significance.

The year 1990-91 as is well known for the New Economic Policy in general and the New Industrial Policy in particular, the industrial licensing was absolutely abolished except for some of the major industries, mentioned in the earlier chapters, but its consequence was obviously not felt instantly. Hence, INDLIIS brought about major industrial regional

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variation. Obviously, the purchasing power has resulted in bringing about concentration of industries. On the other hand, high per capita income refers to high saving and high investment for industrial development.[9] The overall urban development have resulted in bringing down the regional variation in urbanisation and thus decline in the level of industrial concentration. One can also explain in a manner that it is more industrialization which brings about urbanisation than the other way round, which can be brought forward in Indian context on the basis of historical factors that basically urban areas grew in the vicinity of the regions which became industrially concentrated. Bose[10], however, had the same view point but said that urbanisation would not come instantly and it would take some time. The agricultural sector, on the other hand, as was the situation in the previous two years, has contributed in reducing the inter-regional industrial variation. This is due to the fact that though for some of the industrially developed states, the raw material based industries are losing its base but for most of the backward states, raw material based industries form a substantial portion of the registered manufacturing industries and thus could bring about a decline in the regional variation in the level of industrial development. Hayami,[11] however, by a cross country study between 1957 and 1962 showed that it is the industrial sector which influences the agricultural productivity, by bringing about an increase in non-farm inputs.

Lastly, indirect government participation shown by ASPERCAP, infrastructural facility shown by PCPC, availability of raw material shown by NSDPAG, direct government participation shown by PUSEOUT (approved), extent of urbanisation shown by percentage of urban population to total population in the state and licensing policy which represents in another way, indirect government participation shown by INDLIIS explain nearly 97 per cent of the model. Here we see that the industrial licensing has lost ground and it is due to absolute abolishing of industrial licensing except for 18 industries during the New Industrial Policy of 1991. A significant feature during 1992-93 is that indirect government participation shown by ASPERCAP alone explains nearly 84 per cent of the total variation in the level of industrial development and is significant at one per cent level, as shown in Table 4.4.

The infrastructural facilities available mainly shown by the per capita power consumption (PCPC) along with the ASPERCAP explains almost 89 per cent of the total regional variation in industrial development. It is also significant at one per cent level, the signs being as postulated. Since both assistance sanctioned, and infrastructural facilities which affected the industrial development are mainly concentrated in the industrially developed states. On the other hand, NSDPAG and percentage of urban population to total population, have significantly

contributed in the reduction of the variation observed in the inter-regional industrial development.

The public sector outlay which earlier was mainly done to overcome the regional industrial inequality later became concentrated in the industrially developed states because of the low rate of return of the public sector investment that was observed during the implementation of New Industrial Policy in 1991. The industrial licensing which can be considered a part of indirect government participation became significant only at 10 per cent level in spite of the fact that it remained significant at one per cent level during 1980-81 and 1990-91. Thus, the year 1992-93 observed that while ASPERCAP, PCPC, PUSEOUT (approved) and INDLIIS have contributed in aggravating the regional variation in industrial development, NSDPAG and per cent of urban population to total population have significantly tried to bring down the regional industrial concentration. One more noticeable feature in 1992-93 can be seen from the fact that per capita net state domestic product (PCNSDP) which emerged as a significant factor during the previous three periods of study, no more explains the regional variation of industries as it has become insignificant. Though Sastry's (1969)[12] study has shown significance of the size of the market during 1951 and 1961, as shown by the total population and particularly the urban population, because of the assumption he made in the study that major demand for manufacturing

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articles is made by the urban population. Awasthi (1991)[13] did not find any significance of the market size shown by the size of total population between 1961 and 1978. Our study also reveals a result which is in accordance with Awasthi's result that the size of the market shown by total population does not have any significant impact on the regional industrial variation Urban population, however, has an impact in our study particularly in 1990-91 and 1992-93 but it gives a negative sign which is not in accordance with what Sastry established.

Conclusion:

The study reveals that almost a similar picture is obtained so far as the factors affecting regional variation in the level of industrial development is taken into account for the years 1980-81, 1985-86 and 1990-91, except for the fact that the major portion of the model is being explained by the industrial licenses issued during 1980-81 and 1990-91. While major portion of the model is explained by the assistance sanctioned per capita during 1985-86, the other factors have maintained their respective positions as per capita net state domestic product have explained a significant portion and has come up as a major determinant of regional industrial variation. Though in 1985-86 industrial licenses issued lost its ground as a major determinant, but it had positive effect significant only at 10 per cent level. Astonishing enough is the fact that

the contribution to the net state domestic product of the agricultural sector

(in per cent) representing the availability of raw material had significant

impact but with a negative association, so also the per cent of urban

population to total population, which is not significant during 1980-81 and

1985-86 but shows a significant negative impact in the following two years,

i.e., 1990-91 and 1992-93. The negative association with the contribution

of the Net State Domestic Production (NSDP) to the agricultural sector can

be explained on the ground that if industrial development takes place, the

share of agriculture in NSDP will go down, however, it does not imply

agriculture has an adverse affect on industries. One can simply argue that

agricultural development in industrially growing regions is slower than

industrial growth. Negative association with percentage of urban

population to total population does not bring any thing clear. It may,

perhaps, simply be accounted for the fact that Census does not publish

yearly data. The year 1992-93 observed a complete shift of factors. It was

observed that the per capita power consumption, assistance sanctioned per

capita, public sector outlay and industrial licenses issued have significantly

contributed in aggravating the regional industrial variation in industrial

development. Thus, during early nineties, which observed an increase in

the inequality index as mentioned in the earlier chapter, was mainly due

to the fact that the public policies which earlier contributed in declining

the regional imbalance, have contributed in aggravating the same because

of the sole objective of growth in the new industrial policy and the objective of removal of regional industrial inequality was left to be solved at its own. Some of the factors which contributed in aggravating regional industrial variation during eighties as per capita net state domestic product and size of the market (during the late sixties or early seventies)[14] was left as factors of no importance during nineties. Total population which came up as an important factor in sixties does not explain much of industrial variation in eighties and nineties. Since industries have basically started catering to the national market and hence, the state boundaries do not limit the effective demand. Even a part of total population, i.e. the urban population has negative impact which is never postulated. Thus, one can say, the government participation both directly and indirectly have brought about an increase in the regional industrial variation, which in fact in the early years tried to bring about a decline in regional variation in the level of industrial development.

TABLE:4.1 REGRESSION RESULTS FOR 1980-81

EQUATION NO — CO-EFFICIENTS OF INDEPENDENT VARIABLES

[N=17]

EQUATION NO	CONSTANT	X5	X2	X3	X7	X8	X4	X9	X6	X1	ADJUSTED R-square
1	79.05	3.38 [5.88]*									0.68
2	-73.81	2.63 [5.88]*	0.11 [3.66]*								0.82
3	47.76	2.17 [4.4]*	0.11 [4.1]*	-2.77 [1.92]&							0.85
4	64.99	2.26 [4.66]*	0.08 [2.77]*	-3.05 [2.15]**	0.24 [1.32]						0.86
5	133.93	2.74 [4.07]*	0.08 [2.71]**	-3.88 [2.38]**	0.4 [1.67]	-2.99 [1.02]					0.86
6	127.44	2.84 [4.21]*	0.11 [2.85]*	-4.08 [2.51]*	0.46 [1.87]&	-3.15 [1.08]	0.77 [1.08]				0.86
7	145.79	2.9 [4.05]*	0.1 [2.58]**	-4.32 [2.42]**	0.48 [1.85]&	-2.76 [0.87]	-0.9 [1.12]	-0.0041 [0.43]			0.85
8	136.66	2.92 [3.84]*	0.1 [2.23]**	-4.1 [2.00]&	0.45 [1.51]	-2.57 [0.75]	-0.83 [0.94]	-0.0049 [0.49]	0.32 [0.28]		0.83
9	141.24	2.84 [3.24]**	0.1 [2.08]&	-4.41 [1.75]	0.46 [1.44]	-2.63 [0.72]	-0.8 [0.84]	-0.0075 [0.49]	0.33 [0.27]	2.4E-07 [0.25]	0.81

* Significant at 1%level
** Significant at 5%level
& Significant at 10% level
The values in the parentheses are the T-values of the b-coefficients.
The T-values corresponding to negative beta coefficients are negative.
SOURCE: As mentioned in the Text

TABLE:4.2 REGRESSION RESULTS FOR 1985-86

CO-EFFICIENTS OF INDEPENDENT VARIABLES

[N=17]

EQUATION NO	CONSTANT	X4	X2	X3	X5	X8	X9	X1	X6	X7	ADJUSTED R-square
1	40.49	2.89 [4.94]*									0.59
2	-158.25	2.19 [3.77]*	0.1 [2.46]**								0.7
3	161.6	1.29 [1.75]&	0.11 [2.99]**	-7.65 [1.77]&							0.74
4	146.45	0.69 [0.83]	0.11 [3.05]*	-7.22 [1.72]	1.76 [1.41]						0.76
5	315.48	0.52 [0.62]	0.13 [3.31]*	-9.91 [2.11]**	2.78 [1.86]&	-6.38 [1.19]					0.76
6	518.79	-0.01 [0.02]	0.1 [2.06]&	-10.79 [2.35]**	5.49 [2.16]&	-6.86 [1.32]	-0.02 [1.30]				0.78
7	452.98	0.47 [0.50]	0.12 [2.50]**	-11.89 [2.64]**	4.35 [1.68]	-7.16 [1.43]	-0.04 [1.90]&	2.9E-06 [1.34]			0.79
8	449.02	0.53 [0.54]	0.11 [1.98]&	-11.25 [2.32]**	4.88 [1.69]	-7.73 [1.45]	-0.05 [1.89]&	2.8E-06 [1.24]	0.92 [0.52]		0.78
9	538.31	0.37 [0.33]	0.1 [1.35]	-12.59 [1.96]&	4.74 [1.54]	-9.08 [1.32]	-0.05 [1.79]	2.8E-06 [1.19]	0.73 [0.37]	0.28 [0.35]	0.75

* Significant at 1%level
** Significant at 5%level
& Significant at 10% level
The values in the parentheses are the T-values of the b-coefficients.
The T-values corresponding to negative beta coefficients are negative.
SOURCE: As mentioned in the Text

EQUATION NO	CONSTANT	X5	X2	X3	X8	X1	X7	X4	X6	X9	[N=17] ADJUSTED R-square
1	313.72	21.93 [5.84]*									0.67
2	-173.7	14.52 [4.97]*	0.12 [4.64]*								0.86
3	246.68	10.21 [4.02]*	0.14 [6.73]*	-12.68 [3.40]*							0.92
4	441.07	13.01 [5.84]*	0.15 [8.99]*	-14.46 [4.79]*	-10.3 [2.95]**						0.95
5	477.55	15.11 [4.86]*	0.14 [6.03]*	-13.02 [3.87]*	-10.25 [2.92]**	-9.1E-07 [0.97]					0.95
6	526.7	14.56 [4.29]*	0.12 [3.64]*	-13.8 [3.62]*	-10.98 [2.81]**	-7.4E-07 [0.72]	0.23 [0.51]				0.95
7	482.25	14.07 [3.64]*	0.13 [3.49]*	-13.13 [2.93]**	-10.23 [2.18]**	-6.6E-07 [0.60]	0.18 [0.34]	0.07 [0.32]			0.94
8	444.93	15.01 [3.20]**	0.12 [2.96]**	-11.75 [2.01]&	-10.15 [2.05]&	-9.3E-07 [0.70]	0.12 [0.22]	0.11 [0.45]	0.81 [0.40]		0.94
9	394.47	15.38 [3.00]**	0.12 [2.80]**	-10.88 [1.59]	-10.44 [1.96]&	-1.3E-06 [0.71]	0.11 [0.16]	0.13 [0.50]	0.79 [0.37]	0.0044 [0.30]	0.93

CO-EFFICIENTS OF INDEPENDENT VARIABLES

* Significant at 1%level
** Significant at 5%level
& Significant at 10% level
The values in the parentheses are the T-values of the b-coefficients.
The T-values corresponding to negative beta coefficients are negative.
SOURCE: As mentioned in the Text

EQUATION NO	CONSTANT	X4	X7	X3	X9	X8	X5	X6	X2	X1	[N=17] ADJUSTED R-square
				CO-EFFICIENTS OF INDEPENDENT VARIABLES							
1	222.7	1.86 [9.18]*									0.84
2	-67.29	1.44 [6.61]*	1.06 [2.94]*								0.89
3	743.98	0.89 [3.54]*	1.78 [4.82]*	-20.12 [3.06]*							0.93
4	434.75	0.92 [4.24]*	1.7 [5.27]*	-15.16 [2.49]**	0.01 [2.30]**						0.95
5	584.38	0.9 [4.35]*	2.07 [5.27]*	-17.54 [2.92]**	0.02 [2.83]**	-9.67 [1.51]					0.95
6	566.1	0.76 [3.93]*	2.05 [6.06]*	-15.24 [2.84]**	0.02 [3.15]**	-13.27 [2.26]**	10.97 [2.08]&				0.97
7	535.91	0.81 [3.75]*	2.02 [5.38]*	-14.65 [2.59]**	0.02 [2.65]**	-13.17 [2.16]&	11.02 [2.02]&	1.05 [0.59]			0.96
8	579.51	0.85 [3.47]*	2.19 [3.81]*	-14.84 [2.50]**	0.02 [2.56]**	-13.78 [2.10]&	10.32 [1.73]	1.41 [0.69]	-0.02 [0.42]		0.96
9	574.43	0.85 [3.24]**	2.17 [3.47]**	-14.33 [2.02]&	0.02 [2.84]&	-13.87 [1.98]&	11.24 [1.31]	1.42 [0.65]	-0.02 [0.41]	2.3E-07 [0.16]	0.95

* Significant at 1%level
** Significant at 5%level
& Significant at 10% level
The values in the parentheses are the T-values of the b-coefficients.
The T-values corresponding to negative beta coefficients are negative.
SOURCE: As mentioned in the Text

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8. Here the R^2 represents the explanatory power of the whole model given by the F value and hence the significant F level.

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13. See D.N. Awasthi, op.cit., Ch. 7, pp. 160-61.

14. Shown by the studies of Sastry (1969) and Awasthi (1991).

CHAPTER V

SUMMARY AND CONCLUSION

Chapter V

Summary and Conclusions

The very beginning of the Plan period in India put forward the issue of balanced regional development as an important objective of the growth strategy. Though it was realized as early as during the First Five Year Plan, but certain positive measures to remove regional imbalances were adopted only during the Third Five Year Plan. Industrialization is considered to be an important aspect for economic development, as a consequence, a much more serious thrust has to be given to the spatial dimension of the industrial development strategy. Thus, the importance of the removal of regional imbalance in general and regional industrial inequality in particular, calls for a clear understanding of the regional economies. Hence, the present study is basically undertaken to understand the variations in regional industrialization in India. The major findings are highlighted subsequently.

The major determining factor in the location of industries in India was much as a result of the colonial structure of the national economy. On the eve of independence, about two-thirds of the total industrial activity was concentrated in and around the three presidency towns of Bombay, Calcutta and Madras. This concentration can mainly be accounted for the

fact that these towns served as the ports for the transport of raw materials from India and finished products within India. After such an inequality in the industrial structure inherited from the colonial legacy, the balanced regional development was not an easy task. As mentioned earlier, the planners and the policy-makers, though had the problem of regional imbalance in mind since the inception of the First Five Year Plan in 1951, the Second and the Third Plans in particular laid emphasis on the objective of achieving balanced regional industrial development. Consequently, substantial public sector investment was made in some of the industrially backward states as Bihar, Orissa and Madhya Pradesh.

The major finding in the study reveals that the basic measures adopted by the policy makers and planners mainly remained confined to the appointment of certain adhoc bodies and committees. Their objective was simply to identify the backward regions on the basis of certain identifying features and to suggest some incentive measures for the establishment of industries in those regions. The major problem in this regard was no committee was henceforth appointed to look after the fact whether these measures were exactly implemented or not and if at all they are implemented, whether those are reaching the proper regions for which these are being established. Another problem which came in this way was the fact that the measures adopted mainly reached the backward areas of the developed states, where it was possible to build up an infrastructural

network both social and economic at much lower cost in comparison to other areas. On the other hand, the backward states in general and the underdeveloped regions of the backward states in particular remained neglected for a substantial period of time. One can thus conclude that if there was any dispersal of industrial/economic activities, it mostly remained confined to the areas which were in the vicinity of the earlier developed areas.

In order to have an idea regarding the inter-regional industrial inequality, it has been done on the basis of certain inequality measure for some of the macro-economic indicators, for the registered manufacturing industries. It has been observed that there has been a declining trend in the level of inter-regional (inter-state) industrial inequality since the policies were adopted. Though no significant industrialization of the existing industrially backward regions took place. As it was observed in some of the previous studies also,for the earlier periods, here also it can be concluded that there has been a declining trend in the inter-regional industrial inequality during the whole of the decade of eighties, measured in particularly for the manufacturing (factory) sector. Basically this has been accounted for the objectives of the removal of regional imbalance during the Sixth Five Year Plan (1980-85). The early years of the decade of nineties, on the other hand, observed an increase in the industrial inequality which can be explained as a result of the implementation of the

New Economic Policy in 1990. The New Economic Policy, to a large extent, remained naive regarding the objective of social equity and justice and became concerned regarding growth. As a consequence, the economy was opened in front of the international market.

An attempt has also been made to explore into the industrial bases of the various regions. This is basically done with the help of the percentage of total employment in the various manufacturing (factory) industries. This is a fact which has been explained in the second section of the Third Chapter, that the beginning of the planning period observed 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 four decades of planning, no significant diversification of industries was observed. Most of the regions even in early eighties 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 rest of the other 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.

A further analysis towards the factors explaining inter-regional industrial variation has been taken up in the fourth chapter. The procedure adopted for this part of the study is step wise regression. The dependent variable representing extent of industrialization of a region (state) is taken to be the per capita value added generated in the organized sector at current prices. The results indicated that in 1980-81, the model explained approximately 81 per cent of the total variations in which approximately 68 per cent of total variations is explained by industrial licenses issued representing indirect government participation. Similar scenario is being observed during 1990-91, when the explanatory power of the model has gone up to 93 per cent, where indirect government participation shown by industrial licenses issued explain 67 per cent of the total variation. In addition to this factor in these two years, purchasing power and availability of raw material have shown significant impact. While in 1980-81 infrastructural facility has shown some impact, in 1990-91, its position has been taken by extent of urbanization shown by percentage of urban population to total population.

In 1985-86, the explanatory power of the model has been 75 per cent approximately, in which 59 per cent of the total variation is explained by

indirect government participation shown by per capita assistance sanctioned in 1992-93, the model explains 95 per cent of total variation in which 84 per cent has been explained by the indirect government participation also shown by per capita assistance sanctioned. The direct government participation has also shown a significant impact in both the years, it is represented by public sector outlay for industry and minerals. As in 1980-81 and 1990-91, in 1985-86 also, purchasing power and availability of raw materials have played significant role in explaining regional industrial variation. In 1992-93, on the other hand, the other factors maintaining similar position, infrastructural facility shown by per capita electricity consumed have played a significant role in explaining regional industrial variation.

Finally, one can come to the conclusion that in all the four periods of study, i.e., 1980-81, 1985-86, 1990-91 and 1992-93, government participation has come up as a significant determinant of regional industrial variation, either directly or indirectly. Thus, the government adopted the policies and also implemented them but while during eighties, it had certain positive impact,making certain headway in removing regional industrial imbalance, during early nineties, the policies adopted and implemented took some other direction, leading to increase in inequality. Hence What is required is a thorough study of the requirements of the underdeveloped regions particularly the "no industry

districts". Secondly much more investment is to be made to develop these areas infrastructurally rather to provide the capital and financial incentives, Since infrastructural development, both social as well as economic would automatically attract industrial and/or economic activities,The incentives that were provided never reached the proper regions/areas as revealed from the reports of the functioning of various committees as discussed in the second chapter in detail.Thus the decrease in inequality was much as a result of the upcoming of the regions which were at the second level of development rather than the industrialisation of the backward areas.

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