

**CHANGES IN THE SPATIAL STRUCTURE OF  
INDIAN INDUSTRIES:  
SOME REGIONAL ASPECTS**

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**DEDICATED TO MY MOTHER AND LATE FATHER**



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**DECLARATION**

We certify that the dissertation entitled "Changes in the Spatial Structure of Indian Industries : Some Regional Aspects", Submitted by Sanjay Kumar in fulfilment of six credits out of total requirements of twenty four credits for the Degree of Master of Philosophy (M.Phil) of this University is his original work to the best of our knowledge and has not been previously submitted for any degree of this or any other university and therefore be placed before the examiners for evaluation.

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Needless to say that the conclusions drawn and errors and omissions left, if any, are entirely my own responsibility.



**SANJAY KUMAR**

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## CHAPTER - I

### INTRODUCTION

The emergence of hinterlands and heartlands, centre and periphery in the process of development of many nations has established the point that growth by nature is an inequitable process and it has no inbuilt tendency to spread equally in space, at least in short-span. Realization of this truth has motivated planners to emphasise special regional plans and programmes. India's Five Year plans put special emphasis on regional development.

In order to pass judgements on the effectiveness Government's policy of regional development one must be able to measure differences in the levels of development of different regions empirically. Different methods of measurement are available. Seeing regional economic disparities from the angle of industrial disparities is a often used way. Differences in the choice of techniques and tools for the measurement of levels of industrial development give different result, i.e. why convergence and divergence of the levels of industrial development of the regions of India has become a hotly debated issue among the economists. This study is an attempt to settle this debate

This study has tried to examine empirically whether the trend of spatial structure of industries in India during 1976-77 to 1990-91 exhibited dispersal or concentration or a mixed trend of the two tendencies. The factors responsible for these trends have also been analysed. Stated otherwise, this study looks into the locational aspect of Indian industries empirically.

Students of industrial location have always concentrated on manufacturing. Even though other "industries" are also considered the main focus is not in dispute. This study also focusses on the manufacturing sector of Indian industries. Manufacturing industries at three digit level of industrial classification have been analysed. Tools and techniques of analysis and data sources are discussed in the relevant chapters. In India it is individual states that form the basis of regionalisation by the decision makers, though sometimes the North-South-East-West divisions are also utilised.

This study also takes states as different regional units. Only seventeen states/regions have been taken and the reason for doing so is outlined at a later stage.

Chapter two presents a survey of the existing literature related to our area. Chapter three tries to look into spatial pattern of industrial development across different regions of

India. This Chapter tries to ascertain whether convergence or divergence has taken place over the years. Chapter four presents a survey of the theories and empirical studies related to industrial location. Chapter five tries to analyse the effect of labour, raw-material, market and technology on industrial location. Chapter six sees the effect of agglomeration and existing industrial structure on industrial location. Chapter seven presents the conclusion and a summary of the findings.

## CHAPTER II

### THE SPATIAL STRUCTURE OF INDUSTRIES IN INDIA: A SURVEY OF THE EXISTING LITERATURE

There are numerous studies pertaining to changes in the spatial structure of Indian Industries. Some of them relate to the structural changes in the industries of a particular region/State. Some of them take all India approach (i.e. all the region/States of India). Some of these studies are based on field survey, some on A.S.I. and related data sources.

In the present chapter we will present a survey of these studies.

The studies of Sharma (1946), Pant (1955) and Prasad (1966) are among the earliest ones. All these studies pertain to the period before 60's. Sharma's study is industry specific as well as area specific. Pant's study is area specific. These studies are descriptive and point towards industrial concentration.

The study done by Dhar and Sastry (1969) takes the entire manufacturing sector and covers all the regions/States of India. It takes power consumption as a surrogate for industrialization and is based on the data pertaining to the period 1957-61. Using the techniques like Hoover's measure of industrial concentration, the shift and share analysis and the co-efficient of variation, it reaches the conclusion that the inter-regional/inter-state industrial disparities have declined during the period of analysis.

Thadani's study in this area taking only a few industries concludes convergence in industrialization.

The study of M.R.Chaudhary based on an early period data is descriptive. Choudhary in his study also points towards convergence.

Godbole's study based on a field survey was published in 1978. He attempts to locate inter-district industrial imbalances in Maharashtra. It recommends a more balance industrial growth in the state.

Lahiri's(1969) study tries to analyse the spatial behavior of entire industrial sector. In this study he concluded that inter-state industrial disparities declined over-time. His conclusions were based on the data for two points of time.

The National Council of Applied Economic Research(1960) published a study of regional differences in industrial pattern in its occasional paper no.10. The study pointed towards industrial dispersal.

The Economic and Scientific Research Foundation got its study published in 1969. The study discusses the concentration and dispersal of industries among fifteen regions/states of India. The data used pertain to the period 1950-51 and 1964-65. The tools like Magnitude rating(M.R.), Increasing Rating (I.R.) and Gossack's measure of industrial concentration have been used in this study. Though limited in scope, as based on five industries only, this study brings forth very important conclusion of convergence.

K.N.Gopi(1980) examines the inter-relation between industrial location and urban growth in Hyderabad. The study is by and large descriptive. It based on the data of period 1951-78 and establishes direct relation between industrial location and urban growth.

The study of Nair pertains to 1959-76 time period. It takes value added in the manufacturing sector as an indicator of industrialization. This study concludes, "For the different states of India there are indications that inter-state disparities in the value added per capita in registered manufacturing have declined between the years 1959 and 1975-76".

Seth's study also points towards convergence. He takes the period from 1950 to 1980 in the support of his points. He uses ASI's manufacturing sector data. The study gives trends only upto 1980.

Sandesara's (1992) study is based on the data pertaining to the period 1951-1987. He concludes: "if reduction is defined in terms of the decline in the share of the early five industrially developed states (Gujarat, Kerala, Maharashtra, Tamil Nadu and West Bengal) or in the share of seven industrially developed states (four of above five excluding Kerala and three lately industrially developed states - Haryana, Karnataka and Punjab) put together in factory employment and other criteria then in as much as these two groups have lost their share one can say that reduction (in regional disparities) has taken place. This study is the latest available.

All the studies surveyed above belong to one group. There is another group of studies which try to see regional variations on the basis of industrial base analysis, industrial diversification analysis etc. Studies of Mehta (1961), Lakdawala-Alag-Sharma, (1972) Papola (1981) and Kulwinder Kaur (1981) belong to this group. Mehta's study is confined to only seven selected industries and selected regions. This study is based on data of the period before 1958. The study of Lakdawala Alagh and Sharma takes the period 1960-65. The study uses industrial base and industrial diversification analysis but it does not properly take up the factors responsible for variations in them. The study is more interested in identifying the industrial clusters and their role in influencing industrial base and industrial diversification of the regions than anything else.

Papola's study is based on the data of 1960-75. It is confined to U.P. It analyses the change in industrial base & level of industrial diversification of the districts of U.P.

Kaur's study pertains to the peiod 1966-78 and is confined only to Haryana region.

Pant's study is based on a research project spread over some three years. It attempts to analyse and present solution to the main problems pertaining to locational trends of industries in U.P. The data used pertain to 1948-50.

The study of Prasad tries to obtain factual information on the nature and extent of Industrial dispersal in Patna and Chhotanagpur divisions of Bihar on the basis of a field enquiry. Besides, it used the tools of Coefficients of localization and Co-efficients of linkages. The study is broadly decriptive and pertains to the period of 1951-1964.

The literature survey done above helps us in two ways (i) It helps us in making the principal hypothesis which will be tested in the next chapter, (ii) It helps to find the rationale for the present study.

(1) Our principal hypothesis runs like this:-

The spatial structure of industries in India is undergoing through the process of convergence i.e. inter-state disparities in the level of industrial development in India is declining over the years.

(ii) Even the latest of the studies related to the subject point to trends only upto mid 80's. A study focussing on the period beyond that is required, hence this study.

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## CHPAPTER III

### THE PATTERN OF THE SPATIAL STRUCTURE OF INDUSTRIES

This chapter tests the hypothesis made in the chapter II. This hypothesis is ---- spatial concentration of industries in India, is becoming more even. Stated otherwise, this chapter tries to decide whether regional industrial structure of India is marked by convergence or divergence.

#### CONCEPTS AND METHODS OF MEASUREMENTS

The present study is empirical and inductive in nature. Industrial employment is taken as a proxy measure to show the extent of industrialization. Different studies suggest different indicators for industrialization. Strong suggest the use of electric power consumed in each spatial unit (region) as a measure of the extent of industrialization. Wright has used value added for this purpose. Thomson, Linge and Cant have evolved a composite index based on three factors. Grover, Mehta, Papola, Alagh, Seth, Kaur etc. have used employment data to show the extent of industrialization.

The use of employment data has got certain advantages. First, employment is a pure number thus the unit of the data is not a problem and easy comparabilities possible. The data about value added, electricity consumed etc. are always expressed in some units thus any change in unit can pose the tedious problem of standardization of the data. Further, input used, value added may increase both on account of increase in output and price level. Employment being a real variable is not affected by price increases. Alexander and Alexander and Lindberg have shown that there exists a strong correlation between these alternative measures of the degree of industrialization, the choice of the indicator will not affect the result significantly. In spite of this, total employment data have been used in this study due to their aforesaid advantages. While using employment data some scholars prefer to use only directly employed work-force in an industry. In this context, however, we can not ignore the importance of non-production workers (eg. supervisory, administrative, sales and research workers) in an industry. Hence, it is better to use the total employment data for our purpose.

The statistical techniques used in this study are the following :-

#### 1. HOOVER'S MEASURE OF INDUSTRIAL CONCENTRATION

This study uses two techniques taken from Hoover. The first measures the relative share of a region in the total employment in industry and it is defined as :

$$\frac{L_I}{\sum_{I=1}^n L_I}$$

Where,  $L_I$  = Share of the  $I$ th region in terms of labour employment

$$\sum_{I=1}^n L_I = \text{Total employment in all the regions}$$

This measure does not take into count the size of a region. Hence, a second measure has been used. It is known as the index of industrialization ( $I$ ) and is defined as :

$$I = \frac{\sum_{I=1}^n L_I}{\sum_{I=1}^n P_I} / \frac{P_I}{\sum_{I=1}^n P_I}$$

Here,  $P_I$  = population of the  $I$ th region and  $P_I$  = population of all the region taken together (i.e. the Country)

This, measure takes the population of a region as a surrogate of its size.

(2) ZELINSKY - FUCHS' MEASURE FOR MEASURING FOR RELATIVE GAINS AND LOSSES OF THE REGIONS.

This measure was used by Zelinsky and Fuchs.

In this measure the industrial employment in a region in the terminal year is estimated. For this it is assumed that the region's industrial employment is growing at the same rate as the rate of growth in the industrial employment of the whole country. Now, these estimated figures for the terminal year employment are compared with one actual terminal year employment figures ( $L_I$ )

$L_I^t = \hat{L}_I^t$  = the rate of the industrial growth of the region is the same as that of the country. i.e. the region has maintained its status quo.

$L_I^t > \hat{L}_I^t$  = the region is growing slower than the country i.e. the region has inferred.

$L_I^t < \hat{L}_I^t$  = region's industrial growth rate is faster than country's i.e. the region has gained.

Here,  $\alpha = \frac{\sum_{I=1}^n L_I^t - \sum_{I=1}^n L_I^0}{\sum_{I=1}^n L_I^0}$

and  $L_I = (1+\alpha) L_I$



(3) MEASURE TO SHOW CONCENTRATION AND DISPERSAL

The term concentration means that a region enjoying relatively significant portion in the base year gains proportional or more than proportional increase from the expansion of the national economy. A region is said to be significant in the base year if

$$L_I^o > \frac{\sum_{I=1}^n L_I^o}{n}$$

and concentration takes place if for the significant region

$$\frac{L_I}{\sum_{I=1}^n L_I^c} \leq \frac{\Delta L_I^t}{\sum_{I=1}^n \Delta L_I^t}$$

If for a significant region in the base year

$$\frac{L_I^o}{\sum_{I=1}^n L_I^o} > \frac{\Delta L_I^t}{\sum_{I=1}^n \Delta L_I^t}$$

Then we say that dispersal has occurred.

A region is insignificant in the base year if

$$L_I^o < \frac{\sum_{I=1}^n L_I^c}{n}$$

Concentration takes place if an insignificant region loses i.e.

$$\frac{L_I^c}{\sum_{I=0}^n L_I^c} > \frac{\Delta L_I^t}{\sum_{I=1}^n \Delta L_I^t}$$

Dispersal takes place if an insignificant region gains i.e.

$$\frac{L_I^c}{\sum_{I=0}^n L_I^c} < \frac{\Delta L_I^t}{\sum_{I=1}^n \Delta L_I^t}$$

(4) GROSSACK'S MEASURE OF CONCENTRATION

The above measure of concentration and dispersal is insufficient. If a significant region loses to another insignificant region then only we can say that dispersal has occurred etc. Hence, if the above measure is supplemented with the Groosack's measure of concentration then the results got will be conclusive.

In the case of this measure b, r and  $(b/r)^2$  values are calculated and the results are interpreted as below :

I A high r and low  $(b/r)^2$  means that significant spatial units have lost to one-another.

II A low r and high  $(b/r)^2$  indicate that significant spatial units have lost their share to one-another.

III Low r and low  $(b/r)^2$  means that significant spatial units have lost to one-another and also to significant spatial units.

Here, b (regression co-efficient)

$$b = \frac{\sum_{I=1}^n s_I^t s_I^o}{\sum_{I=1}^n (s_I)^2}$$

Here,  $s_I^o$  = deviation of a region's relative share from the mean relative share of all the region in the initial year.

$s_I^t$  = deviation of region's relative share from the mean relative shares of all the regions with the terminal year.

$$b = r \cdot c(HI)$$

$$c(HI) = \frac{\sum_{I=1}^n (s_I^t)^2}{\sum_{I=1}^n (s_I^o)^2}$$

(5) COEFFICIENT OF VARIATION

It is a very popular tool to see variations of variables around the mean and this tool has also been used here.

## DATA SOURCES AND THE REGIONS TAKEN

The Annual Survey of Industries (A.S.I.) of 1976-77, 1980-81 and 1990-91 are the principal data sources for this study. We have used the manufacturing sector data for our purpose. For the data on population we have used population census report of the relevant years. Population data for non-census years are obtained through projections.

We are using states as relevant spatial units or regions for our purpose. The total number of states taken for this study are seventeen. These states make around 95% (approx.) of the population of India. The states taken are (1) Andhra Pradesh (2) Assam (3) Bihar (4) Gujrat (5) Haryana (6) Jammu and Kashmir (7) Karnataka (8) Kerala (9) Madhaya Pradesh (10) Maharashtra (11) Orissa (12) Punjab (13) Rajasthan (14) Tamil Nadu (15) Uttar Pradesh (16) West Bengal (17) Delhi.

### 1. RESULTS BASED ON THE HOOVER'S INDUSTRIAL CONCENTRATION RATIO

These results are summarized in the table 1. The following are the significant regions of 1976-77 :

1. Maharashtra
2. West Bengal
3. Uttar Pradesh
4. Gujarat
5. Tamil Nadu
6. Andhra Pradesh

A region is defined as significant if its manufacturing sector employment is greater than average manufacturing sector employment of all the regions.

These regions have maintained there significance althrough the period of analysis. If we analyse the results we see that from 1976-77 to 1980-81 apart from Maharashtra and West Bengal all the other significant regions have increased their relative shares. So on the basis of these data we cannot say that convergence has taken place during the period 1976-77 to 1980-81.

On the basis of the Hoover's industrial concentration ratio of 1980-81 and 1990-91 we see that during this period only two significant regions i.e. Andhra Pradesh and Tamil Nadu have increased their relative shares whereas four significant regions i.e. Maharashtra, West Bengal, U.P. and Gujrat have lost their relative shares. Hence, these data show industrial convergence during the period of 1980-81 to 1990-91.

However, before making any final decision about the trends shown by the Hoover's measure of industrial concentration we will have to apply some other tests. We will take these tests step by step.

### 2. RESULTS BASED ON THE VALUES OF INDUSTRIAL EMPLOYMENT AND POP-RATIO

The result are given in the table 2. Here, we see that in the case of all the significant regions the percentage of manufacturing

sector employment (as percentage of region's population) has increased from 1976-91 to 1980-81 while the same has decreased in all except in Tamil Nadu during the period of 1980-81 to 1990-91. From, here also it follows that there is no sign of any convergence during 1976-77 to 1980-81 while the same is evident during 1980-81 to 1990-91.

### 3. RESULTS BASED ON THE INDEX OF INDUSTRIALIZATION

Simple ratios do not portray true picture unless we take the sizes of the regions into account. A way of bringing the size of regions into picture could be the use the data about population in a different way. Here, we divide the Hoover's Industrial concentration ratio of a region by an another ratio. This ratio is none other than the population of a region divided by the population of all the regions taken together. Thus, by doing this we assign higher weights to smaller regions and smaller weights to bigger regions. The results are given in the table-3. The indices of industrialization thus calculated show that the relative shares of only Maharashtra and West Bengal have decreased during 1976-77 to 1980-81 while those of U.P., Gujarat, Tamil Nadu and Andhra Pradesh have increased during this period. Thus, there is no sign of convergence during this period. During 1980-81 to 1990-91 only two significant regions i.e. Tamil Nadu and Andhra Pradesh have increased their shares while the shares of four significant regions i.e. Maharashtra, West Bengal, U.P. and Gujarat have decreased. Thus, convergence is taking place during 1980-81 to 1990-91.

By seeing the decreasing share of the majority of the significant regions we should not and we cannot make any final conclusion. For this we will have to decide whether the significant regions have lost to themselves only or to insignificant region also. If the significant regions lose to insignificant regions then only we can say that there is a convergence.

### 4. RESULTS BASED ON THE ~~INDEX~~ ZELINSKY-FUCHS' MEASURE

As the next step we propose to test our hypothesis with the help of the Zelinsky - Fuchs Measure. The details of this measure are discussed in the chapter on methodology. We summarize the results in the table 4. Here, we see that during the periods of 1976-77 to 1980-81 and 1980-81 to 1990-91 both the significant and the insignificant regions have lost; but the loss in the case of the significant regions is always more than the loss in the case of the insignificant regions, hence, we can say that convergence has taken place in both the periods of our analysis.

### 5. RESULTS BASED ON AN ALTERNATIVE MEASURE TO SHOW CONCENTRATION & DISPERSAL

We can further verify these results by another method. This

method has also been discussed in the section on methodology. Concentration occurs when a region having significant position in the base year gains proportional or more than proportional increase from the expansion of the national economy. The reverse of this may be termed as dispersal. The results of this measure are summarized in the table 5 (A) and 5 (B). Here we see that during 1976-77 to 1980-81 the significant regions of Maharashtra, West Bengal and Tamil Nadu gain more than proportional increase from the expansion of the national economy the reverse has happened with the significant regions of Gujarat, Uttar Pradesh and Andhra Pradesh. During the period of 1980-81 to 1990-91 the significant regions of Maharashtra, West Bengal, Gujarat and Uttar Pradesh have gained while those of Andhra Pradesh and Tamil Nadu have lost. It follows that the number of significant region gaining and loosing is the same in 1976-77 to 1980-81 while those of loosing is more than those gaining during 1980-81 to 1990-91. Consequently, it is difficult to reach any conclusion about convergence during the period of 1976-77 to 1980-81 while we can say that convergence has taken place during the period of 1980-81 to 1990-91.

#### 6. RESULTS BASED ON THE GROSSACK'S MEASURE

Grossack's measure of industrial concentration (as discussed in the section on methodology) is yet another measure which we will apply to test our hypothesis further. The values of the co-efficients related with Grossack's Measure of Industrial concentration are given in the table 6. Here we see that during the periods of 1976-77 to 1980-81 the value of 'b' is 0.96 (approx), it means that significant spatial units have lost 4 per cent of their share in this period. During 1980-81 to 1990-91 the value of 'b' is 0.87 indicating there by that the significant spatial units have lost 13 per cent of their share. During these period the value of  $(b/r)^2$  [ i.e. c(HI)] and the value of r are also low, this means that the significant spatial units have lost to each-other as well as to non-significant units during our period of analysis. Thus, we draw the conclusion that convergence has taken place not only from 1980-81 to 1990-91 but also from 1976-77 to 1980-81. It is also clear that convergence during 1976-77 to 1980-81 is very small.

#### RESULTS BASED ON THE CO-EFFICIENT OF VARIATION

Co-efficient of variation is the another tool which can be used to test our hypothesis. The value of this measure for different periods are given in the table 7. These values show a gradual decline for all the periods of our analysis. Hence, we can say that industrial disparities across the regions of India have declined during 1976-77 to 1980-81 and also during 1980-81 to 1990-91.

#### CONCLUSION

On the basis of the above exercise, now, we can pass judgement on our first hypothesis made at the beginning of this

chapter. This judgement runs as below :

Of all the measures taken to test the hypothesis of convergence four are showing that there is no convergence from 1976-77 to 1980-81 while three others (eg Zelinsky-Fuch's Measure, Grossack's Measure and the measure of co-efficient of variation) are showing convergence. Hence, no final judgment can be passed on the hypothesis of convergence for the period 1976-77 to 1980-81.

A period of only four years is also very small to see the behavior of a phenomenon which has the tendency to manifest itself in the long run. Our hypothesis of convergence, however stands totally validated for the period of 1980-81 to 1990-91. All the measures which we have used are showing convergence for this period.

Table 1

## Result - Hoover's Industrial Concentration Ratio

1976-77			1980-81			1990-91		
1.	mah	.183801	mah	.174700	mah	.154284		
2.	wbl	.133989	wbl	.123442	tnd	.119983		
3.	tnd	.101496	tnd	.104365	apr	.103910		
4.	guj	.090332	upr	.100364	upr	.098855		
5.	upr	.089938	guj	.092053	wbl	.091695		
6.	apr	.085315	apr	.088903	guj	.085619		
7.	bhr	.055841	kar	.051788	kar	.052186		
8.	kar	.052529	bhr	.049482	mpr	.052695		
9.	mpr	.041119	mpr	.042225	pnb	.50525		
10.	ker	.038914	ker	.036279	bhr	.044659		
11.	pnb	.030011	pnb	.031642	ker	.033667		
12.	raj	.023148	raj	.022476	har	.031548		
13.	del	.018904	har	.024194	raj	.030117		
14.	har	.018776	del	.018574	ors	.018985		
15.	asm	.013389	ors	.017262	del	.01833		
16.	ors	.016651	asm	.016125	asm	.013806		
17.	jak	.003669	jak	.003614	jak	.00162		

Table 2

## Regionwise Ratio of Industrial Employment to population

1976-77		1980-81		1990-91	
State	Ratio	State	Ratio	State	Ratio
del	2.25	del	2.32	pnb	2.02
mah	2.04	mah	2.16	tnd	1.95
guj	1.87	guj	2.10	guj	1.67
wbl	1.70	wbl	1.76	mah	1.59
tnd	1.42	tnd	1.69	del	1.58
pnb	1.28	pnb	1.46	har	1.56
apr	1.14	har	1.45	apr	1.29
ker	1.03	apr	1.29	wbl	1.10
kar	1.02	ker	1.11	kar	0.944
har	1.01	kar	1.08	ker	0.941
asm	0.67	upr	0.70	mpr	0.64
upr	0.60	asm	0.629	upr	0.58
bhr	0.54	mpr	0.628	raj	0.50
mpr	0.53	raj	0.17	asm	0.49
raj	0.50	bhr	0.55	ors	0.488
jak	0.44	ors	0.51	bhr	0.42
ors	0.43	jak	0.47	jak	NA

Table 3  
Index of Industrialization

1976-77		1980-81		1990-91	
State	Index	State	Index	State	Index
del	2.13	del	NA	pnb	2.0446
mah	1.93	mah	1.87	tnd	1.7698
guj	1.78	guj	1.81	guj	1.6811
wbl	1.61	wbl	1.52	mah	1.6040
tnd	1.35	tnd	1.45	del	1.5968
pnb	1.22	pnb	1.27	har	1.5726
apr	1.08	har	1.26	apr	1.2822
ker	0.9740	apr	1.11	wbl	1.1054
kar	0.9696	ker	1.96	kar	0.9522
har	0.9656	kar	1.94	ker	0.9495
asm	0.64	upr	0.61	mpr	0.6411
upr	0.57	asm	0.5442	upr	0.8814
bhr	0.52	mpr	0.5433	raj	0.5624
mpr	0.51	raj	0.49	asm	0.4945
raj	0.48	bhr	0.48	ors	0.4922
jak	0.42	ors	0.44	bhr	0.4243
ors	0.41	jak	0.141	jak	NA



Table 4

Zelinsky - Fuchs Measure for Relative Gains and Losses  
(Actual-Estimated)

Sl. No.	State	1976-77	1980-81	1990-91
(1)	Andhra Pradesh	-304284	-123645	-41012
(2)	Assam	-65588	-11427	-5331
(3)	Bihar	-188462	-68818	-17624
(4)	Gujrat	-322178	-128028	-33398
(5)	Haryana	-66969	-33398	-12542
(6)	Jammu and Kashmir	-13088	-5027	-668
(7)	Karnataka	-187349	-72026	-20598
(8)	Kerala	-138793	-40456	-13288
(9)	Madhaya Pradesh	-146943	-58726	-20404
(10)	Maharashtra	-655545	-242967	-60895
(11)	Orissa	-59388	-24008	-7492
(12)	Punjab	-107004	-44008	-19943
(13)	Rajasthan	-82919	-34736	-11903
(14)	Tamil Nadu	-361994	-145148	-47356
(15)	Uttar Pradesh	-320772	-139584	-38899
(16)	West Bengal	-497886	-171681	-36292
(17)	Delhi.	-67424	-25833	-7235

Table - 5(a)

## Shift in Relative Significance of the Regions

Sl. No.	State	LI	LI	LI	LI
		$\sum_{i=1}^n$ LI	$\sum_{i=1}^n$ LI	$\sum_{i=1}^n$ LI	$\sum_{i=1}^n$ LI
		1970	1976	1980	1990
(1)	Andhra Pradesh	.063046	.085315	.088903	.103910
(2)	Assam	.016997	.018389	.16125	.1035506
(3)	Bihar	.047634	.052841	.049482	.044651
(4)	Gujrat	.092916	.090332	.092055	.084619
(5)	Haryana	.019261	.018776	.024194	.031548
(6)	Jammu and Kashmir	.002790	.003669	.003614	.001692
(7)	Karnataka	.045628	.052529	.051788	.052186
(8)	Kerala	.039940	.038914	.036299	.033669
(9)	Madhaya Pradesh	.054931	.041199	.042225	.051695
(10)	Maharashtra	.186427	.183801	.194900	.154284
(11)	Orissa	.016070	.016651	.017262	.018986
(12)	Punjab	.025405	.030001	.031642	.050528
(13)	Rajasthan	.020117	.023248	.024976	.030189
(14)	Tamil Nadu	.109382	.101496	.104365	.119983
(15)	Uttar Pradesh	.076536	.089938	.100364	.098555
(16)	West Bengal	.163776	.133989	.123442	.091695
(17)	Delhi.	.019083	.018904	.018994	.018330

Table - 5 (B)

## Shift in the Relative significance of the Regions

Sl. No.	State	$\frac{\Delta LI}{\sum LI}$	$\frac{\Delta LI}{\sum LI}$	$\frac{\Delta LI}{\sum LI}$
		1970-76	1976-80	1980-90
(1)	Andhra Pradesh	.126419	.108933	.4133679
(2)	Assam	.020959	.003491	-.040516
(3)	Bihar	.62450	.030734	-.054965
(4)	Gujrat	.085562	.101675	-.068739
(5)	Haryana	.017882	.54435	.1832019
(6)	Jammu and Kashmir	.005293	.603308	-.07942
(7)	Karnataka	.065167	.047657	-.0603952
(8)	Kerala	.037021	.021569	-.20194
(9)	Madhaya Pradesh	.01853	.047949	-.24699921
(10)	Maharashtra	.178954	.123897	-.266729
(11)	Orissa	.017723	.020674	0.545297
(12)	Punjab	.038489	.040804	0.4399833
(13)	Rajasthan	.029027	.034618	0.1369976
(14)	Tamil Nadu	.075828	0.120279	0.04420686
(15)	Uttar Pradesh	.114676	0.158563	0.612479
(16)	West Bengal	.079008	0.064873	-.562986
(17)	Delhi.	.018573	0.016733	0.1632904

Table 6

## RESULT BASED ON GROSSACK'S MEASURE

	b	CHI	r
1970-77	1.4006301	2.0452	0.9794
1976-80	1.1325825	1.2941	0.9954
1980-90	0.9184	0.9044	0.9657

Table 7

## Coefficient variations of all the regions for different periods

Period	C.V
1970-71	86.97105
1970-77	80.67441
1980-81	77.83220
1990-91	70.59794

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## CHAPTER IV

### THE DETERMINANTS OF SPATIAL STRUCTURE: A SURVEY OF THE EXISTING LITERATURE

The purpose of this chapter is to identify and isolate some of the factors affecting spatial structure of industries. First we will survey the literature available on the subject, some hypothesis will be made in the next step.

#### 1. A SURVEY OF THE EXISTING THEORIES OF LOCATION

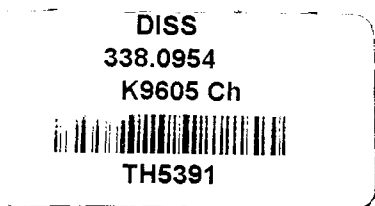
Von Thunen observed that various type of land use tend to be located in concentric zones around a market city according to their capacity to earn rent. Thus rent, according to Thunen, is the primary determinant of location, another being transportation cost. His theory is meant to explain the location of agricultural activity. However, it motivated the scholars to build a theory of industrial location.

Raw material and market are the two determinants of location according to Launhardt. "Launhardt failed to achieve sufficient generality in his analysis. In fact Launhardt's studies of industrial location and market areas treated a narrower set of circumstances than were encompassed in Thunen's isolated state". Weber discovers certain general factors which influence the location of industrial unit. According to him two primary factors affecting location are (i) transport cost (ii) labour cost. Transport cost depends on the weight to be transported and distance to be covered. Every, industry, says weber, will first be drawn to those locations which have the most favourable transport relation both with regard to the source of raw material and market. The relative attraction of raw material & market will depend upon two conditions - the types of raw material used and the nature of their transformation into products. Weber divides raw material into ubiquitous and localized. Localised materials are further divided into weight losing and non-weight-losing. Ubiquitous materials do not have any influence on location, whereas localised materials influence location. Weber's model takes into account only supply side factors. It is also based on the assumption of perfect competition.

Edgar Hoover separates cost factor into two categories - transportation cost and extraction cost or production cost. As long as the cost of extraction does not vary with output i.e. in the absence of economies of scale transport costs are the only determinants of location. When the delivered price i.e. the cost of transportation rises steeply, other producers step in intermediate locations. Edgar Hoover's approach is, like Weber, a supply side one.

For Rosch (1954), from the point of view of profitability, what mattered was the access to maximum market. Clearly a capital or metropolitan city will enjoy significant advantages over most other sites in the country for a market oriented (Consumer) industry.

Greenhut (1956) in his theory incorporates the following fac-



tors - (i) cost factor of location (transport cost, labour cost, processing cost) (ii) demand factor of location (locational interdependence of firms or attempts to monopolize certain market segments) (iii) Cost reducing factors (iv) revenue increasing factors (v) personal cost reducing factors (vi) Personal revenue increasing factors (vii) Purely personal considerations. Greenhut formulation is based on profit maximization approach. Transport cost, he says, determines location only when it is substantial part of total cost. In such a case production will be located nearer to market or source material. Nature of product, according to Greenhut, can also be a factor in determining location. As regards, it is elasticity which is of crucial importance - the more elastic the demand for the product of a firm, the more dispersed the production will be. The size of the firm is also of importance - small firms tend to move longer distances more easily than large firms. Greenhut also contends that unorganized oligopoly, where firms compete freely in price, leads more readily to dispersal than unorganized oligopoly.

Hotlier (1963) opined that economic development normally tends to be propagated along the main transportation routes.

The concept of development poles (or growth poles) evolved by Francois Perroux and used by French school of regional economics, viewed economic development as a polarized process resulting inevitably in cluster of industries. It Essentially tried to explain the tendency to agglomerate in terms of economies of scale and its impact on inter-industry linkage.

Theories based on deduction sometimes tend to bank on unrealistic assumptions. They must be supplemented by inductive studies to have a proper study of the phenomenon in question.

## 2. THE SURVEY OF THE EMPIRICAL STUDIES DONE OUTSIDE INDIA.

A number of empirical studies have been done both abroad and in India on the matter of the factors of industrial location. A look at these studies may help us in identifying some more determinants of industrial location.

The studies cited below are done in the context of America. All these studies are given in Leonard F.Wheat.

McLaughlin and Robock (1949) find that business selects its location in two steps. First it selects a general region and then a location within the region. A general region secures the most important advantage. It may be a regional market, a source of raw material or a source of cheap labour. By finding a location within the region, the other requirements are met then. Depending on the factor which is taken into account while selecting a general region, a plant is (1) market oriented (2) material oriented (3) labour oriented. Transportation cost and climate are the other factors determining location according to the authors of this study.

Thomson and Mattila (1959) in their study found that market has an important influence on location decisions. Taxes, according to them, do not seem to have a significant influence.

In the context of New York Metropolitan Region Study of Chinitz and Vernon (1960), Opines that the main force behind South and West growing faster than the rest of the country is



transportation i.e. a desire to cut transportation cost by locating close to the market. In the same context using information from economic histories, economic geographies, industry studies, observed locational patterns and interviews the study of Liehtenberg (1960) classifies manufacturing into five dominant locational factors. He finds that based on 1954 manufacturing employment, 51% of nation's industry is transport sensitive, 15% seeks internal economics 14% is governed by inertia (historical factors), 8% emphasizes labour cost and supply, 12% is unclassifiable. The transport sensitive industry sub-divides into 43% oriented to market and 8% oriented to raw material.

Perloff (1963) in his study of manufacturing location finds that over the years industry has steadily shifted from resource to market orientation. The author ranks agglomeration (i.e. industry attracts industry) as second to market in importance. Other influences are not ranked but resources get the most attention. Labour, climate and industry mix are covered briefly.

Fuchs (1962) in his study found that market is not an important determinant of manufacturing location.

The most important factors influencing changes in location according to Fuchs are - labour, raw material and climate. Fuchs discounts tax differentials.

The Fantus study in a table of summary report lists a number of locational factors, local and regional, found to be significant. Labour supply, according to this study, is the most important factor influencing location. The regional factors are - (1) transpiration (2) proximity to customers (3) state manpower training assistance (4) labour cost advantage (5) low-cost electric power (6) urban orientation (7) proximity to raw materials.

Many other studies bearing on manufacturing location are available. Some of them are - Mc Carthy study (emphasis on market and raw material), Edward Ulman's study (emphasis on climate), Edwin Cocha Jr's study (emphasis on power resources and developmental thresholds), George Borts and Jerome Steins study (discounts proper industry mix), Robert Bretzfelder study (discounts proper industry wrix), William and William's study (discounts tax differentials)

The above theories and empirical studies may work well with new firms choosing a location, there are special problems associated with expansion and diversification of existing units. An important study by Luttrell in which he conducted 98 case studies in the U.K. came to the conclusion that firms suffer from considerable inertia in location, by and large firms do not choose new locations if it can be helped. If, however, they are expanding they may consider new locations, but the search for new location is not as systematic as theory might suggest rather in majority of cases the historical effect of one location decision has often influenced later development.

Loasby with respect to some 200 firms, originally located in Birmingham, and some others in New York, concluded, "location decisions do not result from a continuous scanning of possibilities". Firms that left New York city did so principally because they did not have and could not find adequate manufacturing space in the city. This conclusion too is broadly

consistent with the hypothesis of corporate inertia i.e. to say firms look for new locations only when driven to, and when they do so their tendency is to find a location which is 'satisfactory' overall rather than economically optimal.

#### 4. THE SURVEY OF THE EMPIRICAL STUDIES DONE IN INDIA

In the inter-regional set up of the Indian economy the work of Dhar and Sastry is important. Using step-wise regression they try to explain the inter-regional industrial variations during 1951-61. They explained that change in per capita income explained 80 per cent of total variations in 1961. Variations in the cost of electricity over regions have no major influence on industrial disparities among the regions. Sastry's study, however, does not take into account the size of the regions.

Gupta has tried to argue that some regions perform better because of economies of scale, urbanization and market size. Government participation was found to be of no consequence for Gupta.

Lakdawala, Alagh and Sharma have emphasised the role of industrial clusters based on technological interdependence as important in influencing the spatial pattern of industries.

Seth using data pertaining to the period 1950-80 says that the most important determinant of spatial spread of industrialization, in India has been the technological orientation. material orientation as also the other orientations from the supply side turn out to be insignificant.

Using the data from 1961 to 1978 Awasthi says that both demand and supply side variables explain approximately 95 per cent of total variations in the level of industrial development and approximately 79 per cent of the total explanation is provided by indirect Government participation alone in 1961. Consumer's purchasing power and inter-industry demand from the demand side and infrastructure, agglomeration economies, efficiency wages and indirect Government participation among the supply side factors, emerge as significant factors.

Papola (1981) identified entrepreneur's perception and comparative advantages of locations as the two important factors influencing the location of industries. This conclusion was reached in the context of U.P.

From the literature survey done above the following factors of location emerge out. Some of these factors form the Crux of the hypotheses which will be tested in the next few chapters. These factors are :

1. Market (sometimes viewed as transport also)
2. Labour
3. Raw material and resources
4. Technology (sometimes viewed as the effect of the possibility of factor substitution)
5. Agglomeration (manifested in the existing industrial structure and technological linkages)
6. Entrepreneur's perception
7. Government Policy

8. Climate
9. Development Threshold
10. Strategic Considerations.

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## CHAPTER V

### SOME DETERMINANTS INDIA'S INDUSTRIAL LOCATION: THE ROLE OF LABOUR, MARKET, MATERIAL & TECHNOLOGY

The aim of this chapter is to see the relative influence of market, labour, raw material and technology on the industrial location in the regions of India. In other words, this chapter intends to test the following hypothesis:

The spatial structure of industrialisation in India is governed by the access to labour, raw material market and technology in that order.

To be clear, this chapter focuses on the above factors assuming that they are internal to the economy of India. Any external influence coming in the form of the above factors is totally left out.

#### METHODOLOGY

This chapter intends to follow the methodology adopted by Seth (1987).

Multiple regression analysis has been very widely used in geographic research largely because of its obvious apparent suitability for testing spatial impact of one phenomenon over the other. Such techniques were used by Funchs (1959), Mc Kenty, Wheat (1973), Keeble (1972), Townsend and Gault (1972), Sant (1975) Keeble and Hauser (1971-72), Lakadwala Alagh (1972) Avasthi Seth (1987) Sandesara (1992). Such studies have yielded insight and identified logical relationships.

The following are the variables used -

$$I = \text{index of industrialisation} = \frac{\sum_{i=1}^n LI}{\sum_{i=1}^n PI}$$

The index of industrialisation is the dependent variable for our purpose = The independent variables are as below:

L1 = VI/LI = average labour productivity in the Ith region.

L2 = WI/LI = average wages in the Ith region.

L3 = WI/VI = Proportion of wages in the total value added in the Ith region.

R1 = RI/CI = Proportion of raw material cost in the Ith region.

$R2 = RI/VI =$  Material cost per unit of value added.  
 M1 = PI = Size of population in the Ith region.  
 M2 = SI = Number of class I town in the Ith region  
 M3 = YI = Per Capita state domestic income in the Ith region.  
 $T1 = KI/LI =$  Capital labour ratio in the Ith region.  
 $T2 = (VI - WI)/ KI =$  Rate of return on capital in the Ith region.  
 $T3 = EI/PI =$  Electricity sold per person in the Ith region.  
 $T4 = LI/FI =$  Average size of the firm in the Ith region.

Here,

LI = Total industrial labour force in the Ith region.  
 WI = Total wages paid in the Ith region.  
 VI = Total value added generated by industries sector in the Ith region.  
 KI = Total capital employed in the Ith region.  
 RI = Total material cost in the Ith region.  
 CI = Total production cost in the Ith region.  
 FI = Total number of firms operating in the Ith region.  
 PI = Total population of the Ith region.  
 VI = Per capita state domestic income of the Ith region.  
 SI = Number of class I cities in the Ith region.  
 EI = Consumption of Electricity in the Ith region.

The effect of labour, material, market and technology on industrial location has been tested with the help of the following relationship.

#### 1 THE INFLUENCE OF LABOUR

$$I\left(\frac{VI}{LI}, \frac{WI}{LI}, \frac{WI}{VI}\right)$$

or,  $I = f(L1, L2, L3)$

2. THE INFLUENCE OF MATERIAL

$$I = F\left(\frac{RI}{CI}, \frac{RI}{VI}\right)$$

$$I = f(R1, R2)$$

3. THE INFLUENCE OF MARKET

$$I = f(PI, SI, YI)$$

or,  $I = f(M1, M2, M3)$

4. THE INFLUENCE OF TECHNOLOGY

$$I = f\left(\frac{KI}{LI}, \frac{VI-WI}{KI}, \frac{LI}{FI}, \frac{EI}{PI}\right)$$

or,

$$I = f(T1, T2, T3, T4)$$

DATA SOURCES

The following are the data sources of this chapter -----  
 The Annual Survey of Industries (1976-77, 1980-81, 1990-91). The Statistical Abstract of India for relevant years, different data source published by the center for Monitoring Indian Economy (C.M.I.E.). The Economic Survey of India (1976-77, 1980-81, 1990-91), Projected population figures have been used to know the population figures for non-census years.

THE RESULTS

The results of the multiple regression analysis are given in the table 8.

During all the periods which we have taken labour emerges as an insignificant factor for explaining the spatial pattern. There was no problem of multi-collinearity among the variables representing labour for all these periods, (the results of the relevant correlation matrices are given in the table 9), hence the results got can be said to be precise. During 1976-77 labour accounts for only 28.7% of the variations in spatial pattern, during 1980-81 it account for 17.09% of the variations and during 1990-91 it explains only 4% of the variations.

Material also does not seem to have significant influence on the location of industries in India. According to the results obtained the level of industrial development explained by material is 10.56% during 1976-77, 11.16% during 1980-81 and



25.98% during 1990-91. The independent variables (i.e. the variables represent in different aspects of material) of 1976-77 had a tendency towards multicollinearity, hence the result for 1976-77 are not precise. During 1980-81 and 1990-91 there is no such problem, hence the result for this period can be said to be precise.

The fact that the material rich states/regions like Bihar, Orissa and M.P. are low on the level of industrial development in India lends a support to this finding. The influence on spatial distribution of industries is very low perhaps due to the fact that Indian industries are operating under the condition of imperfect as well as protected market. It is easier for the firms under these conditions, to transfer a large part of the cost of production to the consumer. The fact that raw materials are being supplied to the producers at uniform prices (everywhere) by the Government also helps in making the influence of material insignificant in our analysis.

The significance of market in explaining the spatial variation (in industrialisation) during 1976-77 was 58.87%, during 1980-81 it was 75.44% and during 1990-91 it was 41.09. There was no problem of multicollinearity of the independent variables during all these periods hence the results are precise. From the results, it follows that during 1980-81 market emerges an important determinant of spatial variations in industrialisation. Its role during 1976-77 and 1990-91 is less important.

Technology establishes itself as the most important determinant of industrial location in India. It is clear from the result of the regression analysis. Except a high standard error associated with the independent variable T3 all the other independent variables have low standard errors. There is no problem of multicollinearity among the independent variable here, hence the results are precise. During 1976-77 technology explains 85.28% of the difference in spatial pattern of industries, during 1980-81 it explain 80.41% of the same, it explains 73.19% of the same in 1990-91. From the foregoing discussions we can pass the following judgment on the hypothesis made in the beginning of this chapter -----.

The hypothesis that the spatial pattern of industrialisation in India is governed by the access to labour, raw-material, market and technology in that order is incorrect. Our results, say that this order should be reversed i.e. technology is the most important determinant of industrial location in India, followed by market. The influence of raw material and labour is insignificant.

TABLE 8A

THE INFLUENCE OF LABOUR

1976-77

$$I = 2.2373 - 21.3790L_1 + 3.1923 L_2 - 0.1729 L_3$$

(1.4788) (13.6810) (1.5131) (0.1342)

$$R^2 = 0.2871 \quad \bar{R}^2 = 0.1226$$

1980-81

$$I = 0.1888 + 4.9202 L_1 + 1.2871 L_2 + 0.0034880 L_3$$

(0.5844)    (4.4037)                    (5.3075)                    (0.0050627)

$$R^2 = 0.1704 \qquad \bar{R}^2 = -0.0211$$

1990-91

$$I = -0.0711 + 1.1865 L_1 + -1.7430 L_2 + 1.6078 L_3$$

(3.5888)            (6.0486)                    (7.9997)                    (45813)

$$R^2 = 0.0478 \qquad \bar{R}^2 = -0.1720$$

Note - The figures in paranthesis in all the table are standard error values).

TABLE 8B

THE INFLUENCE OF MATERIAL

1976-77

$$I = 1.2023 + 1.7853r_1 - 0.113R_2$$

(0.1948)    (2.0741)                    (0.1086)

$$R^2 = 0.1056 \qquad \bar{R}^2 = 0.0222$$

1980-81

$$I = 0.5841 + 2.1309 R_1 - 0.0003107 R_2$$

(0.3803)    (1.6248)                    (0.0012301)

$$R^2 = 0.116 \qquad \bar{R}^2 = 0.0153$$

1990-91

$$I = 0.0245 - 1.9716 R_1 + 0.4821R_2$$

(0.5822)    (1.8879)                    (0.2216)

$$R^2 = 0.2598 \qquad \bar{R}^2 = 0.1541$$

TABLE 8C

THE INFLUENCE OF MARKET

1976-77

$$I = 0.8849 - 0.0000M_1 + 0.0432 M_2 + 0.0003225 M_3$$

(0.1917)    (0.00000)                    (0.0441)                    (0.0001076)

$$R^2 = 0.5887 \qquad \bar{R}^2 = 0.4938$$

1980-81

$$I = 0.7547 - 0.00000M_1 + 0.386 M_2 + 0.0001284 M_3$$

(0.1474)      (0.00000)      (0.0115)      (0.0000445)

$$R^2 = 0.7544 \quad \bar{R}^2 = 0.6977$$

1980-91

$$I = 1.0705 - 0.00000 M_1 + 0.0301 M_2 + 0.0000076 M_3$$

(0.2384)      (0.00000)      (0.0274)      (0.0000175)

$$R^2 = 0.4109 \quad \bar{R}^2 = 0.2750$$

TABLE 8D

THE INFLUENCE OF TECHNOLOGY

1976-77

$$I = 0.4875 - 0.792 T_1 - 2.0580T_2 + 5016.7 T_3 + 0.0035075 T_4$$

(.6017)      (1.2670)      (0.7704)      (1558.3)

(0.003504)

$$R^2 = 0.8528 \quad \bar{R}^2 = 0.8037$$

1980-81

$$I = -0.3816 - 0.519 T_1 + 0.7485 T_2 + 5508.3 T_3 + 0.0083176T_4$$

(0.3939)      (0.0328)      (1.6601)      (936.6683)

(0.0035229)

$$R^2 = 0.8041 \quad \bar{R}^2 = 0.7387$$

1990-91

$$I = -6.6821 T_2 + 1014.1 T_3 - 0.0057290 T_4 - 0.356 T_1 - 0.2867$$

(2.2494)      (276.8572)      (0.0052354)      (0.0236)      (0.0937)

$$R^2 = 0.7319 \quad \bar{R}^2 = 0.6425$$

(Note: The figures in the parentheses in all the tables give the standard errors of the independent variables. To see the standard error of an independent variable see the bracketed item just below it.)

TABLE 9

Correlation Matrices among independent variables or different periods

1990-91				
	M1	M2	M3	
M1	1	0.7237	0.5502	
M2		1	0.8687	
M3			1	
	T1	T2	T3	T4
T1	1	0.4887	0.1196	0.4220
T2		1	0.0732	0.5311
T3			1	0.4619
T4				1
	R1	R2		
R1	1	0.6317		
R2		1		
	L1	L2	L3	
L1	1	0.6004	0.3271	
L2		1	0.5445	
L3			1	

Table 9 Contd....

1980-81

	M1	M2	M3
M1	1	0.6034	0.8624
M2		1	0.7237
M3			1

	T1	T2	T3	T4
T1	1	0.0104	0.1637	0.0312
T2		1	0.1559	0.2052
T3			1	0.5785
T4				1

	R1	R2
R1	1	0.0425
R2		1

	L1	L2	L3
L1	1	0.4609	0.6520
L2		1	0.0071141
L3			1

1976-77

	M1	M2	M3
M1	1	0.9885	0.8757
M2		1	0.9029
M3			1

Table 9 Contd....

	T1	T2	T3	T4
T1	1	0.8822	0.0311	0.2070
T2		1	0.6887	0.3883
T3			1	0.5382
T4				1

	R1	R2
R1	1	0.0425
R2		1

	L1	L2	L3
L1	1	0.4609	0.6520
L2		1	0.0071141
L3			1

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## CHAPTER - VI

### AGGLOMERATION AND INDUSTRIAL LOCATION IN INDIA

The aim of this chapter is to see the effect of agglomeration on industrial location in India. External economies coming in the form of agglomeration compel new firms to choose a location where sufficient level of industrial activity already exists. Economies coming from agglomeration may be general and specific, consequently the agglomerating forces available at a location may be favourable for industry in general or it may be favourable only for particular type of industries.

The following hypotheses will be tested in this chapter:

1. New industrial activity tends to get located where industries already exist (i.e. industry attracts industry)
2. New industrial activity tends to get located where a particular industrial structure favourable to it exists.

#### METHODOLOGY

We have attempted to test the first hypothesis by correlating the manufacturing sector employment of each region during 1970-76 to the increase that took place during 1970-76 to 1980-81. The same exercise has been done also for the period of 1980-81 to 1990-91. The analysis attempted is for total industrial employment of every region.

To test the second hypothesis we have first tried to analyse the industrial base and the level of industrial diversification of the regions during the different reference periods. The trends have been analysed and a relation has been established (if possible) between the industrial structure of different regions and their levels of industrial development and the relative shifts in them.

The shifts in the levels of industrial development of the regions has been seen with the help of the Zelinsky-Fuchs Measure. This measure has already been discussed in the methodology section of the third chapter.

The industrial base and industrial diversification analysis has been done with the help of location quotient and coefficient of specialisation:

The location quotient of Ith industry in the Jth region is defined as :-

$$L_{Ij} = \frac{E_{Ij}}{E_j} / \frac{E_I}{E}$$

Where,

region.  $E_{Ij}$  = employment in the Ith industry in the Jth region.

region.  $E_j$  = employment in all industries in the J-th region.

country.  $E_I$  = employment in Ith industry in the country.

country.  $E$  = employment in all industries in the country.

If  $L_{IJ} > 1$ , then it is said that the Ith industry forms the industrial base of the Jth region. In other words, the Jth region is specialising in the industry I.

#### (B) THE CO-EFFICIENT OF SPECIALISATION

This measure reflects the extent of industrial diversification in a region. The co-efficient of specialisation ( $S_j$ ) for a region is defined as :-

$$S_j = 1/2 \left| \sum_{i=1}^n \left( \frac{E_{ij}}{E_i} - \frac{E_i}{E} \right) \right|$$

$S_j = 0$  => regions industrial structure is as diversified as that of the country.

$S_j = 1$  => regions industrial structure is highly concentrated in a few industries.

Here,  $0 \leq S_j \leq 1$

#### DATA SOURCES

The Annual Survey of Industries is our primary data source. The years taken are 1976-77, 1980-83 and 1990-91.

The regions taken are the same throughout this study. The regions taken are 17 in number.

#### RESULTS BASED ON CORRELATION ANALYSIS

The correlation co-efficient between the total industrial employment of each region during 1976-77 ( $E_{76-77}$ ) and the increment that took place in it upto 1980 ( $E_{80-76}$ ) is -0.12582. It means that the correlation between  $E_{80-76}$

and E76 is very weak and negative. This implies that agglomeration was not present during 1976-77 and 1980-81, instead locational trend of industries during this period was affected by deglomeration though in a very-very weak form. The same analysis was done for the period 1980-81 to 1990-91. The relevant correlation co-efficient for this period comes out to be -0.59431. It is a clear indication of the fact that deglomerative forces affected industrial location during this period. Thus, deglomeration establishes itself as one of the reasons for the industrial convergence that is seen during the period 1980-81 to 1990-91. It seems that location of industrial activity in already industrially advanced regions during 1980-81 to 1990-91 increased infrastructure cost therein, turning the earlier external economies to diseconomies and compelling the new industrial activity to disperse to industrially backward regions.

#### RESULTS OF THE INDUSTRIAL DIVERSIFICATION ANALYSIS

The tables show regions/states according to the level of their industrial diversification. The regions/states have been arranged in descending order of the levels of their industrial diversification. Industrially significant regions/states are generally showing high levels of industrial diversification.

Table 10  
STATES' RANKING BASED ON  
CO-EFFICIENT OF SPECIALISATION : 1976-77

- 
1. Tamil Nadu
  2. Maharashtra
  3. Uttar Pradesh
  4. Madhaya Pradesh
  5. Karnataka
  6. Delhi
  7. Gujarat
  8. Punjab
  9. West Bengal
  10. Rajasthan
  11. Andhra Pradesh
  12. Haryana
  13. Orissa
  14. Kerala
  15. Bihar
  16. Assam
  17. Jammu and Kashmir
- 

Table 11  
STATES RANKING BASED ON  
(COEFFICIENT OF SPECIALISATION 1980-81)

- 
1. Maharashtra
  2. Tamil Nadu
  3. Karanataka
  4. Madhya Pradesh
  5. Haryana
  6. Uttar Pradesh
  7. Gujarat
  8. West Bengal
  9. Rajasthan
  10. Punjab
  11. Delhi
  12. Andhra Pradesh
  13. Bihar
  14. Orissa
  15. Kerala
  16. Assam
  17. Jammu & Kashmir
- 

Table 12  
STATES RANKING BASED ON  
COEFFICIENT OF SPECIALISATION 1990-91

---

1. Maharashtra
  2. Karanataka
  3. Tamil Nadu
  4. Uttar Pradesh
  5. Andhra Pradesh
  6. Gujarat
  7. West Bengal
  8. Haryana
  9. Punjab
  10. Kerala
  11. Rajasthan
  12. Delhi
  13. Orissa
  14. Bihar
  15. Madhya Pradesh
  16. Jammu & Kashmir
  17. Assam
- 

RESULTS OF THE INDUSTRIAL BASE ANALYSIS

The following discussions summarise the results of the industrial base analysis done for our reference periods.

INDUSTRIAL BASE OF THE REGIONS OF INDIA DURING 1976-77

**TAMIL NADU**

Tamil Nadu was the 1st most diversified state during 1976-77. Its industrial base had the following industries:

## **20-21 Manufacture of Food Products**

- 204 Grain mill products
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 208 Production of common salt
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 213 Coffee curing, roasting and grinding
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 216 Manufacture of prepared animal feeds
- 217 Manufacture of starch
- 219 Manufacture of food products not elsewhere classified

## **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 228 Manufacture of chewing tobacco, zarda, and snuff

## **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling

## **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 244 Manufacture of wool not elsewhere classified
- 245 Spinning, weaving and finishing of silk textiles
- 246 Printing, dyeing and bleaching of silk textiles
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 248 Printing, dyeing and bleaching of synthetic textiles
- 249 Silk and synthetic fibre textiles not elsewhere classified

## **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 250 Jute and Mesta pressing and baling
- 251 Jute and Mesta spinning and weaving
- 252 Dyeing, printing and bleaching of jute textiles
- 253 Preparing, spinning, weaving and finishing of hemp and other coarse fibres
- 259 Manufacture of jute bags and other jute textiles not elsewhere classified

## **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 260 Knitting mills
- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 262 Embroidery and making of crapes, laces and fringes
- 263 Weaving carpets, rugs and other similar textile products
- 264 Manufacture of all types of textiles, garments including wearing apparel
- 265 Manufacture of rain coats, hats, etc.
- 266 Manufacture of made up textile goods (except garments) such as curtains, mosquito nets, etc.
- 267 Manufacture of water proof textiles such as oil cloth, tarpaulin, etc.
- 268 Manufacture of coir and coir products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.
  
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
  
- 270 Manufacture of Veneer, plywood and their products
- 271 Sawing and planing of wood (other than plywood)
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 275 Manufacture of cork and cork products
- 276 Manufacture of wooden furniture and fixtures
- 277 Manufacture of bamboo and cane furniture and fixtures
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified
  
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
  
- 280 Manufacture of pulp, paper and paper board including newsprint
- 281 Manufacture of container and boxes of paper and paper board
- 282 Manufacture of pulp products not elsewhere classified like dolls
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 284 Printing and publishing of newspaper
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 286 Printing of bank notes, currency notes, postage stamps,

- security presses, etc.
- 287 Engraving, etching, block-making, etc.
- 288 Book-binding
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 29 Manufacture of Leather and Leather and Fur Products (except Repair)**
- 290 Tanning, currying, finishing, embossing and japanning of leather
- 291 Manufacture of footwear (excluding repair) except vulcanized or moulded rubber or plastic footwear
- 292 Manufacture of wearing apparel like coats, gloves, etc., of leather and substitutes of leather
- 293 Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 294 Scrapping, currying, tanning, bleaching and dyeing to fur and other pelts for the trade
- 295 Manufacture of wearing apparel of fur and pelts
- 296 Manufacture of fur and skin rugs and other articles
- 299 Manufacture of leather and fur products not elsewhere classified
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industries
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302 Manufacture of rubber products not elsewhere classified
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304 Petroleum refineries
- 305 Manufacture of products of petroleum not elsewhere classified
- 306 Production of coal tar in coke ovens
- 307 Manufacture of other coal and coal tar products not elsewhere classified
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 317 Manufacture of matches
- 318 Manufacture of explosives and ammunition and fire works

- 32      Manufacture of Non-Metallic Mineral Products**
- 323      Manufacture of chinaware and porcelainware  
324      Manufacture of cement, lime and plaster  
328      Manufacture of asbestos, cement and other cement products  
329      Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 34      Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341      Manufacture of structural metal products
- 35      Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351      Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries  
352      Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts  
353      Industrial Machinery for Food and Textile Industries  
358      Manufacture of office computing and accounting machinery and parts  
359      Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, (such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36      Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 369      Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37      Manufacture of Transport Equipment and Parts**
- 374      Manufacture of motor vehicles and parts  
375      Manufacture of motor-cycles and scooters and parts  
376      Manufacture of bicycles and cycle-rickshaw and parts



**38 Other Manufacturing Industries**

380 Manufacture of medical surgical and scientific equipment

The industrial base of the state was dominated by the items of the manufacture of food products and tyre, tube petroleum products, etc. etc.

## MAHARASHTRA

Maharashtra was the 2nd most diversified state of the country during 1976-77. Its industrial base had the presence of almost all the industries to which these discussions relate.

### 20-21 Manufacture of Food Products

- 200 Slaughtering, preparation and preservation of meat
- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 205 Manufacture of bakery products
- 216 Manufacture of prepared animal feeds

### 22 Manufacture of Beverages, Tobacco and Tobacco Products

- 224 Soft drinks and carbonated water industries
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco

### 23 Manufacture of Cotton Textiles

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 232 Printing, dyeing and bleaching of cotton textiles

### 24 Manufacture of Wool, Silk and Synthetic fibre Textiles

- 241 Wool spinning, weaving and finishing in mills
- 244 Manufacture of wool not elsewhere classified
- 246 Printing, dyeing and bleaching of silk textiles
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 248 Printing, dyeing and bleaching of synthetic textiles
- 249 Silk and synthetic fibre textiles not elsewhere classified

### 26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)

- 260 Mnetting mills
- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 262 Embroidery and making of crapes, laces and fringes
- 264 Manufacture of all types of textiles, garments

- including wearing apparel
- 265 · Manufacture of rain coats, hats, etc.
- 266 Manufacture of made up textile goods (except garments) such as curtains, mosquito nets, etc.
- 267 Manufacture of water proof textiles such as oil cloth, tarpaulin, etc.
  
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 275 Manufacture of cork and cork products
  
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 281 Manufacture of container and boxes of paper and paper board
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 284 Printing and publishing of newspaper
- 287 Engraving, etching, block-making, etc.
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
  
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industries
- 302 Manufacture of rubber products not elsewhere classified
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304 Petroleum refineries
  
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 312 Manufacture of paints, varnishes and lacquers.
- 313 Manufacture of drugs and medicines
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.

- 315 Manufacture of inedible oils
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylence except glass
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)

**32 Manufacture of Non-Metallic Mineral Products**

- 321 Manufacture of glass and glass products
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 327 Manufacture of earthen and plaster statues and other products
- 328 Manufacture of asbestos, cement and other cement products

**33 Basic Metal and Alloys Industries**

- 331 Foundries for casting and forging iron and steel
- 332 Manufacture of ferro-alloys
- 334 Brass manufacturing
- 336 Zinc manufacturing
- 339 Other non-ferrous metal industries

**34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**

- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 344 Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding

**35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**

- 350 Manufacture of agricultural machinery and equipment and parts
- 352 Manufacture of Prime movers, boilers and steam

- 353 generating plants, such as diesel engines and parts  
Industrial Machinery for Food and Textile Industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 355 Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 356 Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357 Manufacture of Machine Tools, their parts and accessories
  
- 36      **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts****
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 362 Manufacture of dry and wet batteries
- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 365 Manufacture and repair of Radiographic X-ray apparatus and tubes and parts
- 367 Manufacture of electronic components and accessories not elsewhere classified
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
  
- 37      **Manufacture of Transport Equipment and Parts****
- 374 Manufacture of motor vehicles and parts
- 375 Manufacture of motor-cycles and scooters and parts
  
- 38      **Other Manufacturing Industries****
- 380 Manufacture of medical surgical and scientific equipment

- 381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 382 Manufacture of watches and clocks
- 387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles. Cotton textiles, wool, silk, chemical metal, products, machinery etc wer important.

## UTTAR PRADESH

Uttar Pradesh had the third position in terms of industrial diversification during 1976-77. The following industries made its industrial base :

### 20-21 Manufacture of Food Products

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 215 Manufacture of ice

### 22 Manufacture of Beverages, Tobacco and Tobacco Products

- 220 Distilling, rectifying and blending of spirits
- 221 Wine industries
- 222 Malt liquors and malt
- 224 Soft drinks and carbonated water industries
- 226 Manufacture of bidi
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco

### 23 Manufacture of Cotton Textiles

- 236 Weaving and finishing of cotton textiles in powerlooms
- 239 Cotton textiles not elsewhere classified

### 24 Manufacture of Wool, Silk and Synthetic fibre Textiles

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 244 Manufacture of wool not elsewhere classified
- 245 Spinning, weaving and finishing of silk textiles

### 27 Manufacture of Wood and Wood Products, Furniture and Fixtures

- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)

- 28      **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 284      Printing and publishing of newspaper
- 285      Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 29      **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 290      Tanning, currying, finishing, embossing and japanning of leather
- 293      Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 299      Manufacture of leather and fur products not elsewhere classified
31.      **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311      Manufacture of fertilisers and pesticides
- 313      Manufacture of drugs and medicines
- 316      Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylence except glass
- 32      **Manufacture of Non-Metallic Mineral Products**
- 321      Manufacture of glass and glass products
- 323      Manufacture of chinaware and porcelainware
- 33      **Basic Metal and Alloys Industries**
- 331      Foundries for casting and forging iron and steel
- 335      Aluminium manufacturing
- 34      **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340      Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 341      Manufacture of structural metal products
- 343      Manufacture of hand tools and general hardware
- 345      Manufacture of metal utensils, cutlery and kitchenware
- 349      Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding



- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 350 Manufacture of agricultural machinery and equipment and parts
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 362 Manufacture of dry and wet batteries
- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vaccum cleaners, etc., excluding repairing
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 367 Manufacture of electronic components and accessories not elsewhere classified
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37 **Manufacture of Transport Equipment and Parts**
- 371 Manufacture of Locomotive and parts
- 372 Manufacture of Railway wagons and coaches and part
- 375 Manufacture of motor-cycles and scooters and parts
- 38 **Other Manufacturing Industries**
- 380 Manufacture of medical surgical and scientific equipment
- 385 Manufacture of sports and arthletic goods
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

Agricultural based products dominated the industrial base of the State.

## MADHAYA PRADESH

The industrial base of M.P. had the following industries:

### **20-21 Manufacture of Food Products**

- 204 Grain mill products
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt
- 223 Production of country liquor and toddy
- 226 Manufacture of bidi

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 242 Wool spinning and weaving (other than in mills)
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 265 Manufacture of rain coats, hats, etc.

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 271 Sawing and planing of wood (other than plywood)
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other

- rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 315 Manufacture of inedible oils
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylence except glass
- 32 Manufacture of Non-Metallic Mineral Products**
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 336 Zinc manufacturing
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)

- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

Industrial base was dominated by food products, electrical industrial machines, wires, cables, etc.

Madhya Pradesh had the 4th rank in terms of industrial diversification.

## KARNATAKA

Karnataka was the 5th most industrially diversified state during 1976-77. Its industrial base had the following industries:

### 20-21 Manufacture of Food Products

- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 204 Grain mill products
- 205 Manufacture of bakery products
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palmjuice
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 213 Coffee curing, roasting and grinding
- 216 Manufacture of prepared animal feeds
- 219 Manufacture of food products not elsewhere classified

### 22 Manufacture of Beverages, Tobacco and Tobacco Products

- 220 Distilling, rectifying and blending of spirits
- 222 Malt liquors and malt
- 223 Production of country liquor and toddy
- 224 Soft drinks and carbonated water industries
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco
- 228 Manufacture of chewing tobacco, zarda, and snuff

### 23 Manufacture of Cotton Textiles

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 233 Cotton spinning other than in mills (charkha)

- 24 **Manufacture of Wool, Silk and Synthetic fibre Textiles**
- 245 Spinning, weaving and finishing of silk textiles  
246 Printing, dyeing and bleaching of silk textiles
- 26 **Manufacture of Textile Products (including Wearing Apparel other than Footwear)**
- 264 Manufacture of all types of textiles, garments including wearing apparel  
269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.
- 27 **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 270 Manufacture of Veneer, plywood and their products  
271 Sawing and planing of wood (other than plywood)  
272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow  
273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)  
274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures  
276 Manufacture of wooden furniture and fixtures  
279 Manufacture of wood, bamboo and cane products not elsewhere classified
- 28 **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280 Manufacture of pulp, paper and paper board including newsprint  
284 Printing and publishing of newspaper  
285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)

- 305 Manufacture of products of petroleum not elsewhere classified
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases-like acetylene, oxygen, nitrogen, etc.
- 311 Manufacture of fertilisers and pesticides
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 315 Manufacture of inedible oils
- 32 Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 Basic Metal and Alloys Industries**
- 332 Manufacture of ferro-alloys
- 333 Copper manufacturing
- 334 Brass manufacturing
- 335 Aluminium manufacturing
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 350 Manufacture of agricultural machinery and equipment and parts



352 Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts

**38 Other Manufacturing Industries**

386 Manufacture of Musical instruments

The industrial base of the state had a dominant presence of food processing industries, tobacco, wood products, chemicals etc.

## DELHI

Delhi was the 6th industrially most diversified state during 1976-77. It had the following industries in its industrial base, food products, fabricated metal products, ----- products, newspapers etc. were important components of the industrial base of Delhi during the period.

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 205 Manufacture of bakery products
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 215 Manufacture of ice

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 224 Soft drinks and carbonated water industries
- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 243 Dyeing and bleaching of woollen textile
- 246 Printing, dyeing and bleaching of silk textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 260 Mnitting mills
- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 262 Embroidery and making of crapes, laces and fringes

- 264 Manufacture of all types of textiles, garments including wearing apparel
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 276 Manufacture of wooden furniture and fixtures
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 284 Printing and publishing of newspaper
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 287 Engraving, etching, block-making, etc.
- 288 Book-binding
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 29 Manufacture of Leather and Leather and Fur Products (except Repair)**
- 299 Manufacture of leather and fur products not elsewhere classified
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302 Manufacture of rubber products not elsewhere classified
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 312 Manufacture of paints, varnishes and lacquers.
- 313 Manufacture of drugs and medicines
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers,

washing and scouring products and other toilet preparations.

**32 Manufacture of Non-Metallic Mineral Products**

- 323 Manufacture of chinaware and porcelainware
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified

**33 Basic Metal and Alloys Industries**

- 333 Copper manufacturing

**34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**

- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 344 Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding

**35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**

- 350 Manufacture of agricultural machinery and equipment and parts
- 353 Industrial Machinery for Food and Textile Industries
- 357 Manufacture of Machine Tools, their parts and accessories
- 358 Manufacture of office computing and accounting machinery and parts
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)

**36      Manufacture of Electrical Machinery, Apparatus  
Appliances and Supplies and Parts**

- 361      Manufacture of insulated wires and cables
- 363      Manufacture of electrical apparatus, appliances and  
         their parts such as lamps, bulbs, tubes, sockets,  
         switches, fans, insulators (except porcelain),  
         conductors, irons, heaters, shavers, vaccum cleaners,  
         etc., excluding repairing
- 364      Manufacture of radio and television transmitting and  
         receiving sets including transistor radio systems,  
         gramophone records and prerecorded magnetic tapes, wire  
         and wireless, telephone and telegraph equipment,  
         signalling and detection equipment and apparatus, radar  
         equipment and installations; parts and supplies  
         specially used for electronic apparatus classified in  
         this group
- 367      Manufacture of electronic components and accessories  
         not elsewhere classified

**37      Manufacture of Transport Equipment and Parts**

- 374      Manufacture of motor vehicles and parts
- 376      Manufacture of bicycles and cycle-rickshaw and parts

**38      Other Manufacturing Industries**

- 381      Manufacture of photographic and optical goods  
         (excluding photo chemicals, sensitised paper and film)
- 382      Manufacture of watches and clocks
- 387      Manufacture of stationery articles like fountain pens,  
         pencils, pens, pin cushions, tags, etc, not elsewhere  
         classified
- 389      Manufacture of miscellaneous products, not elsewhere  
         classified, such as costume jewellery, costume  
         novelties, feather, plumes, artificial flowers, brooms,  
         brushes, lamp shades, tobacco, pipes, cigarette  
         holders, ivory goods, badges, wigs and similar articles

## GUJARAT

Cotton textiles, petroleum products, rubber products, chemical and chemical products, non-metallic mineral products etc. dominated the industrial base of Gujarat during 1976-77. A look at the following list of the industries making the industrial base of Gujarat will make the things clear.

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 208 Production of common salt
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 212 Tea processing
- 216 Manufacture of prepared animal feeds
- 217 Manufacture of starch
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 232 Printing, dyeing and bleaching of cotton textiles
- 233 Cotton spinning other than in mills (charkha)
- 234 Production of Khadi
- 239 Cotton textiles not elsewhere classified

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 248 Printing, dyeing and bleaching of synthetic textiles

- 26     **Manufacture of Textile Products (including Wearing Apparel other than Footwear)**
- 266    Manufacture of made up textile goods (except garments) such as curtains, mosquito nets, etc.
- 269    Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.
- 27     **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 274    Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 28     **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 283    Manufacture of paper and paper board articles not elsewhere classified
- 29     **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 292    Manufacture of wearing apparel like coats, gloves, etc., of leather and substitutes of leather
- 30     **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 302    Manufacture of rubber products not elsewhere classified
- 303    Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304    Petroleum refineries
- 305    Manufacture of products of petroleum not elsewhere classified
- 307    Manufacture of other coal and coal tar products not elsewhere classified
- 31.    **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310    Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 311    Manufacture of fertilisers and pesticides
- 312    Manufacture of paints, varnishes and lacquers.
- 313    Manufacture of drugs and medicines
- 315    Manufacture of inedible oils
- 316    Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene

- except glass
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)
  
- 32 Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 322 Manufacture of earthenware and earthen pottery
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 328 Manufacture of asbestos, cement and other cement products
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
  
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products
- 345 Manufacture of metal utensils, cutlery and kitchenware
  
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 352 Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts
- 353 Industrial Machinery for Food and Textile Industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 355 Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 356 Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
  
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 367 Manufacture of electronic components and accessories not elsewhere classified



**38 Other Manufacturing Industries**

382 Manufacture of watches and clocks

383 Manufacture of Jewellery and related articles

The state/region had one seventh place in the country in terms of diversitification.

## PUNJAB

The industrial base of Punjab was made by the following industry.

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 204 Grain mill products
- 205 Manufacture of bakery products
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 215 Manufacture of ice

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 220 Distilling, rectifying and blending of spirits
- 223 Production of country liquor and toddy

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 232 Printing, dyeing and bleaching of cotton textiles

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 248 Printing, dyeing and bleaching of synthetic textiles
- 249 Silk and synthetic fibre textiles not elsewhere classified

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 260 Mnitting mills
- 262 Embroidery and making of crapes, laces and fringes
- 263 Weaving carpets, rugs and other similar textile products

- 27     Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 272     Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 274     Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 276     Manufacture of wooden furniture and fixtures
- 30     Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301     Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302     Manufacture of rubber products not elsewhere classified
- 307     Manufacture of other coal and coal tar products not elsewhere classified
- 31.    Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311     Manufacture of fertilisers and pesticides
- 313     Manufacture of drugs and medicines
- 34     Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340     Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 343     Manufacture of hand tools and general hardware
- 344     Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 345     Manufacture of metal utensils, cutlery and kitchenware
- 349     Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35     Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 350     Manufacture of agricultural machinery and equipment and parts
- 357     Manufacture of Machine Tools, their parts and accessories
- 359     Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning

and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)

- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
  
- 37 **Manufacture of Transport Equipment and Parts**
- 374 Manufacture of motor vehicles and parts
- 376 Manufacture of bicycles and cycle-rickshaw and parts
- 379 Manufacture of transport equipment and parts not elsewhere classified
  
- 38 **Other Manufacturing Industries**
- 385 Manufacture of sports and athletic goods

Agro based products had a dominant say. Besides wool spinning, weaving, silk and synthetic textiles had a marked presence. The state had the 7th most diversified industrial structure in the country.

## WEST BENGAL

The industrial base of West Bengal was made of the following industries during 1976-77.

### **20-21 Manufacture of Food Products**

- 204 Grain mill products
- 205 Manufacture of bakery products
- 212 Tea processing

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 249 Silk and synthetic fibre textiles not elsewhere classified

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 250 Jute and Mesta pressing and baling
- 251 Jute and Mesta spinning and weaving
- 259 Manufacture of jute bags and other jute textiles not elsewhere classified

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 262 Embroidery and making of crapes, laces and fringes
- 265 Manufacture of rain coats, hats, etc.
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 275 Manufacture of cork and cork products

- 28 **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280 Manufacture of pulp, paper and paper board including newsprint
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 286 Printing of bank notes, currency notes, postage stamps, security presses, etc.
- 287 Engraving, etching, block-making, etc.
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 29 **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 291 Manufacture of footwear (excluding repair) except vulcanized or moulded rubber or plastic footwear
- 293 Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 299 Manufacture of leather and fur products not elsewhere classified
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 305 Manufacture of products of petroleum not elsewhere classified
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 312 Manufacture of paints, varnishes and lacquers.
- 313 Manufacture of drugs and medicines
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 318 Manufacture of explosives and ammunition and fire works
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 335 Aluminium manufacturing
- 339 Other non-ferrous metal industries

- 34      Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340      Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 341      Manufacture of structural metal products
- 343      Manufacture of hand tools and general hardware
- 344      Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 349      Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35      Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351      Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries
- 353      Industrial Machinery for Food and Textile Industries
- 354      Industrial Machinery for other than Food and Textile Industries
- 356      Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 358      Manufacture of office computing and accounting machinery and parts
- 359      Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36      Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360      Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 361      Manufacture of insulated wires and cables
- 362      Manufacture of dry and wet batteries
- 363      Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 364      Manufacture of radio and television transmitting and receiving sets including transistor radio systems,

gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group

369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

**37 Manufacture of Transport Equipment and Parts**

370 Ship-building and repairing  
371 Manufacture of Locomotive and parts  
372 Manufacture of Railway wagons and coaches and part  
373 Manufacture of other rail-road equipment  
374 Manufacture of motor vehicles and parts

**38 Other Manufacturing Industries**

380 Manufacture of medical surgical and scientific equipment  
386 Manufacture of Musical instruments  
387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified

The industrial base of one state was dominated by the item belonging to jute and textiles, manufacture of metal products and parts, manufacture of transport equipments and parts, manufacture of electrical machinery and parts etc.

In terms of industrial diversification West Bengal had the 9th position during the period.



## RAJASTHAN

Rajasthan had the 10th position in the country in terms of industrial diversification during the period. The following industries made the industrial base of the State :-

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 215 Manufacture of ice

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 220 Distilling, rectifying and blending of spirits
- 223 Production of country liquor and toddy

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 232 Printing, dyeing and bleaching of cotton textiles
- 239 Cotton textiles not elsewhere classified

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 242 Wool spinning and weaving (other than in mills)
- 244 Manufacture of wool not elsewhere classified
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 249 Silk and synthetic fibre textiles not elsewhere classified

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 264 Manufacture of all types of textiles, garments including wearing apparel
- 268 Manufacture of coir and coir products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.

- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industries
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311 Manufacture of fertilisers and pesticides
- 32 **Manufacture of Non-Metallic Mineral Products**
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 325 Manufacture of mica products
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 328 Manufacture of asbestos, cement and other cement products
- 33 **Basic Metal and Alloys Industries**
- 333 Copper manufacturing
- 334 Brass manufacturing
- 339 Other non-ferrous metal industries
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 356 Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357 Manufacture of Machine Tools, their parts and accessories
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

- 37        **Manufacture of Transport Equipment and Parts**
- 372      Manufacture of Railway wagons and coaches and part
- 374      Manufacture of motor vehicles and parts
- 375      Manufacture of motor-cycles and scooters and parts
- 376      Manufacture of bicycles and cycle-rickshaw and parts
- 38        **Other Manufacturing Industries**
  
- 380      Manufacture of medical surgical and scientific equipment

The industrial base of Rajasthan was dominated by some items of food processing, some items of manufacture of cotton textiles, some items of wool, silk and synthetic textiles etc. non ferrous metals were also dominant.

## ANDHRA PRADESH

The industrial base of Andhra Pradesh consisted of the following industries :-

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 204 Grain mill products
- 205 Manufacture of bakery products
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 208 Production of common salt
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 221 Wine industries
- 222 Malt liquors and malt
- 225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture
- 226 Manufacture of bidi
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco
- 229 Manufacture of tobacco and tobacco products, not elsewhere classified.

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 234 Production of Khadi
- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi

### **32 Manufacture of Non-Metallic Mineral Products**

- 324 Manufacture of cement, lime and plaster
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified

- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 354 Industrial Machinery for other than Food and Textile Industries
- 357 Manufacture of Machine Tools, their parts and accessories
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 366 Manufacture of Electronic Computers, Control Instruments and other Equipments
- 37 **Manufacture of Transport Equipment and Parts**
- 370 Ship-building and repairing
- 379 Manufacture of transport equipment and parts not elsewhere classified
- 38 **Other Manufacturing Industries**
- 381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

Andhra Pradesh was on the eleventh place in terms of diversification during 1976-77. Dairy products, fruits preservation, grain mill products, bakery products, common salt, vanaspati, edible oil, coffee, cashewnut, ice manufacturing and beverages and tobacco were dominant in the industrial base of the region.

## HARYANA

Haryana was on the twelfth place as per the value of its coefficient of specialisation. The industrial base of the State had the following industries :-

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 204 Grain mill products
- 215 Manufacture of ice

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt
- 224 Soft drinks and carbonated water industries

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 232 Printing, dyeing and bleaching of cotton textiles
- 236 Weaving and finishing of cotton textiles in powerlooms
- 239 Cotton textiles not elsewhere classified

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 250 Jute and Mesta pressing and baling

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 262 Embroidery and making of crapes, laces and fringes
- 263 Weaving carpets, rugs and other similar textile products

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow

- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280 Manufacture of pulp, paper and paper board including newsprint
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)
- 32 Manufacture of Non-Metallic Mineral Products**
- 321 Manufacture of glass and glass products
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 331 Foundries for casting and forging iron and steel
- 334 Brass manufacturing
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified metal
- 343 Manufacture of hand tools and general hardware
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding

- 35      Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 350    Manufacture of agricultural machinery and equipment and parts
- 352    Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts
- 353    Industrial Machinery for Food and Textile Industries
- 354    Industrial Machinery for other than Food and Textile Industries
- 355    Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 356    Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357    Manufacture of Machine Tools, their parts and accessories
- 358    Manufacture of office computing and accounting machinery and parts
- 36      Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360    Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 361    Manufacture of insulated wires and cables
- 363    Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 367    Manufacture of electronic components and accessories not elsewhere classified
- 37      Manufacture of Transport Equipment and Parts**
- 374    Manufacture of motor vehicles and parts
- 375    Manufacture of motor-cycles and scooters and parts
- 376    Manufacture of bicycles and cycle-rickshaw and parts
- 379    Manufacture of transport equipment and parts not elsewhere classified
- 38      Other Manufacturing Industries**
- 380    Manufacture of medical surgical and scientific equipment

The industrial base of the state/region was dominated by agro-products, machinery, machine tools and parts.



## ORISSA

Orissa had 13th rank in terms of industrial diversification. The following industries made its industrial base :-

### **20-21 Manufacture of Food Products**

- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 204 Grain mill products
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 208 Production of common salt

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 224 Soft drinks and carbonated water industries
- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi
- 236 Weaving and finishing of cotton textiles in powerlooms

### **26 Manufacture of textile products (including wearing apparel and other footwear**

- 268 Manufacture of coir and coir products

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 271 Sawing and planing of wood (other than plywood)
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 276 Manufacture of wooden furniture and fixtures
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 280 Manufacture of pulp, paper and paper board including newsprint
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories

- 30' **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 307 Manufacture of other coal and coal tar products not elsewhere classified
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311 Manufacture of fertilisers and pesticides
- 315 Manufacture of inedible oils
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)
- 32 **Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 331 Foundries for casting and forging iron and steel
- 332 Manufacture of ferro-alloys
- 335 Aluminium manufacturing
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 353 Industrial Machinery for Food and Textile Industries
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables

## KERLA

Kerala's industrial base had the following industries during 1976-77 :-

### **20-21 Manufacture of Food Products**

- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 212 Tea processing
- 213 Coffee curing, roasting and grinding
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 217 Manufacture of starch

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 234 Production of Khadi

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 263 Weaving carpets, rugs and other similar textile products
- 264 Manufacture of all types of textiles, garments including wearing apparel
- 268 Manufacture of coir and coir products

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 270 Manufacture of Veneer, plywood and their products
- 271 Sawing and planing of wood (other than plywood)
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 276 Manufacture of wooden furniture and fixtures

- 28      **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 284      Printing and publishing of newspaper
- 285      Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories elsewhere classified
31.      **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311      Manufacture of fertilisers and pesticides
- 314      Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 32      **Manufacture of Non-Metallic Mineral Products**
- 320      Manufacture of structural clay products
- 323      Manufacture of chinaware and porcelainware
- 325      Manufacture of mica products
- 35      **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 357      Manufacture of Machine Tools, their parts and accessories
- 36      **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 369      Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37      **Manufacture of Transport Equipment and Parts.**
- 370      Ship-building and repairing
- 376      Manufacture of bicycles and cycle-rickshaw and parts
- 38      **Other Manufacturing Industries**
- 380      Manufacture of medical surgical and scientific equipment

Food products, newspaper, periodicals, were important for the industrial base of Kerala.

## BIHAR

Bihar's position was 15th so far as industrial diversification of the State was concerned during 1976-77. The following industries composed the industrial base of the State during the period :-

### **20-21 Manufacture of Food Products**

206 Manufacture and refining of sugar (vacuum pan sugar factories)

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

220 Distilling, rectifying and blending of spirits

228 Manufacture of chewing tobacco, zarda, and snuff

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

243 Dyeing and bleaching of woollen textile

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

250 Jute and Mesta pressing and baling

259 Manufacture of jute bags and other jute textiles not elsewhere classified

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

288 Book-binding

### **30 Manufacture of Rubber, Plastic Petroleum and Coal Products**

304 Petroleum refineries

306 Production of coal tar in coke ovens

### **32 Manufacture of Non-Metallic Mineral Products**

320 Manufacture of structural clay products

324 Manufacture of cement, lime and plaster

325 Manufacture of mica products

### **33 Basic Metal and Alloys Industries**

330 Iron and steel industries

331 Foundries for casting and forging iron and steel

333 Copper manufacturing

- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351 Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 37 **Manufacture of Transport Equipment and Parts**
- 374 Manufacture of motor vehicles and parts
- 379 Manufacture of transport equipment and parts not elsewhere classified

The industrial structure was dominated by iron and steel, foundries for casting and forging iron, ferrous and non-ferrous minerals etc.

## ASSAM

The following industries made the industrial base of Assam in 1976-77 :-

### **20-21 Manufacture of Food Products**

- 204 Grain mill products
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 212 Tea processing
- 219 Manufacture of food products not elsewhere classified

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 270 Manufacture of Veneer, plywood and their products
- 271 Sawing and planing of wood (other than plywood)
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 280 Manufacture of pulp, paper and paper board including newsprint

### **30 Manufacture of Rubber, Plastic Petroleum and Coal Products**

- 304 Petroleum refineries
- 305 Manufacture of products of petroleum not elsewhere classified

### **31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**

- 311 Manufacture of fertilisers and pesticides
- 317 Manufacture of matches

### **32 Manufacture of Non-Metallic Mineral Products**

- 326 Manufacture of structural stone goods, stone dressing and stone crushing

### **33 Basic Metal and Alloys Industries**

- 339 Other non-ferrous metal industries

- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37 **Manufacture of Transport Equipment and Parts**
- 379 Manufacture of transport equipment and parts not elsewhere classified

The industrial base of Assam was dominated by food product items. Assam had the 16th position in terms of industrial diversification in the country.



## JAMMU AND KASHMIR

Jammu and Kashmir's industrial base had a dominant place for food products and wool, silk and synthetic fibres. The following is the list of the industries which make the industrial base of the state/region :-

### **20-21 Manufacture of Food Products**

- 202 Canning and preservation of fruits and vegetables
- 204 Grain mill products
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 229 Manufacture of tobacco and tobacco products, not elsewhere classified.

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 245 Spinning, weaving and finishing of silk textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 262 Embroidery and making of crapes, laces and fringes
- 263 Weaving carpets, rugs and other similar textile products

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 271 Sawing and planing of wood (other than plywood)
- 276 Manufacture of wooden furniture and fixtures

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories

### **29 Manufacture of Leather and Leather and Fur Products (except Repair)**

- 290 Tanning, currying, finishing, embossing and japanning of leather

- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 319 Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)
- 32 **Manufacture of Non-Metallic Mineral Products**
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 38 **Other Manufacturing Industries**
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

The State's/region's position was the last in terms of the industrial diversification i.e. J & K was the least industrially diversified state of the country in 1976-77.

## INDUSTRIAL BASE OF THE REGIONS OF INDIA

1990-91

### **MAHARASHTRA**

Maharashtra was industrially the most diversified region of the country in 1990-91. Almost all classes of industries (at the three digit level) were present in Maharashtra.

#### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 205 Manufacture of bakery products
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 217 Manufacture of starch

#### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 221 Wine industries
- 223 Production of country liquor and toddy
- 224 Soft drinks and carbonated water industries
- 225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture
- 226 Manufacture of bidi

#### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 234 Production of Khadi
- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi
- 236 Weaving and finishing of cotton textiles in powerlooms

#### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)
- 262 Embroidery and making of crapes, laces and fringes

- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 275 Manufacture of cork and cork products
- 277 Manufacture of bamboo and cane furniture and fixtures
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 281 Manufacture of container and boxes of paper and paper board
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 284 Printing and publishing of newspaper
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 287 Engraving, etching, block-making, etc.
- 288 Book-binding
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industrie moulded rubber and plastic
- 302 Manufacture of rubber products not elsewhere classified
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304 Petroleum refineries
- 305 Manufacture of products of petroleum not elsewhere classified
- 306 Production of coal tar in coke ovens
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 312 Manufacture of paints, varnishes and lacquers.
- 313 Manufacture of drugs and medicines

- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 315 Manufacture of inedible oils
- 32 Manufacture of Non-Metallic Mineral Products**
- 321 Manufacture of glass and glass products
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 Basic Metal and Alloys Industries**
- 332 Manufacture of ferro-alloys
- 334 Brass manufacturing
- 336 Zinc manufacturing
- 339 Other non-ferrous metal industries
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 341 Manufacture of structural metal products
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 344 Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 352 Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts
- 353 Industrial Machinery for Food and Textile Industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 355 Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 356 Manufacture, alteration and repair of general items of

- non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357 Manufacture of Machine Tools, their parts and accessories
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, (such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 361 Manufacture of insulated wires and cables
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 366 Manufacture of Electronic Computers, Control Instruments and other Equipments
- 367 Manufacture of electronic components and accessories not elsewhere classified
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37 Manufacture of Transport Equipment and Parts**
- 370 Ship-building and repairing
- 373 Manufacture of other rail-road equipment
- 374 Manufacture of motor vehicles and parts
- 375 Manufacture of motor-cycles and scooters and parts
- 376 Manufacture of bicycles and cycle-rickshaw and parts
- 377 Manufacture of aircrafts and its parts
- 38 Other Manufacturing Industries**
- 380 Manufacture of medical surgical and scientific equipment
- 381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 383 Manufacture of Jewellery and related articles

387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified



## KARNATAKA

Karnataka was the 2nd most industrially diversified region of the country in 1990-91. The dominant items of its industrial base were manufacture of computers and electronic components, manufacture and repair of radiographic and x-ray apparatus, manufacture of electric apparatus, manufacture of electrical and industrial machinery, dry and wet batteries. The following were the member industries of the industrial base of Karnataka :-

### **20-21 Manufacture of Food Products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 205 Manufacture of bakery products
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 216 Manufacture of prepared animal feeds
- 217 Manufacture of starch
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 220 Distilling, rectifying and blending of spirits
- 222 Malt liquors and malt
- 223 Production of country liquor and toddy
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco
- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 232 Printing, dyeing and bleaching of cotton textiles

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 244 Manufacture of wool not elsewhere classified
- 245 Spinning, weaving and finishing of silk textiles
- 246 Printing, dyeing and bleaching of silk textiles

- 26     **Manufacture of Textile Products (including Wearing Apparel other than Footwear)**
- 262    Embroidery and making of crapes, laces and fringes
- 265    Manufacture of rain coats, hats, etc.
- 267    Manufacture of water proof textiles such as oil cloth, tarpaulin, etc.
- 268    Manufacture of coir and coir products
- 27     **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 270    Manufacture of Veneer, plywood and their products
- 271    Sawing and planning of wood (other than plywood)
- 272    Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 273    Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 276    Manufacture of wooden furniture and fixtures
- 28     **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280    Manufacture of pulp, paper and paper board including newsprint
- 281    Manufacture of container and boxes of paper and paper board
- 285    Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 286    Printing of bank notes, currency notes, postage stamps, security presses, etc.
- 288    Book-binding
- 29     **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 292    Manufacture of wearing apparel like coats, gloves, etc., of leather and substitutes of leather
- 293    Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 30     **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 305    Manufacture of products of petroleum not elsewhere classified

- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 32 **Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 325 Manufacture of mica products
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 332 Manufacture of ferro-alloys
- 335 Aluminium manufacturing
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 344 Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351 Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries
- 352 Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts
- 356 Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357 Manufacture of Machine Tools, their parts and accessories
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)

**36      Manufacture of Electrical Machinery, Apparatus  
Appliances and Supplies and Parts**

- 360      Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)
- 362      Manufacture of dry and wet batteries
- 363      Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vaccum cleaners, etc., excluding repairing
- 365      Manufacture and repair of Radiographic X-ray apparatus and tubes and parts
- 366      Manufacture of Electronic Computers, Control Instruments and other Equipments
- 367      Manufacture of electronic components and accessories not elsewhere classified

**37      Manufacture of Transport Equipment and Parts**

- 372      Manufacture of Railway wagons and coaches and part
- 373      Manufacture of other rail-road equipment
- 374      Manufacture of motor vehicles and parts
- 375      Manufacture of motor-cycles and scooters and parts
- 379      Manufacture of transport equipment and parts not elsewhere classified

**38      Other Manufacturing Industries**

- 381      Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 382      Manufacture of watches and clocks
- 389      Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

## TAMIL NADU

Tamil Nadu was the third most industrially diversified region of the country. The following industries made its industrial base :-

### 20-21 Manufacture of Food Products

- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 208 Production of common salt
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 215 Manufacture of ice
- 217 Manufacture of starch
- 219 Manufacture of food products not elsewhere classified

### 22 Manufacture of Beverages, Tobacco and Tobacco Products

- 228 Manufacture of chewing tobacco, zarda, and snuff

### 23 Manufacture of Cotton Textiles

- 232 Printing, dyeing and bleaching of cotton textiles
- 234 Production of Khadi
- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi

### 24 Manufacture of Wool, Silk and Synthetic fibre Textiles

- 244 Manufacture of wool not elsewhere classified
- 245 Spinning, weaving and finishing of silk textiles

### 25 Manufacture of Jute, Hemp and Mesta Textiles

- 251 Jute and Mesta spinning and weaving

### 26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)

- 260 Knitting mills
- 262 Embroidery and making of crapes, laces and fringes
- 264 Manufacture of all types of textiles, garments including wearing apparel
- 265 Manufacture of rain coats, hats, etc.
- 267 Manufacture of water proof textiles such as oil cloth, tarpaulin, etc.

- 27    Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 275    Manufacture of cork and cork products
- 276    Manufacture of wooden furniture and fixtures
- 279    Manufacture of wood, bamboo and cane products not elsewhere classified
- 28    Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280    Manufacture of pulp, paper and paper board including newsprint
- 281    Manufacture of container and boxes of paper and paper board
- 282    Manufacture of pulp products not elsewhere classified like dolls
- 283    Manufacture of paper and paper board articles not elsewhere classified
- 287    Engraving, etching, block-making, etc.
- 288    Book-binding
- 289    Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 29    Manufacture of Leather and Leather and Fur Products (except Repair)**
- 290    Tanning, currying, finishing, embossing and japanning of leather
- 291    Manufacture of footwear (excluding repair) except vulcanized or moulded rubber or plastic footwear
- 292    Manufacture of wearing apparel like coats, gloves, etc., of leather and substitutes of leather
- 293    Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 299    Manufacture of leather and fur products not elsewhere classified
- 31.    Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310    Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 312    Manufacture of paints, varnishes and lacquers.
- 319    Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and paper)

- 32      Manufacture of Non-Metallic Mineral Products**
- 323      Manufacture of chinaware and porcelainware
- 324      Manufacture of cement, lime and plaster
- 325      Manufacture of mica products
  
- 34      Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 345      Manufacture of metal utensils, cutlery and kitchenware
- 35      Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 352      Manufacture of Prime movers, boilers and steam generating plants, such as diesel engines and parts
- 353      Industrial Machinery for Food and Textile Industries
- 358      Manufacture of office computing and accounting machinery and parts
  
- 37      Manufacture of Transport Equipment and Parts**
- 371      Manufacture of Locomotive and parts
- 372      Manufacture of Railway wagons and coaches and part
- 373      Manufacture of other rail-road equipment
- 374      Manufacture of motor vehicles and parts
- 375      Manufacture of motor-cycles and scooters and parts
- 378      Manufacture of bullock-carts, push-carts, hand-carts, etc.
- 379      Manufacture of transport equipment and parts not elsewhere classified
  
- 38      Other Manufacturing Industries**
- 380      Manufacture of medical surgical and scientific equipment

## UTTAR PRADESH

Uttar Pradesh had the fourth rank in terms of diversification during the period. Following industries made its industrial base during the period 1990-91.

### **20-21 Manufacture of Food Products**

- 204 Grain mill products
- 205 Manufacture of bakery products
- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 208 Production of common salt
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 212 Tea processing
- 216 Manufacture of prepared animal feeds

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 220 Distilling, rectifying and blending of spirits.
- 221 Wine industries
- 224 Soft drinks and carbonated water industries
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco
- 229 Manufacture of tobacco and tobacco products, not elsewhere classified.

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 232 Printing, dyeing and bleaching of cotton textiles

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 246 Printing, dyeing and bleaching of silk textiles
- 248 Printing, dyeing and bleaching of synthetic textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 263 Weaving carpets, rugs and other similar textile products



- 267 Manufacture of water proof textiles such as oil cloth, tarpaulin, etc.
- 268 Manufacture of coir and coir products
- 28      **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries****
- 280 Manufacture of pulp, paper and paper board including newsprint
- 281 Manufacture of container and boxes of paper and paper board
- 282 Manufacture of pulp products not elsewhere classified like dolls
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 286 Printing of bank notes, currency notes, postage stamps, security presses, etc.
- 29      **Manufacture of Leather and Leather and Fur Products (except Repair)****
- 290 Tanning, currying, finishing, embossing and japanning of leather
- 291 Manufacture of footwear (excluding repair) except vulcanized or moulded rubber or plastic footwear
- 299 Manufacture of leather and fur products not elsewhere classified
- 30      **Manufacture of Rubber, Plastic Petroleum and Coal Products****
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302 Manufacture of rubber products not elsewhere classified
- 31.     **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)****
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 311 Manufacture of fertilisers and pesticides
- 313 Manufacture of drugs and medicines
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 315 Manufacture of inedible oils

- 33 Basic Metal and Alloys Industries**
- 331 Foundries for casting and forging iron and steel  
 335 Aluminium manufacturing  
 336 Zinc manufacturing
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified  
 341 Manufacture of structural metal products
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 358 Manufacture of office computing and accounting machinery and parts
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)  
 361 Manufacture of insulated wires and cables  
 362 Manufacture of dry and wet batteries  
 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vaccum cleaners, etc., excluding repairing  
 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group  
 365 Manufacture and repair of Radiographic X-ray apparatus and tubes and parts  
 366 Manufacture of Electronic Computers, Control Instruments and other Equipments  
 367 Manufacture of electronic components and accessories not elsewhere classified  
 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

- 37      Manufacture of Transport Equipment and Parts**
- 371    Manufacture of Locomotive and parts
- 373    Manufacture of other rail-road equipment
- 375    Manufacture of motor-cycles and scooters and parts
  
- 38      Other Manufacturing Industries**
- 382    Manufacture of watches and clocks
- 385    Manufacture of sports and arthletic goods
- 386    Manufacture of Musical instruments

## ANDHRA PRADESH

Andhra Pradesh followed Uttar Pradesh in terms of industrial diversification. Its industrial base had the following industries

### **20-21 Manufacture of Food Products**

- 202 Canning and preservation of fruits and vegetables
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 204 Grain mill products
- 209 Manufacture of cocoa, chocolate and sugar confectionery (including sweetmeats)
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 223 Production of country liquor and toddy
- 224 Soft drinks and carbonated water industries
- 225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture
- 226 Manufacture of bidi
- 227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco
- 228 Manufacture of chewing tobacco, zarda, and snuff

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 234 Production of Khadi

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 245 Spinning, weaving and finishing of silk textiles
- 246 Printing, dyeing and bleaching of silk textiles

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 251 Jute and Mesta spinning and weaving

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 268 Manufacture of coir and coir products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.

- 27. **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 276 Manufacture of wooden furniture and fixtures
- 28 **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280 Manufacture of pulp, paper and paper board including newsprint
- 282 Manufacture of pulp products not elsewhere classified like dolls
- 284 Printing and publishing of newspaper
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 315 Manufacture of inedible oils
- 32 **Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 324 Manufacture of cement, lime and plaster
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 327 Manufacture of earthen and plaster statues and other products
- 33 **Basic Metal and Alloys Industries**
- 332 Manufacture of ferro-alloys
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 355 Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 362 Manufacture of dry and wet batteries

- 367 Manufacture of electronic components and accessories not elsewhere classified
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
  
- 37 Manufacture of Transport Equipment and Parts**
- 379 Manufacture of transport equipment and parts not elsewhere classified
  
- 38 Other Manufacturing Industries**
- 382 Manufacture of watches and clocks

## GUJARAT

Gujarat came after Andhra in industrial diversification Tyre-tubes, footwear, other rubber products, petroleum refineries, coal tar, food products, cotton textiles, etc. were important in its industrial base. Following industries made its industrial base during 1990-91 :-

### **20-21 Manufacture of food products**

- 201 Manufacture of dairy products
- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 208 Production of common salt
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 217 Manufacture of starch

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi
- 236 Weaving and finishing of cotton textiles in powerlooms

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.
- 248 Printing, dyeing and bleaching of synthetic textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 268 Manufacture of coir and coir products

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)

- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 282 Manufacture of pulp products not elsewhere classified like dolls
- 283 Manufacture of paper and paper board articles not elsewhere classified
- 288 Book-binding
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industries
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302 Manufacture of rubber products not elsewhere classified
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304 Petroleum refineries
- 305 Manufacture of products of petroleum not elsewhere classified
- 306 Production of coal tar in coke ovens
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 313 Manufacture of drugs and medicines
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 317 Manufacture of matches
- 32 Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 323 Manufacture of chinaware and porcelainware
- 327 Manufacture of earthen and plaster statues and other products
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 Basic Metal and Alloys Industries**
- 336 Zinc manufacturing
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**



- 341 Manufacture of structural metal products
- 342 Manufacture of furniture and fixtures primarily of metal
  
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
  
- 356 Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
  
- 37 Manufacture of Transport Equipment and Parts**
  
- 370 Ship-building and repairing
  
- 38 Other Manufacturing Industries**
  
- 387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified

## WEST BENGAL

West Bengal had the 6th rank (during 1990-91) in terms of industrial diversification. Following industries made its industrial base during the period.

### **20-21 Manufacture of food products**

- 201 Manufacture of dairy products
- 204 Grain mill products
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 213 Coffee curing, roasting and grinding
- 217 Manufacture of starch

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 240 Wool cleaning, baling and pressing

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 250 Jute and Mesta pressing and baling

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 262 Embroidery and making of crapes, laces and fringes
- 264 Manufacture of all types of textiles, garments including wearing apparel
- 266 Manufacture of made up textile goods (except garments) such as curtains, mosquito nets, etc.
- 268 Manufacture of coir and coir products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 271 Sawing and planing of wood (other than plywood)
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 276 Manufacture of wooden furniture and fixtures

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 284 Printing and publishing of newspaper
- 286 Printing of bank notes, currency notes, postage stamps, security presses, etc.
- 287 Engraving, etching, block-making, etc.
- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture

postcard printing embossing, etc.

- 29 **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 291 Manufacture of footwear (excluding repair) except vulcanized or moulded rubber or plastic footwear
- 293 Manufacture of Leather Consumer Goods (other than apparel and footwear)
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 303 Manufacture of plastic products not elsewhere classified (except house furnishing)
- 304 Petroleum refineries
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 312 Manufacture of paints, varnishes and lacquers.
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 318 Manufacture of explosives and ammunition and fire works
- 32 **Manufacture of Non-Metallic Mineral Products**
- 323 Manufacture of chinaware and porcelainware
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 331 Foundries for casting and forging iron and steel
- 335 Aluminium manufacturing
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 341 Manufacture of structural metal products

- 343 Manufacture of hand tools and general hardware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere classified, like type founding
  
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
  
- 351 Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries
- 353 Industrial Machinery for Food and Textile Industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 358 Manufacture of office computing and accounting machinery and parts
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
  
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
  
- 361 Manufacture of insulated wires and cables
- 362 Manufacture of dry and wet batteries
- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 365 Manufacture and repair of Radiographic X-ray apparatus and tubes and parts not elsewhere classified
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
  
- 37 Manufacture of Transport Equipment and Parts**
  
- 370 Ship-building and repairing
- 371 Manufacture of Locomotive and parts
- 372 Manufacture of Railway wagons and coaches and part

374 Manufacture of motor vehicles and parts

**38 Other Manufacturing Industries**

380 Manufacture of medical surgical and scientific equipment

381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)

386 Manufacture of Musical instruments

West Bengal and Delhi both had a very diversified industrial base in the field of engineering good, industrial machinery etc.

## HARYANA

The industrial base of Haryana had the following industries during the period 1990-91 :-

### **20-21 Manufacture of food products**

- 204 Grain mill products
- 207 Production of indigenous sugar, boora, Khandsari, gur etc., from sugar-cane and palm juice
- 217 Manufacture of starch

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 236 Weaving and finishing of cotton textiles in powerlooms

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.elsewhere classified

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 261 Manufacture of all types of threads, cordage, ropes, twines,nets, etc.
- 263 Weaving carpets, rugs and other similar textile products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.

### **27 Manufacture of Wood and Wood Products,Furniture and Fixtures**

- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 275 Manufacture of cork and cork products

- 28     **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280    Manufacture of pulp, paper and paper board including newsprint
- 281    Manufacture of container and boxes of paper and paper board
- 285    Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 30     **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 302    Manufacture of rubber products not elsewhere classified
- 31.    **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 311    Manufacture of fertilisers and pesticides
- 312    Manufacture of paints, varnishes and lacquers.
- 315    Manufacture of inedible oils
- 32     **Manufacture of Non-Metallic Mineral Products**
- 320    Manufacture of structural clay products
- 321    Manufacture of glass and glass products
- 322    Manufacture of earthenware and earthen pottery
- 329    Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 34     **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 342    Manufacture of furniture and fixtures primarily of metal
- 35     **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 353    Industrial Machinery for Food and Textile Industries
- 354    Industrial Machinery for other than Food and Textile Industries
- 355    Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 356    Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 36     **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361    Manufacture of insulated wires and cables

- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vaccum cleaners, etc., excluding repairing
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

**37 Manufacture of Transport Equipment and Parts**

- 374 Manufacture of motor vehicles and parts
- 375 Manufacture of motor-cycles and scooters and parts
- 376 Manufacture of bicycles and cycle-rickshaw and parts

**38 Other Manufacturing Industries**

- 380 Manufacture of medical surgical and scientific equipment
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles



## PUNJAB

The industrial base of Punjab had the following industries:-

### **20-21 Manufacture of food products**

- 201 Manufacture of dairy products
- 204 Grain mill products
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 217 Manufacture of starch

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt
- 224 Soft drinks and carbonated water industries

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 259 Manufacture of jute bags and other jute textiles not elsewhere classified

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 260 Knitting mills
- 262 Embroidery and making of crapes, laces and fringes
- 263 Weaving carpets, rugs and other similar textile products

- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 341 Manufacture of structural metal products  
 343 Manufacture of hand tools and general hardware  
 344 Enamelling, japanning, lacquering, galvanising, plating and polishing of metal products  
 345 Manufacture of metal utensils, cutlery and kitchenware  
 349 Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 357 Manufacture of Machine Tools, their parts and accessories  
 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems, gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group  
 366 Manufacture of Electronic Computers, Control Instruments and other Equipments  
 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified
- 37 Manufacture of Transport Equipment and Parts**
- 374 Manufacture of motor vehicles and parts

- 376 Manufacture of bicycles and cycle-rickshaw and parts carts, etc.
- 379 Manufacture of transport equipment and parts not elsewhere classified

**38 Other Manufacturing Industries**

- 385 Manufacture of sports and athletic goods

Agro based industries had a dominant say in the industrial base of Punjab. The state had a more diversified its industrial base in comparison to 1976-77.

## KERALA

Following industries made the industrial base of Kerala in 1990-91 -

### **20-21 Manufacture of food products**

- 203 Canning, preserving and processing of fish, crustacean and similar foods
- 214 Cashewnut processing like drying, shelling, roasting, salting etc.
- 215 Manufacture of ice

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 220 Distilling, rectifying and blending of spirits
- 226 Manufacture of bidi

### **23 Manufacture of Cotton Textiles**

- 233 Cotton spinning other than in mills (charkha)

### **25 Manufacture of Jute, Hemp and Mesta Textiles**

- 252 Dyeing, printing and bleaching of jute textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 262 Embroidery and making of crapes, laces and fringes

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 270 Manufacture of Veneer, plywood and their products
- 271 Sawing and planing of wood (other than plywood)
- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 276 Manufacture of wooden furniture and fixtures
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 284 Printing and publishing of newspaper
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories

- 30     Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300     Tyre and tube industries
- 301     Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 302     Manufacture of rubber products not elsewhere classified
- 305     Manufacture of products of petroleum not elsewhere classified
- 
- 31.     Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 312     Manufacture of paints, varnishes and lacquers.
- 316     Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylence except glass
- 
- 32     Manufacture of Non-Metallic Mineral Products**
- 320     Manufacture of structural clay products
- 
- 33     Basic Metal and Alloys Industries**
- 335     Aluminium manufacturing
- 339     Other non-ferrous metal industries
- 
- 35     Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 357     Manufacture of Machine Tools, their parts and accessories
- 
- 36     Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 362     Manufacture of dry and wet batteries
- 363     Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 
- 37     Manufacture of Transport Equipment and Parts**
- 370     Ship-building and repairing
- 
- 38     Other Manufacturing Industries**
- 380     Manufacture of medical surgical and scientific equipment
- 389     Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms,

brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

Including food products veneer plywood structural wooden goods, wooden bamboo, and cane products dominated the industrial base of Karela.

## RAJASTHAN

The industrial base of Rajasthan was dominated by non-ferrous metal based industries manufacture of chinaware porcelainware, lime and plaster, structural stone goods, earthen and plaster statues and textile based industries. The following list of the industries making the industrial base of Rajasthan :-

### **20-21 Manufacture of food products**

- 201 Manufacture of dairy products
- 210 Manufacture of hydrogenated oils, Vanaspati ghee etc.
- 211 Manufacture of other edible oils and fats e.g., mustard oil, ground nut oil, till oil, etc. (Inedible oils shown under 315)
- 216 Manufacture of prepared animal feeds
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 221 Wine industries
- 222 Malt liquors and malt
- 223 Production of country liquor and toddy

### **23 Manufacture of Cotton Textiles**

- 230 Cotton ginning, cleaning and baling
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 234 Production of Khadi
- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi
- 236 Weaving and finishing of cotton textiles in powerlooms

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 241 Wool spinning, weaving and finishing in mills
- 242 Wool spinning and weaving (other than in mills)
- 243 Dyeing and bleaching of woollen textile
- 247 Spinning, weaving and finishing of other textiles-synthetic fibres, rayons, nylons, etc.

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 261 Manufacture of all types of threads, cordage, ropes, twines, nets, etc.
- 263 Weaving carpets, rugs and other similar textile
- 264 Manufacture of all types of textiles, garments including wearing apparel

- 27     **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 276    Manufacture of wooden furniture and fixtures
- 28     **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 282    Manufacture of pulp products not elsewhere classified like dolls
- 286    Printing of bank notes, currency notes, postage stamps, security presses, etc.
- 288    Book-binding
- 289    Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 30     **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301    Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 31.    **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310    Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 311    Manufacture of fertilisers and pesticides
- 315    Manufacture of inedible oils
- 32     **Manufacture of Non-Metallic Mineral Products**
- 320    Manufacture of structural clay products
- 323    Manufacture of chinaware and porcelainware
- 324    Manufacture of cement, lime and plaster
- 326    Manufacture of structural stone goods, stone dressing and stone crushing
- 327    Manufacture of earthen and plaster statues and other products
- 329    Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33     **Basic Metal and Alloys Industries**
- 331    Foundries for casting and forging iron and steel
- 333    Copper manufacturing
- 334    Brass manufacturing
- 335    Aluminium manufacturing
- 339    Other non-ferrous metal industries



- 34     Manufacture of Metal Products and Parts except Machinery and Transport Equipment**
- 340     Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 341     Manufacture of structural metal products
- 342     Manufacture of furniture and fixtures primarily of metal
- 343     Manufacture of hand tools and general hardware
- 349     Manufacture of metal products except machinery and transport equipment not elsewhere, classified, like type founding
- 35     Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 350     Manufacture of agricultural machinery and equipment and parts
- 354     Industrial Machinery for other than Food and Textile Industries
- 356     Manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified
- 357     Manufacture of Machine Tools, their parts and accessories
- 36     Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 363     Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vaccum cleaners, etc., excluding repairing
- 366     Manufacture of Electronic Computers, Control Instruments and other Equipments
- 37     Manufacture of Transport Equipment and Parts**
- 371     Manufacture of Locomotive and parts
- 38     Other Manufacturing Industries**
- 380     Manufacture of medical surgical and scientific equipment
- 382     Manufacture of watches and clocks
- 383     Manufacture of Jewellery and related articles

## DELHI

The Industrial base of Delhi was made by the following industries in 1991

### **20-21 Manufacture of food products**

- 201 Manufacture of dairy products
- 202 Canning and preservation of fruits and vegetables
- 205 Manufacture of bakery products
- 216 Manufacture of prepared animal feeds
- 219 Manufacture of food products not elsewhere classified

### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 224 Soft drinks and carbonated water industries
- 228 Manufacture of chewing tobacco, zarda, and snuff

### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

- 243 Dyeing and bleaching of woollen textile
- 245 Spinning, weaving and finishing of silk textiles
- 246 Printing, dyeing and bleaching of silk textiles

### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 260 Knitting mills
- 262 Embroidery and making of crapes, laces and fringes
- 264 Manufacture of all types of textiles, garments including wearing apparel
- 265 Manufacture of rain coats, hats, etc.
- 268 Manufacture of coir and coir products
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstery filling etc.

### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 270 Manufacture of Veneer, plywood and their products
- 274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures
- 276 Manufacture of wooden furniture and fixtures

### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 281 Manufacture of container and boxes of paper and paper board
- 284 Printing and publishing of newspaper
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, directories
- 286 Printing of bank notes, currency notes, postage stamps, security presses, etc.

- 289 Printing, publishing and allied activities not elsewhere classified like envelope printing, picture postcard printing embossing, etc.
- 29 **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 304 Petroleum refineries
- 305 Manufacture of products of petroleum not elsewhere classified
31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 310 Basic industrial organic and inorganic chemicals and gases such as acids, alkalies and their salts; gases like acetylene, oxygen, nitrogen, etc.
- 311 Manufacture of fertilisers and pesticides
- 312 Manufacture of paints, varnishes and lacquers.
- 313 Manufacture of drugs and medicines
- 32 **Manufacture of Non-Metallic Mineral Products**
- 323 Manufacture of chinaware and porcelainware
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 331 Foundries for casting and forging iron and steel
- 333 Copper manufacturing
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 345 Manufacture of metal utensils, cutlery and kitchenware
- 349 Manufacture of metal products except machinery and transport equipment not elsewhere classified like type founding
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351 Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining

- industries
- 354 Industrial Machinery for other than Food and Textile Industries
- 355 Manufacture of Refrigerators, Air-conditioners and Fire Fighting Equipment, and other parts, components and accessories
- 357 Manufacture of Machine Tools, their parts and accessories
- 358 Manufacture of office computing and accounting machinery and parts
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes etc.)
- 361 Manufacture of insulated wires and cables
- 363 Manufacture of electrical apparatus, appliances and their parts such as lamps, bulbs, tubes, sockets, switches, fans, insulators (except porcelain), conductors, irons, heaters, shavers, vacuum cleaners, etc., excluding repairing
- 364 Manufacture of radio and television transmitting and receiving sets including transistor radio systems; gramophone records and prerecorded magnetic tapes, wire and wireless, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations; parts and supplies specially used for electronic apparatus classified in this group
- 365 Manufacture and repair of Radiographic X-ray apparatus and tubes and parts
- 366 Manufacture of Electronic Computers, Control Instruments and other Equipments
- 367 Manufacture of electronic components and accessories not elsewhere classified
- 37 Manufacture of Transport Equipment and Parts**
- 374 Manufacture of motor vehicles and parts
- 375 Manufacture of motor-cycles and scooters and parts
- 376 Manufacture of bicycles and cycle-rickshaw and parts
- 38 Other Manufacturing Industries**
- 381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 382 Manufacture of watches and clocks

- 387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified

### ORISSA

The Industrial base of the State had a dominance of ferrous and nonferrous minerals. The list of industries making its industrial base is as below.

#### **20-21 Manufacture of food products**

- 203 Canning, preserving and processing of fish, crustacean and similar foods  
204 Grain mill products  
216 Manufacture of prepared animal feeds  
217 Manufacture of starch

#### **22 Manufacture of Beverages, Tobacco and Tobacco Products**

- 222 Malt liquors and malt  
224 Soft drinks and carbonated water industries  
228 Manufacture of chewing tobacco, zarda, and snuff

#### **23 Manufacture of Cotton Textiles**

- 235 Weaving and finishing of cotton textiles in handlooms, other than khadi

#### **24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

#### **25 Manufacture of Jute, Hemp and Mesta Textiles**

#### **26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

#### **27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

- 270 Manufacture of Veneer, plywood and their products  
272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow  
274 Manufacture of wooden industrial goods, such as bobbins, blocks, handles, sadding and similar equipment and fixtures  
276 Manufacture of wooden furniture and fixtures

#### **28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**

- 280 Manufacture of pulp, paper and paper board including newsprint
- 285 Printing and publishing of periodicals, books, journals, atlases, maps, sheet music, directories
- 29 **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301 Manufacture of footwear made primarily of vulcanized or moulded rubber and plastic
- 31. **Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 315 Manufacture of inedible oils
- 32 **Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 324 Manufacture of cement, lime and plaster
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 327 Manufacture of earthen and plaster statues and other products
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 332 Manufacture of ferro-alloys
- 339 Other non-ferrous metal industries
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 342 Manufacture of furniture and fixtures primarily of metal
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 354 Industrial Machinery for other than Food and Textile Industries

- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 366 Manufacture of Electronic Computers, Control Instruments and other Equipments
- 37 Manufacture of Transport Equipment and Parts**
- 370 Ship-building and repairing
- 371 Manufacture of Locomotive and parts
- 372 Manufacture of Railway wagons and coaches and part
- 373 Manufacture of other rail-road equipment
- 374 Manufacture of motor vehicles and parts
- 375 Manufacture of motor-cycles and scooters and parts
- 376 Manufacture of bicycles and cycle-rickshaw and parts
- 377 Manufacture of aircrafts and its parts
- 378 Manufacture of bullock-carts, push-carts, hand-carts, etc.
- 379 Manufacture of transport equipment and parts not elsewhere classified
- 38 Other Manufacturing Industries**
- 380 Manufacture of medical surgical and scientific equipment
- 381 Manufacture of photographic and optical goods (excluding photo chemicals, sensitised paper and film)
- 382 Manufacture of watches and clocks
- 383 Manufacture of Jewellery and related articles
- 384 Minting of coins
- 385 Manufacture of sports and arthletic goods
- 386 Manufacture of Musical instruments
- 387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

#### BIHAR

Bihar had the following industries in its industrial base during 1990-91

**20-21 Manufacture of food products**

- 206 Manufacture and refining of sugar (vacuum pan sugar factories)
- 22 **Manufacture of Beverages, Tobacco and Tobacco Products**
- 221 Wine industries
- 225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture
- 228 Manufacture of chewing tobacco, zarda, and snuff
- 229 Manufacture of tobacco and tobacco products, not elsewhere classified.
- 23 **Manufacture of Cotton Textiles**
- 231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills
- 24 **Manufacture of Wool, Silk and Synthetic fibre Textiles**
- 240 Wool cleaning, baling and pressing
- 243 Dyeing and bleaching of woollen textile
- 244 Manufacture of wool not elsewhere classified
- 25 **Manufacture of Jute, Hemp and Mesta Textiles**
- 26 **Manufacture of Textile Products (including Wearing Apparel other than Footwear)**
- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.
- 27 **Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 271 Sawing and planing of wood (other than plywood)
- 28 **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 29 **Manufacture of Leather and Leather and Fur Products (except Repair)**
- 30 **Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 301 Manufacture of footwear made primarily of



- vulcanized or plastic moulded rubber and plastic
31. **Manufacture of Chemicals and Chemical Products (except Petroleum and coal) Products of**
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 318 Manufacture of explosives and ammunition and fire works
- 32 **Manufacture of Non-Metallic Mineral Products**
- 320 Manufacture of structural clay products
- 324 Manufacture of cement, lime and plaster
- 325 Manufacture of mica products
- 326 Manufacture of structural stone goods, stone dressing and stone crushing
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 331 Foundries for casting and forging iron and steel
- 333 Copper manufacturing
- 339 Other non-ferrous metal industries
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 35 **Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 351 Manufacture and repair of drills, coal-cutting machines, earth moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 37 **Manufacture of Transport Equipment and Parts**

372 Manufacture of Railway wagons and coaches and part

**38 Other Manufacturing Industries**

389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

Needless to say that Bihar's industrial base had a dominance say of iron & steel foundries for casting and forging iron & steel copper and other nonferrous metal industries.

MADHYA PRADESH

Following industries made M P's industrial base.

**20-21 Manufacture of food products**

223 Production of country liquor and toddy

225 Tobacco stemming, redrying and all other operations which are connected with preparing raw leaf tobacco for manufacture

226 Manufacture of bidi

227 Manufacture of cigars, cigarettes, cheroots and cigarette tobacco

228 Manufacture of chewing tobacco, zarda, and snuff

229 Manufacture of tobacco and tobacco products, not elsewhere classified.

**23 Manufacture of Cotton Textiles**

230 Cotton ginning, cleaning and baling

231 Cotton spinning, weaving, shrinking sanforizing, mercerising and finishing of cotton textiles in mills

**24 Manufacture of Wool, Silk and Synthetic fibre Textiles**

241 Wool spinning, weaving and finishing in mills

**27 Manufacture of Wood and Wood Products, Furniture and Fixtures**

271 Sawing and planing of wood (other than plywood)

272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow

- 273 Manufacture of structural wooden goods (including treated timber) such as beam, posts, doors and windows (excluding hewing and rough shaping of poles, bolts and other wood material which is classified under logging)
- 28 **Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 280 Manufacture of pulp, paper and paper board including newsprint
- 32 **Manufacture of Non-Metallic Mineral Products**
- 323 Manufacture of chinaware and porcelainware
- 324 Manufacture of cement, lime and plaster
- 327 Manufacture of earthen and plaster statues and other products
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
- 33 **Basic Metal and Alloys Industries**
- 330 Iron and steel industries
- 331 Foundries for casting and forging iron and steel
- 332 Manufacture of ferro-alloys
- 34 **Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**
- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 342 Manufacture of furniture and fixtures primarily of metal
- 36 **Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 360 Manufacture of electrical industrial machinery and apparatus and parts (such as electrical motors, generators, transformers, electro-magnetic clutches and brakes, etc.)

J.&.K

The following industries made the industrial base of J & K in 1990-91.

**20-21 Manufacture of food products**

- 204 Grain mill products

- 205 Manufacture of bakery products
- 216 Manufacture of prepared animal feeds
- 219 Manufacture of food products not elsewhere classified
  
- 22 Manufacture of Beverages, Tobacco and Tobacco Products**
- 220 Distilling, rectifying and blending of spirits
  
- 24 Manufacture of Wool, Silk and Synthetic fibre Textiles**
- 242 Wool spinning and weaving (other than in mills)
  
- 26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**
- 260 Knitting mills
  
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 279 Manufacture of wood, bamboo and cane products not elsewhere classified
  
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 282 Manufacture of pulp products not elsewhere classified like dolls
  
- 30 Manufacture of Rubber, Plastic Petroleum and Coal Products**
- 300 Tyre and tube industries
- 305 Manufacture of products of petroleum not elsewhere classified
  
- 32 Manufacture of Non-Metallic Mineral Products**
- 329 Manufacture of miscellaneous non-metallic mineral products such as slate products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products not elsewhere classified
  
- 33 Basic Metal and Alloys Industries**
- 331 Foundries for casting and forging iron and steel
- 339 Other non-ferrous metal industries
  
- 34 Manufacture of Metal Products and Parts, except Machinery and Transport Equipment**

- 340 Manufacture of fabricated metal products such as metal cans from tin-plate, terne plate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled, sanitary and all other fabricated metal products not elsewhere classified
- 342 Manufacture of furniture and fixtures primarily of metal
- 343 Manufacture of hand tools and general hardware
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 359 Manufacture and repair of non-electrical machinery, equipment, components and accessories not elsewhere classified, such as sewing machines, automatic merchandising machines, washing, laundry, dry-cleaning and pressing machines, cooking ranges and ovens, other service industry machines, arms and armament, etc)
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 361 Manufacture of insulated wires and cables
- 38 Other Manufacturing Industries**
- 385 Manufacture of sports and arthletic goods
- 387 Manufacture of stationery articles like fountain pens, pencils, pens, pin cushions, tags, etc, not elsewhere classified
- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

ASSAM

List of the industries making the industrial base of Assam runs as below.

**20-21 Manufacture of food products**

- 204 Grain mill products
- 213 Coffee curing, roasting and grinding
- 22 Manufacture of Beverages, tobacco and tobacco products**
- 229 Manufacture of tobacco and tobacco products, not elsewhere classified.
- 26 Manufacture of Textile Products (including Wearing Apparel other than Footwear)**

- 269 Manufacture of textiles not elsewhere classified like linoleum, padding, wadding upholstering filling etc.
- 27 Manufacture of Wood and Wood Products, Furniture and Fixtures**
- 270 Manufacture of Veneer, plywood and their products
- 271 Sawing and planing of wood (other than plywood)
- 272 Manufacture of wooden and cane boxes, crates, drums, barrels and other wooden containers, baskets and other rattan, bamboo, reed and willow wares made entirely or mainly of cane, rattan, reed bamboo and willow
- 28 Manufacture of Paper and Paper Products and Printing, Publishing and Allied Industries**
- 284 Printing and publishing of newspaper
- 31. Manufacture of Chemicals and Chemical Products (except Products of Petroleum and coal)**
- 314 Manufacture of perfumes, cosmetics, lotions, hair dressings, tooth pastes, soap in any form synthetic detergents, shampoos, shaving products, cleansers, washing and scouring products and other toilet preparations.
- 316 Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, terylene except glass
- 32 Manufacture of Non-Metallic Mineral Products**
- 321 Manufacture of glass and glass products
- 325 Manufacture of mica products
- 327 Manufacture of earthen and plaster statues and other products
- 33 Basic Metal and Alloys Industries**
- 332 Manufacture of ferro-alloys
- 339 Other non-ferrous metal industries
- 35 Manufacture of Machinery, Machine Tools and Parts, except Electrical Machinery**
- 353 Industrial Machinery for Food and Textile Industries
- 36 Manufacture of Electrical Machinery, Apparatus Appliances and Supplies and Parts**
- 369 Manufacture of electrical machinery, apparatus, appliances and supplies and parts not elsewhere classified

## 38 Other Manufacturing Industries

- 389 Manufacture of miscellaneous products, not elsewhere classified, such as costume jewellery, costume novelties, feather, plumes, artificial flowers, brooms, brushes, lamp shades, tobacco, pipes, cigarette holders, ivory goods, badges, wigs and similar articles

Note: The sub headings of the two digit level industries as they appear in the above list simply denote the major groups to which the three digit level industries (or minor groups) belong. The above industrial base analysis is dependent on three digit level industries not the major groups (or two digit level industries)

### CONCLUSION OF THE INDUSTRIAL DIVERSIFICATION & INDUSTRIAL BASE ANALYSIS

From the analysis of the industrial base and level of industrial diversification of the regions the following conclusions emerge :-

(1) Majority of the regions/states have resource based industries as their industrial base. Food manufacturing industry is found almost everywhere.

(2) The industrial base of almost all the above average regions/states (an above average state/region is one whose total industrial employment in a period is above the national average these states are Maharashtra, West Bengal, U.P., Gujarat, Tamil Nadu, Andhra Pradesh) is marked by the presence of capital goods industries. This conclusion does not apply to the above average state of U.P.

Only those non significant regions have capital goods industries in their industrial base which had received heavy public investment at the beginning of Indian planning, Punjab, Haryana and Delhi are exceptions to this conclusion due to some special circumstances.

(3) The industrial structure of the regions has shown a tendency to change from traditional consumer oriented industries to capital goods industries.

(4) Most of the regions, by and large, have diversified their industrial structure, over the period of analysis, but the resources base orientation is still dominant.

## INDUSTRIAL STRUCTURE & THE INDUSTRIAL PERFORMANCE

In this section we test the second hypothesis made at the beginning of this chapter. To do this we bring the results got through Zelinsky-Fuchs' Measure (Chapter - 3) and the industrial base analysis together. The results of the Zelinsky-Fuchs' analysis were summarised in the table - 4. From the table it is clear that all the regions have lost their industrial employment and the extent of losses suffered by significant regions are more than the losses suffered by the non-significant regions. The significant regions are mostly industrially advanced states for our purpose. In the preceding pages (of this chapter) through the industrial base analysis we have concluded that the industrial base of the industrially significant regions/states is marked by the presence of capital good industries (barring a few cases). So, logically, given their industrial structure, (i.e. the presence of capital goods industries which are supposed to provide more agglomeration economies to the new coming firms) the significant regions should loose less but what has happened over the period of analysis is the reverse.

Here we also see that those industrially non-significant regions which have the dominance of capital goods industries in their industrial base have lost but their losses are less than the significant regions' losses. Hence one phenomenon is working in both the directions ie. some regions/states which have capital goods industries in their industrial base are loosing while some regions/states which have capital goods industries in their industrial base are gaining.

So, from the above analysis we cannot pass judgement on the second hypothesis of this chapter ie. new industrial activity tends to get located where a particular industrial structure favourable to it exists.



## CHAPTER - VII

### CONCLUSION AND SUMMARY OF THE FINDINGS

Following broad conclusion emerge from this study (pertaining to the period 1976-77 to 1990-91):

[The spatial structure of Indian industries at regional level shows signs of convergence during 1980-81 to 1990-91. We are not clear whether convergence or divergence has taken place during 1976-77 to 1980-81 as different measures are showing different trends.]

[Technology is the most important determinant of industrial location in India followed by market.] The influence of labour and raw-material in explaining the level of industrial development of a region is insignificant.

[The trend of spatial structure of industries in India is marked by deglomeration.] This tendency is quite perceptible during 1980-81 to 1990-91 and this is one of the reasons of convergence that is seen during 1980-81 to 1990-91.

[Majority of the regions/states have resource based industries as their industrial base. Food manufacturing industry is found almost everywhere.]

[The industrial structure of almost all the significant regions, barring some exceptions, is marked by the presence of capital goods industries] (for the definition of a significant region vide chapter III).

[The industrial structure of the regions has shown a tendency to change from traditional consumer oriented industries to capital goods industries.]

[Most of the regions, by and large, have diversified their industrial structure over the period of our analysis] but [the resource based industries are still dominant in their industrial structure.]

[This study fails to reach any conclusion regarding the fact whether a specific industrial structure is more conducive to new industrial location or not.] [A study of inter-industry technological linkages may throw more light on this subject and was beyond the scope of this study.]

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