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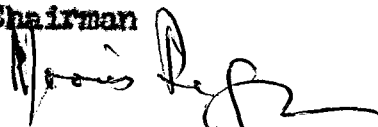
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I certify that the dissertation entitled
"Regional Variations in Industrial Development"
submitted by Shri Ajay S. Mehta, in partial
fulfilment of the M.Phil. Degree of this University
is, to the best of my knowledge, his original
work and may be placed before the examiner for
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Chairman


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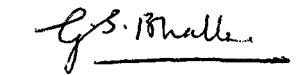

Supervisor

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CHAPTER I

INTRODUCTION AND SCOPE OF STUDY

Indian industry has taken substantial strides since Independence.¹ Not only has there been a steady rate of growth in output, there has also been considerable diversification in terms of the range and quality of products manufactured. At the same time, it must be noted that the situation since the mid-sixties has shown a marked tendency towards overall stagnation. This is reflected in the persistence, until recently of under-utilised capacity in most sectors of the economy. In terms of regional growth indices, the period upto the mid-sixties shows a tendency towards convergence in rates of regional growth. In general, the backward states showed faster rates of growth than the more developed states. The period after the mid-sixties, in addition to the tendency towards stagnation, has also been characterised by increasing regional disparities.²

The factors responsible for these trends are endemic to the very structure of the Indian economy. This study attempts to describe the process of capital accumulation in terms of its impact on the economy, both region-wise and industry-wise. Specifically, we are concerned with the structure of modern industry and the extent to which it is diversified. Thus, a knowledge of the inter-regional and intra-regional Indian industrial structure provides us with an insight into the nature of the functioning of the Indian economy. A study of

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1. Raj, K N (1976) : "Growth and Stagnation in Indian Industrial Development " EPW November 26, 1976 pp 1987-89
 2. Uma Datta Roy Choudhury and Grace Majumdar, "Alternative Measures of Economic Development for interstate comparisons : An exploratory study" paper submitted at the Eleventh General Conference of the Indian Association for Research in National Income and Wealth held in Shillong on Oct 28 - 31, 1977.

economic structure concretely highlights the extent to which our economy can be considered to be underdeveloped.

Indices of specialisation or technological interdependence as indicative of development, both in the quantitative and qualitative sense, have been employed by Prof. W.W.Leontief through the technique of input-output analysis. He writes "The input coefficient matrix from the US, European input-output table represents a complete cookbook of modern technology," and that an underdeveloped economy can be "defined as underdeveloped to the extent that it lacks the working parts of this system."¹ It is this basic concept of describing an economy in terms of the extent of technological inter-linkages prevalent in order to facilitate comparison of the region-wise levels of industrial diversification that is employed in this study.

In addition to an attempt at understanding the state of the economy, this study is also concerned with the question of the temporal aspects of structural change in the economic base.

Before going into the details of the regional economies, a few comments on the basic forces underlying economic change have been attempted. Basically, the inter-related processes of technical change and industrial diversification are governed by the overall conditions prevailing in the economy. That is to say, the process of technical change and the processes of competition and concentration of capital are inter-connected with the growth of the economy. The growth of the market is

1. Alagh, Y.K. "Regional variations in Industrial Development." pp 28 Unpublished manuscript, Centre for Regional Development, Jawaharlal Nehru University. pp 28

crucial to the undertaking of major investments. Internal requirements of technical change are such that the enlargement of the market gives an enterprise much more scope for the application of science and technology to improving methods of production, both in the sense of reductions in the cost of production not associated with major changes in technique, and in terms of transitions from one technique to another.¹ In other words, the rate of capital accumulation is crucial to the processes of industrialisation and technical change in the methods of production.

In the Indian context, the recessionary trends discerned around the mid-sixties slowed down the process of industrial diversification. The heavy concentration of capital in Indian industry and the prevalence of oligopolistic market structures has tended to blunt the necessity for innovation.² In general, competition and technical change in Indian industrial units has not been the powerful catalyst for growth as has been the case in the developed countries of the Western world. A further constraint on the growth of the economy lies in the backward nature of the agricultural sector. Low agricultural productivity has implied that beyond a certain point, higher rates of growth of output and employment lead to inflation and to problems of falling effective demand.³ Also, to the

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1. Levine, David (1976) "Technical change and capital accumulation in Marxian Economics." Ph.D dissertation, Yale University Microfilm copy
 2. Jha, L.K. (1976) "Shortages and High Price - Way Out" (Vikas)
 3. Nayyar, Deepak (1978) "Industrial Development in India, Some Reflections on Growth and Stagnation." EPW, Special Number 1978 pp 1265

extent that a large proportion of our industry is agro-based, these industries are constrained by shortages of raw materials. The preconditions for the sustained growth of factory production - in the sense of machines producing machines - and the establishment of basic goods industries such as coal, metals and power, do exist in India. However, the capacity to grow rapidly on account of the existence of modern methods of production is constrained by shortages of crucial inputs on the supply side or else by problems of product disposal. These problems on the supply and demand sides are to a large extent due to imperfections of the market mechanism and the prevailing system of property relations and income distribution.

While these characteristics of the economy affect the process of diversification in a basic manner, they lie outside the scope of this study. This study primarily attempts to describe the state of the regional economies in terms of their regional industrial bases and their changes over time. This allows us to see the extent to which changes in the processes of production in one industry or one region as a whole affect changes in other regions or spheres of industry. The study would, therefore, allow us to see the extent to which and how "spinning by machinery has made weaving by machinery a necessity and both together have made the mechanical and chemical revolutions in bleaching, printing and dyeing imperative."¹

1. Marx Karl "Capital Vol.I" New World Paperbacks 1974 pp 383. (Talks about how radical changes in the mode of production in one sphere of industry involves similar changes in other spheres.)

Given the diversity of the Indian economy in terms of regional levels of economic development and resource endowments, the study attempts to capture the spatial dimensions of the process of growth. Limitations on the availability of data have confined the study primarily to the large-scale sector. This narrow focus contains within it an inherent bias and hence does not convey an accurate impression of the regional economies of India. To offset this bias, an exercise has been attempted on the basis of small-sector data. However, the results of this exercise are not directly comparable to the results of our analysis of the large-scale sector. Nonetheless, it is possible to effect region-wise comparisons in terms of the categories specific to the small-scale sector and thereby add to the overall picture of the regional economies. In addition, in order to facilitate an understanding of the temporal changes in the regional industrial bases, a shift analysis has been conducted. This allows for a grasp of the changes in relative shifts in employment on account of the constellation of economic forces acting disparately in the different regions. ✓

This study specifically identifies 'blocks' or 'clusters' of inter-related industries at the regional level using disaggregated industry-level data for each region of the economy. The underlying rationale for this is based on the view, supported by certain sample studies of regions, that in general, industries in India have grown in relatively self-contained technologically inter-linked regional clusters.¹

1. Alagh Y.K. 'Regional Variations in Industrial Development.' pp 33

In addition to estimating the industrial base of each region of the economy and the subsequent changes in it, an attempt has been made to examine the relative shifts in employment, both industry-wise and region-wise, using a technique called the shift analysis.¹

The purpose of isolating specific regions, and within regions, specific industries, in terms of growth rates higher than the national total growth rate of industries is to derive additional insight into the causes for the observed pattern of regional industrial discrepancies in the country. This method in particular also facilitates an understanding of the effects of agglomeration economies, resource bases and demand factors on the nature and rate of growth of industries in different regions.

1. Perloff, Dunn, Lampard, Muth. "Regions, Resources and Economic Growth." University of Nebraska Press 1960. pp.71

CHAPTER IIINDUSTRIAL BASE ANALYSIS FOR THE LARGE-SCALE SECTORII.(A) INTRODUCTION

In this section, the reasons for using the concept of technological clusters to study the regional industrial bases are stated. Also presented are the results of attempts to define industrial bases in terms of the location quotient analyses. This action is brief being as it is, based on the work done by Dr. Alagh and his associates. A fuller explanation of the use and estimation of technological clusters may be had in Dr. Alagh's book on Regional Variations in Industrial Development.*

II.(B) TECHNOLOGICAL CLUSTERS OF INDUSTRIES : CONCEPT AND METHOD OF MEASUREMENT

The use of clusters in our analysis is to isolate sets or blocks of industries which are more inter-related through technological linkages than the inter-relations prevailing in the rest of the sectors of the economy.

The analytical foundations of such an exercise is built on empirical studies which indicate that some regional economies could be meaningfully grasped in terms of relatively self-sufficient blocks of technologically inter-related industries.

* It is necessary to point out at this stage that while interpreting the results of our analysis based on Dr. Alagh's framework, we have used two slightly different categories for grouping data. Both of these are used by Dr. Alagh, to classify the disaggregated ASI data. The technological clusters do not lend themselves to easy interpretation. Thus, we have used the other classification used specifically in connection with the shift analysis in order to explain the results of the location quotient exercise.

The validity of these conjectures was verified through the block diagonalisation of regional input-output systems, industrial base techniques and an analysis of inter-regional trade flows.

The results of such analysis in the specific case of Gujarat showed ^{that} the regional industrial economy could be comprised as consisting of seven relatively independent blocks of industries in terms of input coefficients. This pattern of specialization was clearly reflected in the export-import profile of Gujarat. Here, for instance, it was found that Gujarat imported 30 times more machinery than it exported. On the other hand, Gujarat also had a high export/import ratio for certain agro-based, textile based and non-metallic mineral based products, thus showing basically the restricted nature of its industrial base.

Studies of regional economies have made it apparent that structural characteristics of the regional economies differ from region to region. Knowledge of the specific nature of the regional economies could provide useful information for the future planning of the economy in terms of making good the gaps in regional industrial structures and in terms of ascertaining which groups of industries are complementary and, therefore, amenable to proximate location.

Since the necessary technology matrices of all the regions are not available for undertaking such an exercise,

estimates of the national technology are taken as the 'reference technology.' That is to say, the national input-output coefficient matrix was decomposed to give blocks within which industries were relatively more self-sufficient. This constitutes the essential legitimacy of using a "reference technology" framework. A test was conducted for the regional economies of Gujarat and Punjab (the only regions for which input-output tables are available.). The results indicated that the technological relations between industries of the two economies were similar. Extensive work done on the developed capitalist countries seems to affirm the appropriateness of the reference technology assumption. Such an assumption basically says that the pattern of technological interlinkages for a given level of economic development is reasonably similar for different national economies or as in our case, regional economies.

From the reference technology matrix, technological clusters were derived, keeping in mind our objective of isolating blocks or sets of industries having a higher degree of technological interdependence with each other rather than with the rest of the industrial system.

II.(C) A DESCRIPTION OF THE TECHNOLOGICAL CLUSTERS

The technological clusters as estimated by Alagh and his associates are described here. The technological structure of the Indian economy is divided into 12 clusters, such that the technological inter-linkages are greater within a specific block, rather than with industries outside it.

The clustering has been made with regard to the inter-linkages so that in general, the blocks or clusters are considered to be relatively self-sufficient units of production.

The first cluster is small and consists of only coke and coal.

The second block or cluster consists of 11 industries. These are minerals such as copper and bauxite, intermediaries for the electrical equipment industry such as non-ferrous metals, cables and wires, storage batteries and electrical equipment and electrical product industries. This cluster may be defined as the non-ferrous minerals and electrical equipment block.

Cluster III consists of four industries which are animal husbandry based, and another set of non-ferrous mineral based industries. The latter group contains other minerals, chinaware and pottery, drugs and pharmaceuticals, glass and glassware and electric lamps.

In Cluster IV, we have oil seeds, vegetable oils and oil cakes, soaps glycerine, paints and varnishes, paper machinery and products and leather footwear.

Chapter V consists of machinery industries, earth moving equipment and other non-electrical machinery.

Cluster VI consists of 25 industries. One section of the cluster is clearly agro-based. This consists of food-grains and by-products, flour milling, biscuits and

confectionary, sugarcane, gur and khandsari, sugar, tobacco, cigarettes and other tobacco products and fruit and vegetable preservation. Another group of industries in this cluster is gypsum, fertilizers, and heavy chemicals.

There are ^{also} some textile based industries namely cotton and cotton seeds, starch and cotton yarn and textiles.

A construction based sub-group consists of cement, bricks and ceramics, construction pipes and tubes and steel structural fabrication. Last of all there is a plastic based sub-group which consists of plastic and plastic products and radio receivers, and instruments.

Cluster VII is machinery based. Out of the 10 industries in this block, six are transport equipment industries namely locomotives, railways, diesel engines and industrial boilers, wagons and passengers coaches and aircraft.

Tractors and equipment industries such as castings and forgings, machine tools, construction machinery and power-driven pumps are also included in the cluster.

Cluster VIII consists of 17 industries, which can be grouped under agro-based industries, basic metal industries and equipment industries. Jute textiles and jute machinery are clustered with jute, and metal products are clustered with iron and steel and ferro-alloys. Air conditioning and industrial refrigeration are to be found in this block in connection with the agro-based industries, specifically milk and other miscellaneous food products industries. In the

Clustering of Industries in the Indian
Economy Based on Technological Interlinkages

Cluster-I

Coke (98).

Cluster-II

Non-ferrous Metals (51), Cables and Wire (6), (104), Storage Batteries (4), Other Electrical Machinery (12), Refrigerators, Water Coolers and Air Conditioners (11), Telegraph Equipment (9), Air Compressors (34), Office Machinery (40).

Cluster-III

[Leather (54), Other Leather Products (56), Raw Silk and Silk Textiles (75); Glass and Glassware (81), Drugs and Pharmaceuticals (92), Electric Lamps (10); Chinaware and Pottery (83).]

Cluster-IV

[Vegetable Oils and Oil Cakes (61), Soaps and Glycerine (93) Sugar Machinery (23), Paints and Varnishes (90); Paper and Printing Machinery (28), Paper and Paper Products (87), Leather Footwear (55).]

Cluster-V

Earth Moving Equipment (39), Other Non-Electrical Machinery (44)

Cluster-VI

[Gur and Khandsari (60), Sugar (58); Fertilizers (79), Flour Milling (57), Heavy Chemicals (95), Biscuits and Confectionery (66); Cotton Yarn and Textiles (72), Starch (64).]
[Bricks and Ceramics (80), Steel Structural Fabrication (50), Cement (52), Pipes and Tubes (49), Printing and Publishing (100); Other Tobacco Products (69), Cigarettes (68), Fruits and Vegetable Preservation (70).] [Plastic and Plastic Products (88), Instruments (42), Radio Receivers (7).]

Cluster-VII

Locomotives (13), Diesel Engines and Industrial Boilers (20), Tractors (43); Wagons and Passenger Coaches (14), Castings and Forgings (48), Machine Tools (37), Construction Machinery (29), Power Driven Pumps (33); Air-Craft (19).

Cluster-VIII

[Jute Textiles (73), Jute Machinery (22); Insecticides, Pesticides, etc. (91), Milk and Other Miscellaneous Food Products (67).]

Iron and Steel (46), Ferro Alloys (47), Metal Products (45), Electrical Motors (2), Metallurgical and Cement Machinery (26), Motor Cycles, Scooters and Bicycles (17), Speed Reduction Equipment (32); Cashewnut Processing (71), Air Conditioning and Industrial Refrigeration Plant (35), Telephone Equipment (8).]

Cluster-IX

(Manmade fibres (76), Artificial Silk Fabrics (77); Breweries, Soft Drinks etc. (65), Perfumes and Cosmetics (94), Other Textiles (78)] [Petroleum products (84) Coal and Other Mining Machinery (25); Repairs of Motor Vehicles (16)]

Cluster-X

Vanaspati (62), Synthetic Rubber and Other Miscellaneous Chemicals (96), Dyestuffs (89), Other Rubber Products (86), Woollen Yarn and Textiles (74), Plantations (including processing of Tea and Coffee (59), Tea Processing Machinery (24), Dry Cells (5), Mica (108),] [Wood Products (82), Timber (121), Matches (99), Boats and Ships (18), Chemical Machinery (27)]

Cluster-XI

Power Machinery except Electric Motors (1), Electricity (97), Salt (63), Sewing Machines (41).

Cluster-XII

Mfg. of Motor Vehicles (15), Ball Bearing (36), Tyres and Tubes (85), Textile Machinery (21), Electric Motors (3), Agricultural Implements (38), Conveying Equipment (31), Oil Mill and Rice Dal, etc., Machinery (30).

SOURCE: 144 Sector Input-Output table of the Indian Economy prepared by Shri M.R. Saluja of ISI.

NOTES: Clusters are recorded in the sequence in which they finally emerged.

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CLASSIFICATION OF REGIONS OF THE INDIAN ECONOMY
USED IN THIS STUDY

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1. Andhra Pradesh
2. Assam (including Tripura, Manipur, Arunachal Pradesh, Nagaland, Mizoram)
3. Bihar
4. Delhi
5. Gujarat
6. Jammu & Kashmir
7. Kerala
8. Madhya Pradesh
9. Tamil Nadu (including Union Territory of Pondicherry)
10. Maharashtra
11. Karnataka (including Union Territory of Goa)
12. Orissa
13. Punjab (including Himachal Pradesh, Haryana and Chandigarh)
14. Rajasthan
15. Uttar Pradesh
16. West Bengal (including Union Territory of Andaman & Nicobar Islands).

N.B.:- Delhi was kept as an independent observation on account of its substantial industrial size. Himachal Pradesh and Haryana were merged with Punjab in order to facilitate comparisons with 1960 and 1965 data in which H.P. and Haryana are not listed separately. The remaining union territories were merged with geographically contiguous states.

equipment industries sector, we have electric motors, metallurgical and cement machinery, speed reduction machinery, cashew processing and telephone equipment.

Cluster IX consists of 12 industries many of which are petroleum and chemical based.

Cluster X comprises plantation based and wood based industries. This cluster also included chemical based machinery.

Cluster XI and XII are mainly equipment based. Cluster XI included electricity, power machinery and sewing machines industries. The industries in Cluster XII include motor vehicles, ball bearings and tyres and tubes, and also agricultural machinery such as implements, oil milling and rice and dal machinery, etc.

II.(D) INDUSTRIAL BASE OF THE REGIONS OF INDIA : CONCEPT AND METHOD OF MEASUREMENT

On the basis of conceiving regions in terms of relatively self-sufficient sets of industries, it is argued that economic base techniques, such as location quotient analysis, can be combined with technological clusters so as to measure the industrial base of the regions of India.

"....the point that emerges is that given 'block diagonal' technology, a regional input-output study has no significant advantage over the location quotient analysis in terms of understanding the qualitative structure of industrial inter-relations at the regional level."

1. Alagh, op. cit., p 36.

The industrial base is said to mean the set or sets of industries that happen to exist in a given region.

In general, we would expect industries to emerge in a region if:

(i) the region has a raw material base which confers cost advantages to the manufacturer over locating production in other regions;

(ii) the region has a well-developed infrastructure and can provide beneficial external economies to the industries;

(iii) the region possesses a large market where products can be sold and economies of scale enjoyed;

These factors are inter-related and to that extent the question of growth in the economy as a whole and in separate regions in particular has to be seen in the context of the totality of economic forces in operation.

With the exception of the raw material base, large markets and well-developed infrastructural facilities such as communications and transport facilities are reciprocally determined. One process calls forth the other once the process of capital accumulation and technical change has been initiated.

The basic methodological tool used in this study in making a structural analysis of the different regional economies is the location quotient.

The location quotient is a measure of the regional concentration of a given industry, when compared to national magnitudes of the same industry. The numerator

of the ratio (B) is the percentage of the region's total employment accounted for by the given industry. The denominator (A) is the percentage of total employment in the country accounted for by the individual industry.

In simple notational form, the location quotient is

$$L = B/A$$

The value of L where $0 < L < 1$ implies that the share of that industry in the given region is less than the proportionate share of that industry in the national aggregate. If the numerator is greater than the denominator, the region may be said to have a specialisation in that particular industry.

By placing the estimated location quotients for each industry region-wise in their respective technological clusters, we are in a position to identify groups of industries that have location quotients greater than one. Given that these industries are known to be technologically inter-linked, a set of industries characterised by high location quotients are taken to constitute an industrial base.¹

Basically, a high location quotient in the context of a technological cluster is seen to imply linkages, both forward and backward. This follows from the fact that

1. Alagh, Y.K. and others 'Regional Industrial Diversification in India.' EPW, April 1971.

technological clusters are based on sets of industries that are relatively more inter-linked than with the rest of the economy. Using this method for identifying the industrial base of regions, the industrial base of each region for 1969 is discussed.

II(E) DATA BASE

The basic infrastructure of this exercise is the framework used by Dr. Alagh and his associates. In order to use the most disaggregated inter-industry flow table available, M.R.Saluja's 144 sector inter-industry matrix for the Indian economy for 1964-65 was used. The sectoral classifications constructed by Saluja were aggregated^{so} that the technological clusters of industries prepared from this data would correspond to the A.S.I. region-wise, industry-wise data classification.

II.(F) INDUSTRIAL BASE OF THE REGIONS OF INDIA : 1969

The following consists of a brief analysis of our results for the year 1969, using the location quotient technique in conjunction with results derivative of an analysis of the technological clusters. The situation in 1960 and 1965 has not been described in the same detail. Instead, we have tried to convey the broad changes that have occurred over the period under study.

MAHARASHTRA (COLUMN I)

In general, the industrial base of Maharashtra boasting a large number of industries in all groups, reflects a high degree of diversification. That is, Maharashtra's industrial base is characterised by general interdependence and an approach based on self-sufficient blocks of industries is perhaps not applicable.

The gaps in Maharashtra's economy lie mainly in the agro-based and forest-based groups of industries. This is a reflection of the possible backwardness of agricultural production in Maharashtra. It is indeed disconcerting that the most industrialised state in India should evince a relatively more backward agricultural sector. Despite our note of caution in applying the self-sufficient block analysis approach to Maharashtra, this feature of a backward agricultural sector is indicative of the lack of pervasiveness of modern methods of production to all production spheres of the state's economy. That is to say, agriculture in Maharashtra is still dominated by lower forms of production technologies and is dependent on weather clemency for its well-being.

TAMIL NADU (COLUMN 2)

Tamil Nadu was one of the first few regions of India to develop industrially. This is partly attributable to the fact of Tamil Nadu's strategic location around an

entrepot during colonial times. This early superiority has persisted in terms of the overall pattern of India's development in the post-independence decades. Along with Maharashtra and West Bengal, Tamil Nadu reflects a comparatively well diversified industrial structure.

The state has a developed group of transport equipment industries (Cluster VII and XII) and exhibits considerable specialisation in the equipment and metal products industries (cluster V and VIII).

In cluster VI, there exists a concentration of fertilizers, heavy chemicals and plastics and plastic products. Tamil Nadu is also specialised in the production of leather footwear (cluster IV), and cotton yarn and textiles (cluster VI).

The one group of industries that has not shown any particular prominence in Tamil Nadu is the group of agro-based industries. Unlike Maharashtra, the lack of a well-developed agro-based group in the large-scale sector in Tamil Nadu is possibly compensated for by its prominent presence in the small-scale sector.¹ It has been suggested that regions like Tamil Nadu enjoying moderate to high rates of agricultural growth without sharp annual fluctuations tend to favour the growth of small-scale enterprises.²

1. See chapter in present study on Small Scale Sectors.

2. Raj K.N. (1976) (op cit)

KARNATAKA (Column 3)

This region displays a marked concentration of the agro-based and forest-based industries. This tendency is not entirely surprising given that Karnataka has enjoyed a steady and high rate of growth in agriculture over the past two decades.¹ Related to the encouraging state of Karnataka's agriculture, the industrial base likewise evinces a high concentration of fertiliser producing units (cluster VI) as well as plants manufacturing insecticides and pesticides. The region also has a reasonably well-developed and diversified equipment and metal-based industrial sector. This includes mechanical equipment (cluster VII and cluster VIII), and electrical equipment (cluster II, VIII and XI).

Textile-based industries in Karnataka include raw silk and silk textile units and cotton yarn and textile units. While on the supply side these industries draw their basic inputs from the agricultural sector, it is the existence of relatively developed and large rural and urban markets that sustains the demand patterns of these industries. More intimately connected with the urban markets are the perfume and cosmetics industry, (cluster IX) and the soap and glycerine industry (cluster IV).

1. Raj K.N. (1976) (op cit)

Karnataka, in effect, specialises in the mechanical and transport equipment, metal products, agro-based, textile-based and chemical-based blocks. In the mechanical equipment block, public sector investment in machine tools is sizable. The existence of telephone equipment and power machinery units is also accounted for by public sector investment in the electrical equipment block. By and large, Karnataka has developed a degree of diversification around public sector investments in machine tools, telecommunication equipment, electrical equipment and ferro-alloys.

UTTAR PRADESH (Column 4)

Industry in UP is predominantly agro-based. In fact, more than half of UP's industrial activity is derivative of the agro-based and forest-based sectors.¹ In these industrial blocks, the more important industries are sugar (cluster VI), vegetable oils and oil cakes (cluster IV) and paper and paper products (cluster IV). The textile-based industry is also one of the more important large-scale industries in UP. Also included in these blocks are the man-made fibres industry (cluster IX), the woollen

†. Industrial Potential Survey of UP (Part of a series conducted by Government to investigate the potential for economic growth in so-called 'backward' states.)

(2)

yarn and textiles industry (cluster X) and the cotton yarn and textiles industry (cluster VI).

UP also possesses a number of mechanical equipment industries, some of which are related to the processing of agricultural commodities. These include agricultural implements (cluster XII), sugar machinery (cluster IX), and oil, rice and dal mill machinery (cluster XII) units.

In the transport equipment block, the tractor production sector is the area most directly connected with agriculture. Other than this, UP also has in the transport equipment group the manufacture of locomotives, wagons and passenger coaches in UP (cluster VII).

The other major industries in UP include heavy chemicals, fertilizers and drugs and pharmaceuticals in the chemicals and chemical-based products sector. In the metal products group there is an incidence of units producing steel-structural fabrications, pipes and tubes and metal products. Also to be found in UP are industries in the electrical equipment group. Specifically, there is production of other electrical machinery (cluster II) electric lamps (cluster III), electric motors (cluster VIII) and generation of electricity (cluster XI).

In UP, the public sector has played an important role in the development of chemical-based industries and transport equipment industries. Though there are a number

....21/-

of inter-linkages between the agricultural and the industrial sector, the inter-dependence between the two is still weak. The main reason for this is the smallness of the internal market which does not permit manufacturing units to emerge and increase their efficiency through economies of scale and introduction of modern technology. Small-scale production seems to be constricted due to highly unstable rural markets on account of low and fluctuating rates of agricultural growth.¹

MADHYA PRADESH (Column 5)

Like Orissa and Bihar, Madhya Pradesh despite vast proven mineral deposits and natural resources has not shown any significant advance in industrial development. In spite of large investments in certain basic commodities such as iron and steel, the absence of any substantive industrial diversification is striking.

In general, Madhya Pradesh specialises in ferrous metals such as iron and steel (cluster VIII). There are public sector projects in the electrical equipment and fertilizers sector (cluster VI). In the former group, there have been no significant linkage effects upon the Madhya Pradesh state economy. In the non-metallic mineral-

1. Raj K.N.(1976) 'op cit'



based sector there is evidence of some diversification. Here we get a relative concentration in the cement manufacture (cluster VI), and Chinaware and pottery (cluster III) sectors. Related to the manufacture of cement, there is the manufacture of metallurgical and cement machinery (cluster VIII).

In view of Madhya Pradesh's rich endowments of forests, the government has established in the public sector a paper and paper products plant (cluster IV). There is also a wood products industry. In general, there has been some diversification around the resource based units of blocks of textile based, agro-based and forest-based industries.

In the mechanical equipment group, aside from the production of metallurgical and cement machinery (cluster VIII) there is the manufacture of construction machinery (cluster V) power-driven pumps (cluster VII) and air-conditioning and industrial refrigeration plant units (cluster VIII). This block also consists of industries supplying machines for the processing of agricultural commodities.

In general, the industrial structure of Madhya Pradesh reflects the backwardness of this state in terms of the coexistence of a few modern, large-scale,

capital intensive projects simultaneous with the extensive application of primitive methods of production. The presence of industries such as tractor manufacture, and units for the production of fertilisers and power driven pumps is qualitatively significant in terms of the goal of increasing productivity in agriculture. However, at this stage, these developments have had very little quantitative impact upon the economy.

PUNJAB (Column 6)

The industrial base of Punjab, Haryana and Himachal Pradesh comprises a well-developed set of agro-based industries. These include milk and other miscellaneous food products (cluster VIII), breweries, soft drinks etc., woollen yarn and textiles, vanaspati, sugar and vegetable oils and vegetable oil-cakes. The forest-based group of industries has units producing matches, and paper and paper products. A wide variety of engineering goods also exist in this region. In the mechanical and transport industries group, there are wagons and passenger coaches (cluster VII), repairs of motor vehicles (cluster IX) a large concentration of units producing agricultural implements, (cluster XII) machine tools and instruments (cluster VII) earth moving equipment (cluster V), paper

and printing machinery (cluster IV), sewing machinery (cluster XI), oil mills, dal mills etc. machinery (cluster IV), sugar machinery (cluster IV), ball bearings (cluster XII) and air compressors (cluster II). There exists a high concentration of tractor producing units (cluster VII) and motor cycles, scooters and bicycles, in addition to speed reduction equipment, an air conditioning and industrial refrigerating plant and conveying equipment. There also exists a diversified electrical equipment group. In the ferrous metals group, there are pipes and tubes (cluster VI), metal products and steel structural fabrication.

In the textile-based group, woollen yarn and textiles, starch and artificial silk fabrics predominate. In general, what is significant about Punjab is that in spite of the absence of large-scale sector investments there exists a well-diversified mix of industries. The reason for Punjab's success in the industrial sphere lies in its ability to generate a high rate of growth of income in agriculture. The demand for consumer items and inputs has caused the mushrooming of a host of ancillary, subsidiary and secondary industries and thus greater industrial activity. The interdependence between the demand for goods and investments is well brought out in the case of Punjab and explains in part its pattern of industrialization.

WEST BENGAL (Column 7)

The economy of West Bengal reflects a high degree of industrial diversification.

In the transport equipment sector, there exist wagons and passenger coaches (cluster VII), aircraft manufacture (cluster VII), motor vehicles industry (cluster XII), boats and ships (cluster X), and locomotives (cluster VII). The mechanical equipment group is equally extensive and includes tea processing machinery (cluster X), instruments (cluster VII), earth moving equipment (cluster V), paper and printing machinery (cluster IV), sewing machines (cluster XI), oil mills, rice, and dal mills, machinery, coal and other mining machinery (cluster IX), air compressor units (cluster II), office machinery (cluster II), textile machinery (cluster XII), jute machinery (cluster VIII) and construction machinery (cluster VII).

In addition, West Bengal is well diversified in the chemical and chemical-based, metal products and electrical equipment industries.

The agro-based and textile-based industries encompass a smaller spectrum of industries, though quantitatively their share is large in the overall output of the large-scale sector.

The reasons for the high degree of industrial diversification in West Bengal are rooted in its past. Being a port region, it was one of the first regions to industrialize in the sense of the presence of large-scale, modern industry. Subsequently, through the effects of agglomeration economies and because of its resource base, industrial development has continued to make advances.

DELHI (Column 8)

The area around Delhi has been the focal point for the industrial development of the surrounding regions. The industrial base spans a large number of different groups of industries and to that extent Delhi possesses a diversified mix of industries.

The mechanical equipment group includes agricultural implements (cluster XII), machine tools (cluster VII), instruments (cluster VI), earth moving equipment (cluster V), sewing machines (cluster XI), oil mills, rice and dal mill machinery (cluster XII), air compressor units (cluster II), office machinery (cluster I) and air-conditioning and industrial refrigeration plants (cluster VII).

In the transport equipment sector, Delhi is the home of an aircraft industry (cluster VII), repair of motor vehicles (cluster IX) and manufacture of motor cycles, scooters and bicycles (cluster VIII).

The electrical equipment group is well-developed. In general, while possessing a diversified engineering and chemical industry structure, Delhi was wanting in non-metallic mineral products industries.

The agro-based industries here are geared to producing for an urban market and thus units for the production of processed and preserved food stuffs predominate.

In general, like Punjab, Delhi's pattern of industrialization is consumer demand oriented.

RAJASTHAN (Column 9)

The industrial base of Rajasthan comprises the mechanical and transport equipment industries, non-metallic mineral-based industries and the agro-based and textile based industries.

The non-ferrous mineral based industries include bricks and ceramics (cluster VI), cement (cluster VI), and salt (cluster XI).

The mechanical and transport equipment group shows an incidence of units for wagons and passenger coaches (cluster VII), locomotives (cluster VII) and tractors (cluster VII), transport equipment and agricultural implements (cluster XII) and machine tools (cluster VII), instruments (cluster VII) and ball bearings (cluster XII).

The agro-based group is relatively more developed than most other sectors of Rajasthan's economy. There is a concentration of milk and other miscellaneous food products (cluster VII), breweries, soft drinks etc., (cluster IX), vanaspati (cluster X) and vegetable oils and vegetable oil cakes (cluster IX).

In the chemicals and chemical-based industries group there is a relative concentration in the insecticides and pesticides (cluster VIII), fertilizers (cluster VI) and perfumes and cosmetics (cluster IX) sectors.

The electrical equipment and metal products industries are relatively scarce. The former group includes electrical machinery (cluster II), cables and wires (cluster II) and electricity (cluster XI) producing units.

GUJARAT (Column 10)

Gujarat reflects its specialization largely in the textile-based group of industries. These include cotton yarn and textiles, starch (cluster IX), man-made fibres and other textiles (cluster IX), artificial silk fabrics (cluster IX), dye-stuffs and woollen yarns and textile (cluster X).

The agro-based industries in this region include vegetable oils (cluster IV), milk and other miscellaneous products (cluster VIII) and vanaspati.

The mechanical equipment industries consist mainly of manufactures for the predominantly industrial sectors of the economy, for example, textile machinery (cluster XII), metallurgical and cement machinery (cluster VIII), chemical machinery (cluster X), and power driven pumps (cluster VII). The equipment manufacturing industries also showed a concentration in the sewing machines (cluster XI), and coal and mining machinery (cluster IX) sectors.

The electrical equipment group of industries is almost non-existent as also the transport equipment group of industries.

In general, Gujarat has specialised in chemicals and in the non-metallic mineral-based, agro-based and textile-based groups of industries.

ANDHRA PRADESH (column 11)

In Andhra Pradesh the main block of industries is in the mechanical and transport equipment sector. In the transport equipment group the aircraft industry and boats and ship construction units are conspicuous. The mechanical equipment group consists chiefly of machine tools, instruments, metallurgical and cement machinery, rice, dal and oil mill machinery, sugar machinery and earth moving equipment.

In the primary sector, the agro-based industries were fairly prominent. These include vegetable oils and oil cakes (cluster IV), gur and khandsari (cluster VI), sugar (cluster VI), flour milling, biscuits and confectionary (cluster IX), starch (cluster VI), cigarettes (cluster VI), other tobacco products (cluster VI) and vanaspati (cluster X).

Related to the agro-based group of industries, there exists a parallel development of certain mechanical equipment industries for processing agricultural commodities. This reflects the incipient stages of the kind of interdependence that accompanies industrialization and the growth of the economy towards a higher level of productivity.

BIHAR (Column 12)

The non-metallic mineral based and metal products based industries stand out in Bihar's industrial profile. The former group includes petroleum products (cluster IX), coke (cluster I), bricks and ceramics (cluster VI), cement (cluster VI) and glass and glassware (cluster III). In the latter group, there are steel-structural fabrication, pipes and tubes, castings and forgings and iron and steel (cluster VIII). In addition to these, Bihar specialises in chemical products such as fertilizers,

paints and varnishes. Both private and public sector investments account for the specialization in the above industries, as well as for the location in this region of certain heavy mechanical and transport equipment industries. The mechanical equipment group is extensive. It has agricultural implements (cluster XII), coal and other mining machinery (cluster IX), sugar machinery (cluster IV), rice, dal and oil mill machinery (cluster XII), ball bearings (cluster XII), other non-electrical machinery (cluster V), construction machinery (cluster VII) and the manufacture of machine tools (cluster VII).

In the agro-based group there are flour-milling units, fruit and vegetable preservation units, sugar manufacture units and biscuits and confectionary units. In the forest-based products sector there are paper and paper products units. In the electrical equipment sector, there are the cables and wires, electric lamps, storage batteries and electricity generating units.

Although there are industries in every block, thereby suggesting a certain measure of industrial diversification, in fact, diversification to any real extent has not taken place. Basic goods produced in Bihar such as iron and steel and metal products have

not led to the emergence of equipment making industries or consumer goods. This is partly due to the government's policy of keeping the price of steel uniform throughout the country under the freight equalisation scheme.¹

ORISSA (Column 13)

Orissa evinces specialization in the fields of ferrous metals and metal products. In these groups there is a concentration in the steel structural fabrications, pipes and tubes, castings and forgings, iron and steel and ferro alloys units.

Again, related to its raw material base, there is a smattering of non-metallic mineral-based industries. These include bricks and ceramics, cement and glass and glass-ware. Also included among the resource-oriented type of industries are the wood products and paper and paper products units and related to this, the printing and publishing industry. There is also a relative concentration of the leather footwear industry.

The other engineering industries are agricultural implements, refrigerators, water-coolers and air-conditioners, storage batteries and electricity.

1. Currency and Finance reports, Reserve Bank of India Publication, 1976-77

In addition to these there are some agro-based industries such as flour-milling, milk and other miscellaneous food products, breweries and soft drinks and vanaspati and salt.

In general, industrial development in Orissa has been predicated by public sector investment in the form of large individual production units. These large investments have not led to any substantial diversification of industrial production.

KERALA (Column 14)

In general, Kerala's industrial activity is resource based. In the agro-based block plantations (cluster X), cashew nut processing (cluster VIII) and fruit and vegetable preservation stand out. The forest-based industries include woods products (cluster X), matches (cluster X) and printing and publishing (cluster VI) and some units in the rubber products sector. In addition, the state specialises in non-metallic mineral based and chemicals and chemical-based industries. These include coke, bricks and ceramics, and in the chemicals block soap and glycerine, insecticides, heavy chemicals and fertilizers.

(34)

The remaining cluster of industries are in the textile-based sector and a few odd products in the electrical equipment group.

Related to the specialization existent in Kerala in the agro-based group of industries, tea manufacturing machinery and agricultural implements manufacturing have developed.

In general, Kerala has a narrow industrial base.

ASSAM (Column 15)

The industrial base of Assam is predominately raw material based. In the agro-based group tea plantations and processing (cluster X) are the most prominent. In addition to this, there is also some flour milling (cluster VI).

Within the non-metallic mineral based group are the petroleum products and fertilizer producing industries. In the forest based products sector, there is production of wood products and matches.

The other industries in Assam consist of some transport equipment by way of the manufacture of wagons and passenger coaches (cluster VII), repair

of motor vehicles and the boats and ship industry. In the mechanical equipment sector there is the manufacture of tea processing machinery (cluster X), coal and other mining machinery (cluster IX) and oil mill, rice and dal milling machinery.

In general, this is one of the less developed states, and typically abounds in vast natural resources that are only now beginning to be exploited.

JAMMU AND KASHMIR (Column 16)

The industrial base of Jammu and Kashmir is again almost entirely raw material based. The main area of specialization is in the textile based group of industries, which consists of raw silk and silk textiles (cluster III), woollen yarn and textiles (cluster X), other textiles (cluster IX), artificial silk fabrics (cluster IX) and other textiles (cluster IX).

In addition to the textile based industries, there are some forest based industries such as matches and wood products (cluster X) units.

Apart from these two groups of industries, Jammu and Kashmir possesses only a smattering of other

Location Quotient (greater than .75) for 1960

	Maha- rashtra 1	TN 2	Karna- aka 3	UP 4	MP 5	Punjab 6	WB 7	Delhi 8	Raja- sthan 9	Guja- rat 10	AP 11	Bihar 12	Orissa 13	Kerala 14	Assam 15	JK 16
Mechanical & Transport equip.																
X 24	-	-	-	-	-	-	3.20	-	-	-	-	-	-	1.75	7.67	-
VII 19	2.01	-	-	-	-	-	1.23	10.62	-	-	2.81	-	-	-	-	-
XII 14	-	-	-	2.0	-	1.6	2.09	-	4.79	-	-	-	-	-	1.40	-
IX 16	.94	1.96	.88	1.32	.91	.84	-	3.48	-	.86	1.82	-	-	1.07	-	5.04
XII 38	1.97	3.06	-	-	-	-	1.57	-	-	-	-	-	-	-	-	-
VII 37	-	2.92	-	-	-	3.18	2.28	-	-	-	1.36	-	6.03	-	-	-
VI 42	.89	-	1.06	-	-	-	2.05	-	-	-	1.24	1.83	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
XII 15	1.33	2.19	1.01	-	-	-	-	-	-	-	1.41	3.57	-	1.66	-	-
X 18	1.14	-	-	-	-	-	2.27	-	-	-	3.52	-	-	-	-	-
V 39	-	-	-	1.89	-	6.32	2.04	16.64	-	-	-	-	-	-	-	-
IV 28	1.13	2.45	1.64	.79	-	-	-	-	-	3.4	-	1.12	-	-	-	-
XI 41	-	6.02	-	-	5.13	-	1.84	-	-	-	-	-	.98	-	-	-
XII 30	2.77	5.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IV 23	.97	1.22	-	2.04	-	5.12	.98	-	-	-	-	2.7	-	-	-	-

XII	36	1.01	-	1.48	2.61	-	4.41	-	8.25	-	-	-	1.82	-	3.75	-	-
V	44	-	-	2.58	-	-	.79	1.49	-	-	-	-	7.06	1.05	-	-	-
IX	25	-	3.34	-	-	-	-	-	-	-	-	-	-	-	-	14.07	-
VII	13	.92	-	-	.85	-	3.39	-	-	9.99	-	-	3.55	-	-	-	-
II	34	2.09	-	-	-	-	-	-	-	36.57	-	-	-	-	-	-	-
XII	21	1.34	3.14	-	-	3.17	-	-	-	-	1.81	-	-	-	-	-	-
II	40	-	.80	3.48	1.46	-	3.93	1.29	6.79	-	-	.94	-	-	1.74	-	-
VII	43	1.22	.96	-	.99	-	2.35	1.76	1.45	.75	-	-	-	-	-	.77	-
VIII	17	1.05	2.38	-	1.15	-	8.06	.80	4.82	-	-	-	-	-	-	-	-
X	27	.86	1.64	-	-	3.96	-	.94	-	-	1.36	4.67	-	-	-	-	-
VII	33	-	7.03	-	-	-	-	-	36.14	-	-	-	-	-	-	-	-
VII	20	3.16	1.94	-	-	-	2.4	-	.97	-	-	-	-	-	-	-	-
VIII	32	2.49	-	-	2.91	-	9.65	-	-	-	-	-	-	-	-	-	-
VIII	35	-	-	15.64	-	-	1.39	-	9.68	-	-	1.37	-	-	-	-	-
XII	31	1.61	2.27	-	-	-	-	-	-	-	4.62	-	-	-	-	-	-
VIII	22	-	-	-	-	-	-	4.36	-	-	-	-	-	-	-	-	-
VII	29	3.12	-	-	-	-	-	1.43	-	-	-	-	-	-	-	-	-

Electrical Equip.

II	12	1.15	2.42	-	1.58	-	-	-	1.00	-	-	3.58	-	-	-	-	-
II	6	.85	-	-	.89	-	3.51	1.08	3.40	-	-	2.01	1.93	9.87	1.56	-	-
II	11	2.16	-	-	-	-	2.38	2.09	-	-	-	-	-	-	-	-	-
III	10	-	-	2.40	4.12	-	-	2.13	-	-	-	-	1.6	-	-	-	-
VI	7	2.44	-	-	-	-	1.61	-	8.0	-	-	1.34	1.52	-	-	-	-
	20																
II	9	.91	-	-	1.93	5.20	-	2.16	-	-	-	-	-	-	-	-	-
XI	1	1.09	2.71	3.46	-	-	1.75	1.48	-	-	-	-	-	-	.85	-	-
VIII	8	1.30	-	10.17	-	-	-	1.45	-	-	-	-	1.52	-	-	-	-
II	4	1.83	-	5.18	-	-	-	1.79	-	-	-	-	-	-	-	-	-
VIII	2	.89	4.38	1.96	-	-	-	1.44	2.7	-	-	-	-	-	1.23	-	-
XII	3	-	-	-	-	-	1.31	3.58	1.13	-	-	-	-	-	-	-	-
X	5	1.14	2.56	-	-	-	-	2.50	-	-	-	-	-	-	-	-	-
XI	97	-	7.37	-	1.05	-	-	.77	-	-	-	-	-	-	-	4.09	-

		Maha- rash tra	TN	Karna- taka	UP	MP	Punjab	WB	Delhi	Raja- sethan	Guja- rat	AP	Bihar	Orissa	Kerala	A Assam	JK
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Agro-based																	
X	59	1.33	-	2.29	2.04	1.80	1.61	-	-	-	1.12	2.36	-	-	-	-	-
VIII	71	-	-	-	-	-	-	4.0	-	-	-	-	-	-	-	-	-
VI	70	1.59	1.81	.95	1.94	1.74	-	-	1.33	.89	2.44	-	-	.78	-	-	-
VI	57	-	.78	-	-	-	-	1.23	-	-	-	-	-	-	1.07	24.13	-
VI	60	1.33	-	-	1.97	1.03	1.12	-	5.36	-	1.46	.77	.84	-	-	-	-
VIII	67	.76	-	-	-	1.88	-	-	-	-	-	14.17	-	-	-	-	-
IX	65	1.14	1.01	1.35	3.22	1.13	1.64	-	2.81	-	-	-	1.53	-	-	-	-
VI	69	-	-	2.27	-	-	-	-	-	-	-	-	-	-	19.76	-	-
VI	68	1.40	-	.77	2.22	.78	-	-	2.11	-	-	-	1.05	-	4.44	-	11.34
	74																
X	62	-	-	-	-	2.62	10.39	-	-	5.93	4.99	2.23	-	-	1.71	-	-
VI	58	1.05	-	-	6.42	-	2.12	-	-	-	1.0	-	1.25	-	-	-	-
VI	66	-	-	4.15	-	-	-	.91	-	-	-	3.46	4.61	-	-	-	-
XI	63	-	-	2.61	4.00	1.39	5.09	-	-	2.70	-	-	.81	-	-	1.14	-
IV	61	.76	-	1.24	-	-	-	-	-	5.93	6.84	-	-	-	-	-	-

-: 5 :-

	Maha- rash tra	TN	Karn- ataka	UP	MP	Punjab	WB	Delhi	Raj- asth an	Guja- rat	AP	Bihar	Orissa	Kerala	Assam	MI
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Forest-based</u>																
X 82	2.27	-	-	-	-	-	-	-	-	-	5.18	-	-	-	10.8	-
X 99	3.49	-	-	-	-	-	-	-	-	2.55	-	-	-	-	-	-
VI 100	1.00	1.19	-	-	-	.81	1.15	1.21	1.16	-	2.72	-	-	3.46	-	-
IV 87	2.65	-	-	-	-	-	-	1.91	-	3.84	-	-	-	-	-	-
<u>Non metallic, mineral based</u>																
IX 84	.79	-	-	-	.95	1.30	2.87	-	-	-	-	-	-	1.0	-	-
I 98	1.49	1.33	-	1.54	.88	1.60	-	4.77	1.08	-	-	-	1.23	-	-	1.44
VI 80	1.13	1.52	1.61	-	-	-	.81	-	-	-	-	-	1.56	4.57	3.45	1.89
VI 52	-	5.66	-	5.71	-	-	-	-	-	-	-	-	-	-	-	5.82
III 83	1.30	-	-	-	-	-	2.86	-	-	-	-	-	-	-	-	-
III 81	-	-	1.37	-	3.37	1.43	1.92	5.98	-	1.79	-	-	-	-	-	-

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	Maha- rash tra	TN	Karn- ataka	UP	MP	Punjab	WB	Delhi	Raj- asth an	Guja- arat	AP	Bihar	Orissa	Kerala	Assam	JK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Metal Products</u>																
	47															
	46															
	48															
VI	49	1.33	-	-	-	-	1.60	-	2.13	-	-	3.34	3.77	-	-	-
	45															
VI	50	-	1.92	1.69	-	3.63	1.99	-	2.09	6.33	.96	2.00	2.32	2.99	-	-
<u>Chemicals & Chemi- cal based prods.</u>																
IV	93	-	1.53	1.23	1.68	-	.87	.9	1.49	-	3.11	-	-	-	.99	-
VIII	91	2.15	-	1.19	-	-	-	1.03	-	-	-	-	-	4.46	-	-
VI	95	1.13	-	-	2.09	1.66	-	1.14	-	4.38	.76	-	1.48	-	-	-
VI	79	.82	-	-	4.17	-	-	1.08	-	1.11	-	-	1.16	4.77	-	-
IV	90	2.04	-	-	.84	-	-	1.06	.92	-	1.51	-	-	-	-	1.55
V	96	-	.74	-	-	-	-	-	-	-	-	-	15.67	-	-	-
IX	94	.86	2.09	-	-	1.10	.95	1.94	.77	-	-	-	-	-	-	10.03
VI	88	1.51	-	-	-	1.32	-	2.36	-	-	-	-	-	-	-	-
III	92	.96	1.19	6.98	-	-	-	1.49	-	3.41	-	1.04	-	-	-	-

Table XIV

Relative Importance of Regions in Clusters of Industries in India - 1960

Cluster and Industries Code Number	Region Code Numbers and Location Quotients of Employment in the Industry*															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-I</u>																
98	1.49	1.33	0.35	1.54	0.88	1.60	0.70	4.77	1.08	0.32	0.36	0.64	1.23	0.67	0.46	1.44
<u>Cluster - II</u>																
51	0	0	0	0	0	0	0	0	1.94	0	1.95	15.32	0	0	0	0
6	0.85	0	0	0.89	0	3.51	1.08	3.40	0	0	2.01	1.93	9.87	1.56	0	0
4	1.83	0	5.18	0	0	0	1.79	0	0	0	0	0	0	0	0	0
12	1.15	2.42	0.70	1.58	0	0.52	0.72	1.00	0	0.14	3.58	0.47	0	0.45	0	0
11	2.16	0	0	0	0	2.38	2.09	0	0	0	0	0	0	0	0	0
9	0.91	0	0	1.93	5.20	0	2.16	0	0	0	0	0	0	0	0	0
34	2099	0	0	0	0	0	0	0	36.57	0	0	0	0	0	0	0
40	0.39	0.80	3.48	1.46	0	3.93	1.29	6.79	0	0	0.94	0	0	1.74	0	0
<u>Cluster-III</u>																
54	0	0	3.19	4.73	0	0	2.19	0	0	0	0	0	0	0	0	0
56	0.57	0.62	0.99	6.01	0.62	1.13	0.02	0	0.55	0.05	1.24	3.13	0.53	0.08	0.20	0
75	2.19	0.31	0.22	0.64	0.84	2.60	0.26	0.22	0	2.04	1.03	1.03	0	0.89	0	0
81	0.21	0.19	1.37	0.19	3.37	1.43	1.92	5.98	0	1.79	0.65	0.23	0	0	0	0

Table XIV Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
92	0.96	1.19	6.98	0	0	0	1.49	0	3.41	0	1.04	0	0	0	0	0
10	0	0	2.40	4.12	0	0	2.13	0	0	0	0	1.60	0	0	0	0
83	1.30	0.61	0	0	0	0	2.86	0	0	0	0	0	0	0.47	0	0
<u>Cluster-IV</u>																
61	0.76	0.49	1.24	0	0	0	0	0	5.93	6.84	0	0	0	0	0	0
93	0.40	1.53	1.23	1.68	0	0.87	0.90	1.49	0	3.11	0	0.49	0	0.99	0	0
23	0.97	1.22	0.52	2.04	0	5.12	0.98	0	0	0	0.39	2.70	0	0	0	0
90	2.04	0.36	0.25	0.84	0.14	0.23	1.06	0.92	0	1.51	0.34	0.20	0	0.30	0	1.55
28	1.13	2.45	1.64	0.79	0	0	0.27	0	0	3.40	0	1.120	0	0	0	0
87	2.65	0	0	0	0	0	0.13	2.91	0	3.84	0	0	0	0	0	0
55	0.21	0.75	0.10	0.62	4.73	1.36	1.55	0.87	0	0.14	2.80	1.01	10.34	0.14	0.10	0
<u>Cluster-V</u>																
39	0	0	0	1.89	0	6.32	2.04	16.64	0	0	0	0	0	0	0	0
44	0.24	0.18	2.58	0.58	0.14	0.79	1.49	0.53	0.44	0.02	0	7.06	1.05	0	0	0
60	1.33	0.42	0.73	1.97	1.03	1.12	0.61	5.36	0	1.46	0.77	0.84	0	0	0	0
58	1005	0	0.42	6.42	0.53	2.12	0	0	0	1.00	0.22	1.25	0	0	0	0
79	0.82	0.43	0.24	4.17	0.08	0.63	1.08	0.51	1.11	0.34	0.21	1.16	4.77	0.25	0	0
57	0.02	0.78	0.53	0.12	0	0.12	1.23	0	0	0.01	0.07	0	0	1.07	24.13	0
95	1.13	0.06	0.14	2.09	1.66	0.37	1.14	0.26	4.38	0.76	0.40	1.48	0.50	0.08	0.27	0
66	0.69	0	4.15	0.66	0	0	0.91	0	0	0	3.46	4.61	0	0	0	0
72	1.13	0	0.24	2.55	0	14.84	0.21	0	0.61	0.80	0	0.21	0	0	0	15.82

Table-XIV Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
64	1.64	0.17	0.32	0.50	0.40	1.95	1.50	3.37	0	0	1.38	1.21	0	0	0	0
80	1.13	1.52	1.61	0.15	0.34	0.73	0.81	0.62	0	0.07	0.60	0.15	1.56	4.57	3.45	1.89
50	0.48	1.92	1.69	0.25	3.63	1.99	0.12	2.09	6.33	0.95	2.00	2.32	2.99	0.42	0	0
52	0.17	5.66	0.23	5.71	0.29	0.42	0.13	0	0	0	0.18	0.49	0	0	0	5.82
49	1.33	0.33	0.19	0.23	0	0	1.60	0	2.13	0.21	0	3.34	3.77	0.44	0	0
100	1.00	1.19	0.20	0.45	0.57	0.81	1.15	1.21	1.16	0.31	2.72	0	0	3.46	0	0
69	0.05	0	2.27	0	0	0	0	0	0	0	0.03	0	0	19.76	0	0
63 68	1.40	0	0.77	2.22	0.78	0	0.64	2.11	0	0	0	1.05	0	4.44	0	11.34
70	1.59	1.81	0.95	0.91	1.74	0.38	0.21	1.33	0.89	2.44	0.35	0.11	0.78	0.28	0	0
88	1.51	0.56	0	0.68	1.32	0	2.36	0	0	0	0	0	0	0	0	0
42	0.89	0.74	1.06	0.11	0	0	2.05	0.66	0.58	0.19	1.24	1.83	0	0.58	0	0
7	2.44	0.63	0	0	0	1.61	0.55	8.00	0	0	1.34	1.52	0	0	0	0
<u>Cluster-VII</u>																
13	0.92	0	0	0.85	0	3.39	0.01	0	9.99	0.71	0	3.55	0	0	0	0
20	3.16	1.94	0	0.65	0	2.40	0.12	0.97	0	0.33	0	0	0	0	0	0
43	1.22	0.96	0.28	0.99	0.09	2.35	1.76	1.45	0.75	0.21	0.30	0.41	0	0.20	0.77	0
14	0.65	0.05	0	2.00	0	1.60	2.09	0	4.79	0.38	0	0.49	0.16	0.16	1.40	0
48	1.58	1.86	0.51	1.37	0.25	2.92	0.93	0.64	0	0.63	0.21	0.18	0	0.38	0	0
37	0.15	2.92	0	0	0	3.18	2.28	0	0	0.42	1.36	0	6.03	0	0	0
29	3.12	0	0	0	0	0	1.43	0	0	0	0	0	0	0	0	0
33 33	0	7.03	0	0	0	0	0	36.14	0	0	0	0	0	0	0	0
19	2.01	0	0	0	0	0	1.23	10.62	0	0	2.81	0	0	0	0	0

Table XIV Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-VIII</u>																
73	0	0.15	12.35	0.31	0	0	0	0	0	0	0	0.18	0	0	0	188.0
22	0	0	0	0	0	0	4.36	0	0.15	0	0	0	0	0	0	0
91	2.15	0	1.19	0.33	0	0	1.03	0	0	0	0	0.46	0	4.46	0	0
67	0.76	0.28	0.67	0.02	1.88	0	0.04	0	0.33	0.14	14.17	0.03	0.33	0.02	0	0
46	0.66	0.23	0.42	0.14	0.21	0.16	2.78	0.27	0	0.11	0.13	2.20	2.02	0	0	0
47	0.06	0.39	0	0.27	0	0.45	2.93	0	0	0.52	0	3.03	3.70	0	0	0
45	2.13	0	0	0	0	0	0	0	0	0	5.49	0	30.45	0	0	0
2	0.89	4.38	1.96	0	0	0	1.44	2.70	0	0	0	0	0	1.23	0	0
26	3.87	0	0	0	0	0	0.72	0	0	0	0	0	0	0	0	0
17	1.05	2.38	0	1.15	0.38	8.06	0.80	4.82	0	0.26	0	0.48	0	0.11	0	0
32	2.49	0	0	2.91	0	9.65	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0.28	0.25	0	4.00	0	0	0	0.74	0.30	0	0	0	0
35	0.38	0.29	15.64	0	0	1.39	0.29	9.68	0	0	1.37	0	0	0	0	0
8	1.30	0	10.17	0	0	0	1.45	0	0	0	0	1.52	0	0	0	0
<u>Cluster-IX</u>																
76	1.47	0.85	1.75	0.22	2.01	3.23	0.28	2.05	1.50	1.93	0.41	0.24	0	1.05	0.12	5.46
77	0.25	2.00	3.04	0.08	0	0	0.30	0	0	0	0.44	9.61	0	0.97	0	0
65	1.14	1.01	1.35	3.22	1.13	1.64	0.47	2.81	0	0.70	0	1.53	0	0	0	0
94	0.86	2.09	0	0.52	1.10	0.95	1.94	0.77	0	0.33	0.34	0.69	0	0	0	10.03

Table XIV Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
78	0.71	0.40	3.39	0	1.94	0.06	0.30	0.39	1.20	1.18	0.20	2.72	6.16	0.40	0.07	0
84	0.79	0.26	0.29	0	0.95	1.30	2.87	0.14	0	0.30	0	0	0	1.00	0	0
25	0	3.34	0	0	0	0	0	0	0	0	0	0	0	0	14.07	0
16	0.94	1.96	0.88	1.32	0.91	0.84	0.61	3.48	0.41	0.86	1.82	0.36	0.71	1.07	0.66	5.04
<u>Cluster-X</u>																
62	0	0	0	0	2.62	10.39	0	0	5.93	4.99	2.23	0	0	1.71	0	0
96	0	0.74	0	0	0	0	0.23	0	0	0	0	15.67	0	0	0	0
89	2.80	0	0	0	0	0	0	14.24	0	0	0	0	0	4.34	0	0
86	3.10	1.32	0.16	0.25	0	0.37	0.60	2.25	0	0.08	0	0.38	0	0.15	0	0
74	1.70	0	0	0	8.08	0	0	0	0	0	0	0	0	8.65	0	0
59	1.33	0.39	2.29	2.04	1.80	1.61	0.31	0.36	0.68	1.12	2.36	0.38	0	0.10	0.22	0
24	0	0	0	0	0	0	3.20	0	0	0	0	0	0	1.75	7.67	0
5	1.14	2.56	0	0	0	0	2.50	0	0	0	0	0	0	0	0	0
82	2.27	0	0	0	0	0	0	0	0	0	5.18	0	0	0	10.80	0
99	3.49	0	0	0	0	0	0	0	0	2.55	0	0	0	0	0	0
18	1.14	0	0	0	0	0	2.27	0	0	0.13	3.52	0.27	0	0.58	0.33	0
27	0.86	1.64	0	0	3.96	0	0.94	0	0	1.36	4.67	0	0	0	0	0
<u>Cluster-XI</u>																
1	1.09	2.71	3.46	0	0	1.75	1.48	0.50	0	0.04	0.22	0	0	0.85	0	0
97	0.23	7.37	0	1.05	0.15	0	0.77	0	0	0.43	0.09	0	0	0.20	4.09	0
63	0.37	0.16	2.61	4.00	1.39	5.09	0.55	0	2.70	0	0.38	0.81	0	0.41	1.14	0
41	0	6.02	0	0	5.13	0	1.84	0	0	0	0	0	0.98	0	0	0

Location Quotient (greater than .75) for 1965

	Maha rash tra	TN	Kara nata ka	UP	MP	Pun jab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Mechanical & Transport Equip.</u>																
X 24	-	-	-	-	-	-	.78	-	-	-	-	-	-	2.16	38.05	-
VII 19	1.82	.82	-	1.10	-	-	-	10.68	-	-	1.67	-	-	-	3.41	-
VII 14	-	1.14	.97	1.87	-	.82	1.85	4.29	-	-	-	-	-	-	1.07	-
IX 16	.90	1.77	1.64	1.26	-	.74	-	2.09	-	.78	2.27	▼	.86	.96	1.02	1.70
XII 38	1.14	-	1.17	2.4	-	4.09	-	-	3.79	-	-	1.74	.82	2.10	-	-
VII 37	-	-	9.01	-	-	5.27	-	-	2.04	-	-	-	-	2.73	-	-
VI 42	.94	-	1.10	1.15	-	2.53	1.05	4.24	2.67	-	1.62	-	-	1.07	-	-
VII 26	-	-	8.93	-	-	-	-	-	-	-	7.1	-	13.01	-	-	-
XII 15	1.42	1.91	1.23	-	-	1.45	-	.88	-	-	-	4.54	-	-	-	-
X 18	-	-	-	-	-	-	2.44	-	-	-	3.96	-	-	-	-	-
V 39	-	1.8	-	-	1.23	4.21	1.45	1.76	1.31	-	-	-	-	-	-	-
IV 28	-	-	-	1.72	-	3.55	2.22	-	-	-	2.34	-	-	-	-	-
XI 41	-	-	-	3.15	-	5.11	-	7.67	-	-	2.48	-	-	-	-	-
XII 30	1-54	1.6	.96	1.34	.94	1.4	-	-	-	-	1.82	1.26	-	-	-	-

-: 2 :-

	Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja asth an	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IV 23	1.17	2.3	-	1.95	-	4.39	-	2.07	-	-	.94	1.41	-	-	-	-
XII 36	1.19	-	-	-	-	.88	-	-	7.17	3.10	-	5.55	-	-	-	-
V 44	-	-	-	-	-	-	2.32	-	-	-	-	3.18	-	-	-	-
IX 25	-	1.08	-	-	-	2.74	-	-	-	1.12	-	13.32	-	-	-	-
VII 13	-	1.20	-	1.80	-	-	1.36	-	5.70	1.29	-	2.31	-	-	-	-
II 34	2.57	-	-	.97	-	4.05	-	4.93	4.00	.76	-	-	-	-	-	-
XII 21	1.98	1.47	-	-	-	-	.77	-	-	2.31	-	-	-	-	-	-
II 40	-	.80	-	-	-	-	3.08	4.06	-	1.10	-	-	-	-	-	-
VII 43	-	2.33	-	1.53	6.18	6.37	-	-	-	1.28	-	-	-	-	-	-
VIII 17	1.17	2.12	-	.78	-	6.42	.87	1.9	-	-	-	-	-	-	-	-
X 27	2.72	-	-	-	-	-	.93	-	-	3.17	-	-	-	-	-	-
VII 33	2.73	1.99	.92	-	.78	-	-	-	-	1.50	-	-	-	-	-	-
VII 20	2.95	1.60	-	-	-	2.03	-	1.48	-	1.03	-	-	-	-	-	-
VIII 32	1.27	-	-	-	-	4.93	2.20	-	-	1.02	-	-	-	-	-	-
VIII 35	-	2.75	-	-	3.43	-	-	30.37	-	-	-	-	-	-	-	-

	Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja sth an	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
XII 31	1.41	-	1.67	.88	-	1.81	1.75	1.83	-	-	-	1.28	-	-	-	-
VIII 22	-	-	-	-	-	-	4.52	-	-	-	-	-	-	-	-	-
VII 29	.86	.95	-	-	-	-	2.72	1.57	-	-	-	-	-	-	-	-
<u>Electrical Equip.</u>																
II 12	1.43	1.38	.95	1.64	-	2.66	.81	-	1.39	-	.75	-	-	-	-	-
II 6	1.47	-	-	-	.93	2.6	1.08	2.13	2.27	-	1.09	.86	1.30	1.33	.97	-
II 11	.97	.76	-	-	-	2.17	.93	9.61	-	-	3.04	-	7.75	-	-	-
III 10	-	-	1.43	5.24	-	.86	1.51	-	-	-	-	1.39	-	-	-	-
VI 7	2.68	-	-	-	-	1.85	-	7.55	1.69	-	-	.97	-	-	-	-
VII*20	2.95	1.60	-	-	-	2.03	-	1.48	-	1.03	-	-	-	-	-	-
II 9	1.09	1.16	1.41	2.86	-	2.16	-	-	-	-	-	-	-	-	-	-
XI 1	1.05	.89	1.69	-	9.66	-	-	-	-	.82	-	-	-	-	-	-
VIII 8	1.26	2.28	7.09	-	-	-	1.13	-	-	-	-	-	-	-	-	-
II 4	1.20	1.18	5.74	-	-	-	1.22	9.04	-	-	-	-	-	-	-	-
VIII 2	1.48	2.78	.88	.97	-	1.0	1.13	2.28	-	-	-	-	-	-	-	-

		Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
XII	3	.84	-	-	-	-	-	3.55	1.16	-	-	-	-	-	-	-	-
X	5	1.73	3.70	-	-	-	-	1.51	-	-	-	-	-	-	-	-	-
XI	97	-	1.76	1.43	1.53	.93	2.33	-	.78	1.91	-	1.98	1.46	1.77	-	-	1.83
<u>Agro-based</u>																	
X	59	-	-	.89	-	-	-	1.16	-	-	-	-	-	-	1.38	29.12	-
VIII	71	-	-	1.54	-	-	-	-	-	-	-	-	-	-	22.73	-	-
VI	70	1.04	-	2.28	3.56	-	-	-	2.97	-	-	-	.75	-	5.45	-	-
VI	57	-	-	-	-	2.79	.84	1.61	1.10	-	-	2.67	.94	7.01	-	-	-
VI	60	-	-	-	4.22	-	-	-	-	.96	-	9.31	-	.83	-	-	-
VIII	67	1.16	.96	.81	2.13	3.20	2.27	-	4.78	-	1.57	-	-	-	-	-	8.88
IX	65	-	-	2.11	4.80	1.16	4.00	-	1.55	1.35	-	.85	-	-	-	-	3.62
VI	69	-	-	-	-	1.21	-	-	-	-	-	15.41	-	-	-	-	-
VI	68	.99	-	1.45	1.51	-	-	.84	-	-	-	4.64	3.72	-	-	-	-
X	74*																
X	62	1.35	-	.89	2.43	.91	1.15	-	1.41	-	1.44	1.54	-	-	-	-	-

	Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VI 58	.78	1.75	1.31	5.64	-	.93	-	-	-	-	1.43	2.69	-	-	-	-
VI 66	1.45	-	.97	.76	2.28	-	1.31	1.87	-	-	1.35	1.91	-	-	-	-
XI 63	-	-	-	-	-	-	-	-	5.22	7.59	1.39	-	-	-	-	-
IV 61	1.61	-	1.5	1.61	1.42	1.02	-	-	.75	1.91	2.21	-	-	-	-	-
<u>Forest based</u>																
X 82	.88	1.11	2.36	-	-	.75	.85	-	-	-	-	.80	1.08	2.76	5.28	4.25
X 99	-	4.85	1.01	-	.89	-	1.01	-	1.62	-	-	-	1.82	.82	-	9.72
VI100	1.55	1.4	-	1.26	-	1.08	-	3.75	.83	-	.77	-	1.17	-	-	1.24
IV 87	-	-	2.41	-	1.51	1.87	1.04	-	-	-	1.04	1.51	5.62	-	-	-
<u>Non metallic mineral based</u>																
IX 84	1.41	-	-	-	-	-	-	-	-	.84	4.7	6.3	-	-	3.33	-
I 98	-	2.02	-	-	-	-	1.39	-	-	-	-	8.53	-	-	.99	-
VI 80	-	-	2.9	-	1.83	-	-	.84	1.51	1.27	-	2.7	3.22	3.93	-	-
VI 52	-	1.11	1.2	-	2.62	2.2	-	2.35	2.31	1.21	1.95	2.85	1.25	-	-	5.55
III 83	-	-	1.19	-	1.22	1.63	1.50	5.85	-	2.31	-	-	1.06	-	-	-
III 81	.99	-	-	4.17	-	.93	1.09	-	-	-	-	1.44	-	-	-	-

	Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Metal Products</u>																
VIII 47	1.69	-	4.86	-	-	-	-	-	-	-	4.73	-	11.83	-	-	-
VIII 46	-	-	-	-	3.94	-	1.44	-	.96	-	-	4.18	8.20	-	-	-
VII 48*																
VI 49*																
VIII 45	1.57	-	-	1.24	-	1.92	1.55	2.08	-	-	-	-	-	-	-	-
VI 50																
<u>Chemical & Chem.- based products</u>																
IV 93	2.38	-	1.19	-	-	-	1.08	-	-	-	-	-	-	4.68	-	-
VIII 91	2.64	1.26	-	-	-	-	-	4.62	4.32	-	-	-	-	3.79	-	-
VI 95	.88	1.15	-	1.66	-	-	-	1.10	.76	3.16	-	-	-	2.09	-	-
VI 79	-	.79	3.36	-	1.13	-	-	-	-	.74	.76	6.76	2.10	1.52	-	-
IV 90	2.08	-	-	-	-	-	2.07	-	-	-	-	-	1.18	-	-	-
X 96*	1.28	1.22	-	1.05	-	-	1.41	.85	-	1.07	-	1.0	-	-	-	1.45
IX 94	1.60	-	9.26	-	-	-	.92	-	1.33	-	-	-	-	-	-	-

Table XII-Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-III</u>																
54	0.31	4.94	0.26	4.47	0	0.31	0.34	0.73	0	0	0.23	0.28	0.53	0	0	6.22
56	0	0	0	2.29	0	4.60	1.52	0	0	3.81	0	0	0	0	0	0
75	0	0.16	11.80	0.34	0.24	0	0.04	0	0	0	0.40	0.24	0	0	0.39	145.41
81	0.99	0.27	0.10	4.17	0	0.93	1.09	0.50	0.29	0.63	0.66	1.44	0.65	0.1	0	0
92	2.36	0.39	0.26	0.78	0.21	0.49	0.92	0.96	0.18	1.73	0.46	0.19	0.09	0.22	0	0.59
10	0.48	0.19	1.43	5.24	0	0.86	1.51	0	0	0	0	1.39	0	0	0	0
83	0.23	0.38	1.19	0.54	1.22	1.63	1.50	5.85	0	2.31	0.43	0.69	1.06	0.58	0	0
<u>Cluster-IV</u>																
61	1.61	0.33	1.50	1.61	1.42	1.02	0.27	0.38	0.75	1.91	2.21	0.34	0.12	0.06	0.13	0
93	2.38	0	1.19	0.60	0	0	1.08	0	0	0	0	0.42	0	4.68	0	0
23	1.17	2.30	0	1.95	0.53	4.39	0.39	2.07	0	0	0.94	1.41	0	0	0	0
90	2.08	0.23	0.62	0.68	0	0.64	2.07	0	0	0	0	0	1.18	0	0	0
28	0.65	0	0	1.72	0	3.55	2.22	0	0	0	2.34	0	0	0	0	0
87	0.68	0.55	2.41	0.65	1.51	1.87	1.04	0	0.32	0.61	1.04	1.51	5.62	0.58	0	0
55	0	1.17	0	8.20	2.06	0	0	0	0	0.48	0	3.18	0	0	0	0
<u>Cluster-V</u>																
39	0.28	1.80	0	0.37	1.23	4.21	1.45	1.76	1.31	0	0	0.69	0	0	0	0
44	0.72	0.43	0.46	0.26	0.26	0.40	2.32	0.56	0	0.32	0.38	3.18	0.28	0.31	0.23	0
<u>Cluster-VI</u>																
60	0.27	0	0.21	4.42	0.62	0.44	0	0	0.96	0.09	9.31	0.46	0.83	0	0	0
58	0.78	0.75	1.31	5.64	0.47	0.93	0.02	0	0.43	0.11	1.43	2.69	0.32	0.32	0.19	0

Table - XII contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
79	0.45	0.79	3.36	0.55	1.13	0.22	0.21	0	0	0.74	0.76	6.76	2.10	1.52	0	0
57	0.22	0.65	0.15	0.67	2.79	0.84	1.61	1.10	0.03	0.15	2.67	0.94	7.01	0	0.16	0
95	0.88	1.15	0.23	1.66	0.45	0.47	0.54	1.10	0.76	3.16	0.36	0.59	0	2.09	0.33	0
66	1.45	0.30	0.97	0.76	2.28	0.49	1.31	1.87	0	0	1.35	1.91	0	0	0	0
72	1.60	1.64	1.06	0.97	1.17	0.52	0.24	1.49	1.09	2.60	0.41	0.02	0.38	0.38	0.07	0
64	0	0	0	0	8.21	5.33	0	0	0	3.26	2.42	0	0	2.48	0	0
80	0.07	0.57	2.90	0.11	1.83	0.41	0.35	0.84	1.51	1.27	0.36	2.70	3.22	2.93	0.15	0.74
50	1.17	1.45	0.58	1.11	0.29	1.63	1.11	0.35	0.28	0.54	0.80	1.40	2.36	0.37	0.25	0
52	0.56	1.11	1.20	0.49	2.62	2.20	0.12	2.35	2.31	1.21	1.95	2.85	1.25	0.63	0.10	5.55
49	0.35	0.32	0	0.46	0	1.27	2.28	0	0.94	1.25	0.73	2.37	1.76	0	0	0
100	1.55	1.40	0.48	1.26	0.62	1.08	0.71	3.75	0.83	0.40	0.77	0.48	1.17	0.74	0.60	1.24
69	0.09	0.23	0.39	0.07	1.21	0	0.06	0	0	0.44	15.41	0	0.21	0	0	0
68	0.99	0	1.45	1.51	0	0	0.84	0	0	0	4.64	3.72	0	0	0	0
70	1.04	0	2.28	3.56	0.24	0.69	0.35	2.97	0	0	0.45	0.75	0	5.45	0	0
88	3.12	0.74	0.45	0.14	0	0.96	0.81	1.51	0.78	0.54	0.05	0	0	0.05	0	0
42	0.94	0.51	1.10	1.15	0.54	2.53	1.05	4.24	2.67	0.60	1.62	0	0	1.07	0	0
7	2.68	0.53	0	0	0	1.85	0.61	7.55	1.69	0.07	0.31	0.97	0	0	0.42	0
<u>Cluster-VII</u>																
13	0.65	1.20	0	1.80	0	0	1.36	0	5.70	1.29	0	2.31	0	0	0	0
20	2.95	1.60	0.28	0.56	0.62	2.03	0.05	1.48	0	1.03	0.26	0	0	0	0	0
43	0	2.33	0	1.53	6.18	6.37	0.51	0	0	1.28	0	0	0	0	0	0

Table-XII Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-IX</u>																
76	1.10	0	0	0	5.27	0	0	0	11.01	1.71	0	0	0	6.48	0	0
77	2.44	0.67	0.10	0.27	1.16	0.87	0.60	1.34	0.65	1.81	0.40	0	0	0.45	0	4.90
65	0.52	0.21	2.11	4.80	1.16	4.00	0.47	1.55	1.35	0	0.85	0.71	0	0	0	3.62
94	1.60	0.52	9.26	0	0.64	0	0.92	0	1.33	0	0	0	0	0	0	0
78	1.71	0.60	1.26	0.42	2.20	0.87	0.29	0.63	1.82	2.39	0.31	0.09	0	1.12	0.17	2.84
84	1.41	0	0	0	0	0	0	0	0	0.84	4.70	6.30	0	0	3.33	0
25	0	1.08	0	0	0	2.74	0	0	0	1.12	0	13.32	0	0	0	0
16	0.90	1.77	1.64	1.26	0.55	0.74	0.54	2.09	0.73	0.78	2.27	0.42	0.86	0.96	1.02	1.70
<u>Cluster-X</u>																
62	1.35	0.33	0.89	2.43	0.91	1.15	0.63	2.41	0	1.44	1.54	0.61	0	0	0	0
96	1.28	1.22	0.68	1.05	0.41	0.48	1.41	0.85	0	1.07	0.13	1.00	0	0.55	0	1.45
89	2.86	0	0	0	0	0	0.09	1.19	0	4.81	0	0	0	0	0	0
86	1.15	0.41	0	0.04	0.16	1.37	2.81	½.28	0 0	0.37	0	0	0	0.66	0	0
74	1.33	0	0.25	1.92	0.50	10.75	0.30	0	1.06	0.87	0	0.24	0	0	0	5.31
59	0.02	0.69	0.89	0.11	0	0.10	1.16	0	0	0.01	0.07	0	0	1.38	29.12	0
24	0	0	0	0	0	0	0.76	0	0	0	0	0	0	2.16	38.05	0
5	1.73	3.70	0	0	0	0	1.51	0	0	0	0	0	0	0	0	0
82	0.88	1.11	2.36	0.47	0.65	0.75	0.85	0.59	0.09	0.26	0.68	0.80	1.08	2.76	5.28	4.25
99	0.34	4.85	1.01	0.44	0.89	0	1.01	0	1.62	0	0.27	0	1.82	0.82	0.60	9.72
18	0.69	0.18	0.68	0	0	0	2.44	0	0	0.21	3.96	0.46	0	0.49	0.27	0
27	2.72	0	0	0	0	0	0.93	0	0	3.17	0	0	0	0	0	0

Table-XII Contd.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-XI</u>																
1	1.05	0.89	1.69	0.31	9.66	0.63	0.67	0.25	0	0.82	0.18	0.05	0	0.30	0	0
97	0.51	1.76	1.43	1.53	0.93	2.33	0.60	0.78	1.91	0.43	1.98	1.56	1.77	0.04	0.65	1.83
63	0.51	0.59	0.23	0	0	0	0.07	0	5.22	7.58	1.39	0	0	0.22	0	0
41	0.46	0	0	3.15	0	6.11	0.05	7.67	0	0	2.48	0	0	0	0	0
<u>Cluster-XII</u>																
15	1.42	1.91	1.23	0.37	0.35	1.45	0.61	0.88	0.21	0.09	0.09	4.54	0.12	0	0	0
36	1.19	0.60	0	0	0	0.88	0	0	7.17	3.10	0	5.55	0	0	0	0
85	1.33	1.65	0.60	0	0	0.36	2.14	0.79	0	0	0	0	0	1.80	0	0
21	1.98	1.47	0.42	0.28	0.46	0.29	0.77	0	0.51	12.31	0.22	0.64	0	0	0	0
3	0.84	0.18	0	0.24	0	0	3.55	1.16	0	0	0	0	0	0	0	0
38	1.14	0.53	1.17	2.40	0.47	4.09	0.13	0.18	3.79	0.19	0.38	1.74	0.82	2.10	0	0
31	1.41	0.18	1.67	0.88	0	1.81	1.75	1.83	0	0.32	0	1.28	0	0	0	0
30	1.54	1.60	0.96	1.34	0.94	1.40	0.61	0	0	0.39	1.82	1.26	0	0	0	0

Table-XII

Relative Importance of Regions in Clusters of Industries
in India, 1965

Cluster and Industries Code Number*	Region Code Numbers** and Location Quotient of Employment in the Industry															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Cluster-I</u>																
98	0.20	2.02	0	0	0	0	1.39	0	0	0	0	8.53	0	0	0.99	0
<u>Cluster-II</u>																
51	1.42	0.50	0.23	0.39	0.38	0.81	1.73	0	2.91	0.33	0.06	1.97	0.81	0.38	0	0
6	1.47	0.26	0	0.17	0.93	2.60	1.08	2.13	2.27	0.47	1.09	0.86	1.30	1.33	0.97	0
4	1.20	1.18	5.74	0	0	0	1.22	9.04	0	0	0	0	0	0	0	0
12	1.43	1.38	0.95	1.64	0.21	2.66	0.81	0.27	1.39	0	0.75	0.60	0	0.75	1.20	0
11	0.97	0.76	0	0	0	2.17	0.93	9.61	0	0	3.04	0	7.75	0	0	0
19	1.09	1.16	0	1.41	2.86	0	2.16	0	0	0	0	0	0	0	0	0
34	2.57	0	0	0.97	0	4.05	0.32	4.93	4.00	0.76	0	0	0	0	0	0
4 40	0.22	0.80	0	0.30	0	0.62	3.08	4.06	0	1.10	0	0	0	0	0	0

Region Code Nos. : as follows

- | | | | | | |
|----------------|---------------|--------------|-------------|---------------------|-----------|
| 1. Maharashtra | 2. Tamil Nadu | 3. Karnataka | 4. U.P. | 5. M.P. | 6. Punjab |
| 7. West Bengal | 8. Delhi | 9. Rajasthan | 10. Gujarat | 11. Andhra Pradesh | |
| 12. Bihar | 13. Orissa | 14. Kerala | 15. Assam | 16. Jammu & Kashmir | |

Location Quotient (greater than .75) for 1969

	Maha rash tra	TN	Karn ataka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Mechanical & Transport Equip</u>																
V 24	-	1.72	-	-	-	-	1.45	-	-	-	-	-	-	3.76	22.52	-
VII 19	2.61	.74	-	-	-	-	1.24	6.68	-	-	1.30	-	-	-	-	-
VII 14	-	1.27	.90	1.81	-	.86	2.17	-	3.67	-	-	-	.76	-	1.33	-
IX 16	.95	1.47	1.59	1.53	.83	1.02	-	2.78	-	.99	1.51	-	-	.89	.95	2.73
XII 38	-	-	-	2.77	-	4.56	-	3.20	1.63	-	-	1.99	1.44	2.35	-	-
VII 37	-	-	5.86	-	-	2.94	-	1.60	.96	-	4.41	.80	-	-	-	-
VI 42	-	1.04	.95	1.33	-	2.22	1.37	2.34	2.80	-	.79	-	-	1.25	-	-
26	1.18	2.64	-	3.50	-	-	-	-	2.76	4.18	-	-	-	-	-	-
XII 15	1.42	2.74	-	-	-	-	2.30	-	-	-	-	-	-	-	-	-
X 18	-	-	1.42	-	-	-	2.46	-	-	-	3.38	-	-	-	.80	-
V 39	-	1.26	-	-	.94	6.25	1.38	.96	-	-	3.03	1.27	-	-	-	-
IV 28	-	-	-	4.29	-	2.99	1.39	-	-	-	-	-	8.97	-	-	-
XI 41	-	1.82	-	2.85	-	6.01	.77	9.74	-	1.06	-	-	-	-	-	-
XII 30	.82	2.37	-	2.50	-	.84	.85	2.65	-	-	.74	1.27	-	-	1.21	-
IV 23	1.98	-	-	3.02	-	6.67	-	-	-	-	.86	.74	-	-	-	-

	Maha rash tra	TN	Karna taka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
XII 36	1.67	-	-	1.89	-	1.01	-	-	9.03	1.45	-	3.78	-	-	-	-
V 44	-	1.97	-	-	-	-	1.27	-	-	-	-	4.54	-	-	-	-
IX 25	.84	1.61	-	-	-	-	1.36	-	-	1.88	-	3.13	-	-	4.72	-
VII 13	-	.96	-	1.92	-	-	1.83	-	4.96	.84	-	2.93	-	-	-	-
II 34	2.76	-	-	.58	-	2.10	.65	1.70	-	.90	-	-	-	-	-	-
XII 21	1.63	1.00	.93	-	-	-	1.01	-	-	3.31	-	-	-	-	-	-
II 40	-	.93	-	1.02	-	-	3.23	1.36	-	1.01	-	-	-	-	-	-
VII 43	.96	1.13	-	-	1.13	11.54	-	-	3.93	-	-	-	-	-	-	-
VIII 17	1.54	1.62	-	-	-	7.34	-	2.40	-	-	-	-	-	-	-	-
X 27	2.44	-	-	-	-	-	-	-	-	4.03	-	-	-	-	-	-
VII 33	2.40	1.46	.94	-	1.67	-	-	-	-	2.02	-	-	-	-	-	-
VII*20																
VIII 32	1.23	-	-	1.77	-	4.14	2.00	-	-	1.36	-	-	-	-	-	-
VIII 35	2.66	1.10	-	-	2.20	3.00	.78	4.75	-	-	-	-	-	Rs	-	-
XII 31	1.46	2.51	-	.83	-	1.49	1.00	-	-	-	-	1.66	-	-	-	-
VIII 22	-	-	-	-	-	-	5.46	-	-	-	-	-	-	-	-	-
VII 29	1.64	2.34	-	-	1.18	-	.93	-	-	1.33	-	1.73	-	-	-	-

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		Maha rash tra	TN	Karna taka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Elec. equip</u>																	
	II 12	1.19	1.50	1.74	.75	-	2.92	1.05	-	2.92	-	-	-	-	-	1.18	-
	II 6	1.14	-	1.25	-	1.17	2.68	1.30	1.17	4.07	-	-	1.7	-	1.25	-	-
	II 11	.99	-	3.70	-	-	3.46	.95	1.05	-	-	2.25	-	2.23	-	-	-
	III 10	-	-	1.32	4.68	-	-	1.44	1.35	-	-	-	1.79	-	-	-	-
	VI 7	3.17	-	-	-	-	.88	-	5.95	-	-	-	-	-	-	-	-
	II 9	1.48	1.42	-	-	2.96	-	2.4	-	-	-	-	-	-	-	-	-
	XI 1	1.16	-	2.16	-	7.62	-	.77	-	-	.82	-	-	-	-	-	-
	VIII 8	-	-	18.87	-	-	-	-	-	-	-	-	-	-	-	-	-
	II 4	1.35	-	1.19	-	-	-	2.32	2.44	-	-	-	1.62	3.40	-	-	-
	VIII 2	1.71	2.68	1.55	1.39	-	-	-	1.68	-	-	-	-	-	-	-	-
	XII 3	.92	-	-	-	-	1.74	3.50	2.92	-	-	1.13	-	-	-	-	-
	X 5	1.81	1.74	-	-	-	1.47	-	-	-	-	3.08	-	-	-	-	-
	XI 97	-	2.02	.93	.88	.83	1.49	-	1.04	1.78	-	1.89	1.57	1.32	1.13	-	4.06

.....p.4/.....

	Maha rash tra	TN	Karna take	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X 59	-	-	1.05	-	-	-	1.5	-	-	-	-	-	-	1.37	30.53	-
VIII 71	-	-	1.36	-	-	-	-	-	-	-	-	-	-	21.33	-	-
VI 70	-	-	1.90	3.62	-	-	-	1.54	-	-	-	1.14	-	8.73	-	-
VI 57	-	-	-	.98	1.77	-	2.12	1.56	-	-	1.55	.76	5.14	-	.94	-
VI 60	-	-	1.39	3.36	-	-	-	-	-	-	8.55	-	-	-	-	-
VIII 67	1.13	.80	.92	2.30	1.00	1.47	-	1.75	1.05	2.33	-	-	.93	-	-	3.29
IX 65	-	-	1.36	3.72	1.02	1.53	-	6.48	2.88	-	1.09	-	1.21	-	-	3.31
VI 69	-	-	-	-	-	-	-	-	-	-	14.30	-	-	-	-	-
VI 68	1.05	-	1.5	2.05	-	-	1.13	-	-	-	2.38	4.09	-	-	-	-
X 74	1.42	-	-	2.42	-	9.27	-	-	1.07	-	-	-	-	-	-	7.71
X 62	.78	-	1.20	2.69	.96	1.55	-	2.09	1.68	1.45	1.26	-	1.41	-	-	-
VI 58	.92	.88	1.17	5.54	-	.95	-	-	-	-	1.35	2.01	-	-	-	-
VI 66	1.62	-	.91	-	.91	-	1.59	2.75	-	-	1.14	1.03	-	-	-	-
XI 63	-	1.20	6.25	-	-	-	-	-	.80	7.5	1.33	-	1.41	-	-	-
IV 61	1.48	-	1.6	1.56	1.11	-	-	.84	1.83	2.67	-	-	-	-	-	-

	Maha rash tra	TN	Karna taka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Forest based</u>																
X 82	.93	.97	2.90	-	-	2.18	2.33	-	-	-	-	-	1.23	3.33	6.58	1.81
X 99	-	4.45	1.35	.73	1.00	-	.95	-	-	-	-	-	-	1.05	1.39	16.99
VI 100	1.46	1.30	.83	1.20	-	.82	-	4.48	.79	-	-	-	1.17	.80	-	1.55
IV 87	-	-	1.69	-	1.82	2.26	1.10	-	-	.76	.86	1.08	5.39	-	-	-
<u>Non metallic min based</u>																
IX 84	1.41	-	-	-	-	-	4.72	-	-	1.22	1.85	(or 4.28) 5.43	-	2.28	6.10	-
I 98	-	1.66	-	-	-	-	1.43	-	-	-	-	9.06	-	-	-	-
VI 80	-	2.51	-	-	1.55	-	-	-	2.44	1.44	-	2.30	1.41	3.25	-	.77
VI 52	-	1.08	1.27	-	2.76	1.43	-	2.39	3.88	1.31	1.13	2.42	1.72	-	-	4.40
III 83																
III 81	.94	-	-	5.21	-	1.24	.95	-	-	.84	-	1.31	.74	-	-	-

	Maha rash tra	TN	Karna taka	UP	MP	Punjab	WB	Delhi	Raja sthan	Guja rat	AP	Bihar	Orissa	Kerala	Assam	J&K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Metal products</u>																
50	1.34	1.34	-	1.79	-	1.69	.79	-	-	-	1.05	1.28	.86	-	-	-
49	-	-	-	.75	-	3.28	2.13	-	-	1.22	-	1.01	4.26	-	-	-
VII48	1.13	.86	-	-	-	-	1.86	-	-	-	-	3.18	.82	-	-	-
VIII 45	1.71	-	-	1.32	-	2.29	1.56	1.39	-	-	-	-	-	-	-	-
VIII 46	-	-	1.10	-	4.07	-	1.60	-	-	-	-	3.80	8.21	-	-	-
47	2.08	-	1.67	-	-	-	-	-	-	.88	2.65	-	13.35	-	-	-
<u>Chem & Chem based prods</u>																
IV 93	3.43	-	.91	-	-	-	.93	-	-	-	-	-	-	2.92	-	-
VIII 91	2.03	1.00	.92	-	1.61	2.11	-	3.53	5.62	-	-	-	-	1.69	-	-
VI 95	1.09	.93	-	1.44	-	-	-	-	-	3.64	-	-	-	2.04	-	-
VI 79	-	1.18	1.48	.97	-	-	-	-	1.80	1.06	-	4.08	2.03	1.51	1.85	-
IV 90	2.40	-	-	-	-	-	1.83	-	-	-	-	-	-	-	-	-
X 96	1.60	.95	-	-	-	.74	1.35	1.45	-	.78	-	1.51	-	-	-	-
IX 94	1.80	-	2.74	-	-	-	1.46	.96	1.54	-	1.95	-	-	-	-	-

	Maha rashtra 1	TN 2	Karna taka 3	UP 4	MP 5	Punjab 6	WB 7	Delhi 8	Raja sthan 9	Guja rat 10	AP 11	Bihar 12	Orissa 13	Kerala 14	Assam 15	J&K 16
VI 88	3.12	1.31	-	-	-	-	-	1.01	1.02	-	-	-	-	-	-	-
III 92	2.22	-	-	1.37	-	-	.88	.81	-	1.56	1.04	-	-	-	-	-
<u>Textile based</u>																
IX 76	-	-	-	1.89	2.58	-	-	-	9.01	2.90	-	-	-	5.41	-	-
VI 64	-	-	-	-	2.57	5.83	-	-	-	2.89	4.38	-	-	5.40	-	-
IX 78	-	-	-	-	1.80	-	-	-	-	2.54	-	-	-	-	-	-
III 75	-	-	11.35	-	-	-	-	-	-	-	-	-	-	-	-	-
X 74	1.42	-	-	2.42	-	9.27	-	-	1.07	-	-	-	-	-	-	-
IX 77	2.02	-	-	-	1.10	1.08	1.05	-	-	1.44	-	-	-	-	-	-
VI 72	1.54	1.40	.95	.99	1.51	-	-	1.73	1.24	2.50	-	-	-	-	-	-
VIII 73	-	-	-	-	-	-	5.06	-	-	-	-	-	-	-	-	-
X 89	3.02	-	-	-	-	-	-	-	-	4.95	-	-	-	-	-	-

	Maha rashtra 1	TN 2	Karna taka 3	UP 4	MP 5	Punjab 6	WB 7	Delhi 8	Raja sthan 9	Guja rat 10	AP 11	Bihar 12	Orissa 13	Kerala 14	Assam 15	J&K 16
<u>Leather & Rubber products</u>																
XII 85	1.18	1.69	-	-	-	-	2.38	1.17	-	-	-	-	-	-	-	-
III 54	-	4.05	-	4.78	-	-	-	-	-	-	-	-	-	-	-	7.29
IV 55	-	2.80	4.18	1.10	1.95	-	-	-	-	-	-	2.85	5.99	-	-	-
III 56	-	-	-	-	-	-	-	-	-	12.00	-	-	-	-	-	-
X 86	1.29	-	-	-	-	1.88	3.09	-	-	-	-	-	-	.80	-	-

LOCATION QUOTIENTS ARRANGED
IN TECHNOLOGICAL CLUSTERS, 1969

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	Maha- rash- tra	Tamil Nadu	Karna- taka	Uttar Prade- sh	Madhya Prade- sh	Punjab	West Bengal	Delhi	Rajas- than	Guj- arat	A.P.	Bihar	Orissa	Kera- la	Assam	J.& K.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14	15.	16.
Cluster-I																
98	0.29	1.66	-	-	-	-	1.43	-	-	-	-	9.06	-	-	-	-
Cluster-II																
51	1.4	0.35	0.15	1.75	0.14	0.347	1.81	0.50	1.02	0.36	0.73	1.57	0.70	0.15	-	-
6	1.14	0.25	1.25	-	1.17	2.68	-	1.17	4.07	0.26	0.25	1.7	0.41	1.25	-	-
4	1.35	0.53	1.19	-	-	-	2.32	2.44	-	-	-	1.62	3.4	-	-	-
12	1.19	1.50	1.74	0.75	-	2.92	1.05	0.19	2.92	0.05	0.36	0.62	-	0.69	1.18	-
11	0.99	0.64	3.70	-	-	3.46	0.95	1.05	-	0.74	2.25	-	2.23	-	-	-
19	1.48	1.42	-	-	2.96	-	2.40	-	-	-	-	-	-	-	-	-
34	2.76	0.39	-	0.58	-	2.10	0.65	1.70	-	0.94	0.68	-	-	-	-	-
40	0.50	0.93	-	1.02	-	0.66	3.23	1.36	-	1.01	-	-	-	-	-	-
Cluster-III																
54	0.30	4.05	-	4.78	-	0.21	0.5	-	-	-	0.36	0.31	-	-	-	7.29
56	-	-	-	-	-	-	-	-	-	12.00	-	-	-	-	-	-

	Maha- rash- tra	Tamil Nadu	Karna- taka	Uttar Pra- desh	Madhya Prade- sh	Punjab	West Bengal	Delhi	Rajas- than	Guja- rat	A.P.	Bihar	Orissa	Kera- la	Assam	J.& K.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
75	0.07	0.24	11.35	0.20	0.56	-	-	-	-	-	0.47	-	-	-	0.39	91.37
81	0.94	0.39	0.23	5.21	0.04	1.24	0.95	-	-	0.84	0.33	1.31	0.74	0.22	-	-
92	2.22	0.46	0.21	1.37	0.15	0.31	0.88	0.81	0.28	1.56	1.04	0.18	0.17	0.23	-	-
10	0.74	0.29	1.32	4.68	-	-	1.44	1.35	-	0.34	-	1.79	-	0.64	-	-
82	0.09	0.18	0.20	0.52	0.70	2.18	2.33	2.97	0.66	2.80	0.36	0.55	1.17	0.20	-	-
<u>Cluster IV.</u>																
61	1.48	0.07	1.6	1.54	1.50	1.11	0.35	0.21	0.84	1.83	2.67	0.07	0.54	0.05	0.07	-
93	3.43	-	0.91	-	-	-	0.93	-	-	-	-	-	-	2.92	-	-
23	1.98	0.20	0.21	3.02	-	6.67	-	-	-	-	0.86	0.74	-	-	-	-
90	2.40	0.71	0.33	0.82	0.31	0.29	1.83	-	-	-	-	0.45	-	-	-	-
28	0.73	-	-	4.29	-	2.99	1.39	-	-	-	-	-	8.97	-	-	-
87	0.73	0.69	1.69	0.42	1.82	2.26	1.10	-	-	0.76	0.86	1.08	5.39	0.56	0.12	-
55.	0.31	2.80	4.18	-	-	1.95	-	-	-	-	-	-	5.99	-	2.85	-

	Maha- rash- tra	Tamil Nadu	Karna- taka	Uttar Pra- desh	Madhya Prade- sh	Punjab	West Bengal	Delhi	Rajas- than	Guja- rat	A.P.	Bihar	Ori- ssa	Kerala	Assam	J.&.K.
	1.	2.	3.	4.	5.	6.	7.	8	9	10	11	12	13	14	15	16
<u>Cluster-V.</u>																
39	0.00	1.26	-	0.66	0.94	6.25	1.38	0.96	-	0.24	3.03	1.27	-	-	-	-
44	0.61	1.97	0.38	0.40	0.17	0.56	1.27	0.65	0.39	0.62	0.08	4.54	0.34	0.42	0.44	-
<u>Cluster-VII</u>																
60	0.34	0.18	1.39	3.36	0.14	0.21	-	-	0.64	0.21	8.55	0.72	0.28	-	-	-
58	0.92	0.88	1.17	5.50	0.26	0.95	0.02	-	0.42	0.19	1.35	2.01	0.39	0.20	0.07	-
79	0.72	1.18	1.48	0.97	0.66	0.63	0.01	-	1.80	1.06	0.65	4.08	2.03	1.51	1.85	-
57	0.29	0.59	0.36	0.98	1.77	4.72	2.12	1.56	0.21	0.11	1.55	0.76	5.14	0.13	0.94	-
95	1.09	0.93	0.18	1.44	0.16	0.59	0.49	0.36	0.58	3.64	0.28	0.48	0.51	2.04	-	-
66	1.62	0.45	0.91	0.43	0.91	0.43	1.59	2.75	-	0.26	1.14	1.03	0.25	0.48	0.25	-
72	1.54	1.40	0.95	0.99	1.51	0.59	0.22	1.79	1.24	2.50	0.38	0.02	0.36	0.44	0.11	-
64	-	4.13	-	-	2.57	5.83	-	-	-	2.89	4.38	-	-	5.04	-	-
80	0.74	0.68	2.51	0.14	1.55	0.26	0.49	0.64	2.44	1.44	0.31	2.3	1.41	3.25	0.19	0.79
50	1.34	1.34	0.72	1.79	0.09	1.69	0.79	0.28	0.46	0.47	1.05	1.28	0.86	0.35	0.18	-
52	0.52	1.08	1.27	0.34	2.76	1.43	0.19	2.39	3.88	1.31	1.13	2.42	1.72	0.32	0.39	4.4
49	0.29	0.67	-	0.75	0.44	3.28	2.19	-	-	1.22	0.59	1.01	4.26	-	-	-

	Maha- rash- tra 1.	Tamil Nadu 2.	Karna- taka 3	Uttar- Pra- des 4	Madhya Pra- des 5	Punjab 6	West Bengal 7	Delhi 8	Rajas- than 9	Guja- rat 10	A.P. 11	Bihar 12	Ori- ssa 13	Kerala 14	Assam 15	West Bengal J.&K. 16
100	1.46	1.30	0.83	1.20	0.47	0.82	0.71	4.40	0.79	0.48	0.72	0.46	1.17	0.80	0.73	1.55
69	0.07	0.12	0.40	0.03	0.68	-	0.06	0.03	-	0.45	14.30	-	0.17	-	-	-
68	1.05	-	1.5	2.05	-	-	1.13	-	-	-	2.38	4.09	-	-	-	-
70	0.56	0.16	1.90	3.62	-	-	0.29	1.54	-	-	0.59	1.14	-	8.73	-	-
88	3.12	1.31	0.38	0.27	0.19	0.66	0.65	1.01	1.02	0.25	0.03	0.05	-	0.08	-	-
42	0.70	1.04	0.95	1.33	-	2.22	1.37	2.34	2.80	0.64	0.79	0.62	-	1.25	-	-
7	3.17	0.29	-	0.27	-	0.88	0.67	5.95	0.64	0.55	0.16	-	-	0.45	-	-
<u>Cluster VII.</u>																
13	0.50	0.96	-	1.92	-	-	1.83	-	4.96	0.84	-	2.93	-	-	-	-
20	2.33	2.36	0.60	0.37	0.61	2.07	0.06	0.51	-	1.10	0.39	-	-	-	-	-
43	0.56	1.13	-	0.27	1.13	11.54	0.46	-	3.93	0.63	0.96	-	-	-	-	-
14	0.54	1.27	0.90	1.81	0.25	0.86	2.17	0.24	3.67	0.16	0.11	0.27	0.76	-	1.3	-
48	1.13	0.86	0.42	0.13	0.65	0.36	1.87	0.40	0.27	0.66	0.28	3.16	0.82	-	-	-
37	0.68	0.10	5.86	0.20	0.27	2.94	0.15	1.60	0.96	0.45	4.41	0.80	-	0.58	-	-
29	1.64	2.34	-	-	1.18	-	0.93	-	-	1.33	-	1.73	-	-	-	-
33	2.4	1.46	0.94	0.21	1.67	0.27	0.24	0.63	-	2.02	0.24	-	-	-	-	-
19	2.6	0.74	-	-	-	-	1.24	6.7	-	-	1.30	-	-	-	-	-

	Maha- rash- tra	Tamil- Nadu	Karna- taka	Uttar Pra- desh	Madhya Pra- desh	Punjab	West Bengal	Delhi	Rajas- than	Guja- rat	A.P.	Bihar	Ori- ssa	Kerala	Assam	J.&.K.
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10	11	12	13	14	145	16
Cluster-VIII																
73	-	-	-	0.18	0.12	-	5.07	-	-	-	0.63	0.16	-	-	0.34	-
32	-	-	-	-	-	-	5.46	-	-	-	-	-	-	-	-	-
91	2.03	1.00	-	-	1.61	2.11	0.65	3.5	5.62	-	-	-	-	1.69	-	-
67	1.13	0.76	0.92	2.27	1.00	1.47	0.34	1.75	1.05	2.33	0.36	0.44	0.93	0.32	-	3.29
46	0.17	0.18	1.10	0.34	4.07	0.33	1.60	0.35	0.21	0.06	0.04	3.79	8.21	0.06	0.05	-
47	2.08	-	1.67	-	-	-	-	-	-	.088	2.65	-	13.35	-	-	-
45	1.71	0.67	0.45	1.32	0.10	2.29	1.57	1.39	0.10	0.36	0.15	0.45	-	0.20	0.39	0.24
2	1.71	2.68	1.52	1.38	-	0.61	0.58	1.68	-	0.55	-	-	-	-	-	-
26	0.61	1.18	2.64	-	3.50	-	-	-	-	2.76	4.18	-	-	-	-	-
17	1.54	1.62	0.32	0.68	0.60	7.34	0.27	2.4	-	0.34	0.2	0.05	-	0.62	0.41	-
32	1.12	-	-	1.77	-	4.14	2.00	-	-	1.36	-	-	-	-	-	-
71	0.05	0.43	1.36	-	-	-	-	-	-	-	-	-	-	21.33	-	-
35	2.66	1.10	-	-	2.21	3.00	0.78	4.74	-	-	-	-	-	-	-	-
8	0.14	0.53	18.87	-	-	-	0.22	-	-	-	-	-	-	-	-	-

	Maha- rash- tra	Tamil Nadu	Karna- taka	Uttar Pra- desh	Madhya Pra- desh	Punjab	West Bengal	Delhi	Rajas- than	Guja- rat	A.P.	Bihar	Orissa-	Kera- la	Assam	J.&K.
	1.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cluster-Ix																
76	0.64	-	-	1.89	2.58	-	-	-	9.01	2.90	-	-	-	5.41	-	-
77	2.02	0.69	0.21	0.68	1.10	1.08	1.05	0.44	0.69	1.44	0.17	0.29	-	0.42	-	3.38
65	0.58	0.60	1.36	3.69	1.02	1.53	0.58	6.5	2.88	0.11	1.07	0.28	1.21	0.20	-	3.31
94	1.80	0.68	2.74	-	0.44	-	1.46	0.96	1.54	-	1.95	-	-	-	-	-
78	1.96	0.44	0.69	0.40	1.80	1.75	0.62	0.59	0.41	2.54	0.16	0.16	0.05	0.63	0.11	1.51
84	1.41	-	-	-	-	-	-	4.77	-	1.22	1.85	4.28	-	2.28	6.03	-
25	0.84	1.61	-	-	-	-	1.36	-	-	1.88	-	3.13	-	-	4.66	-
16	0.95	51.47	41.59	41.53	5.83	41.02	4.42	42.79	5.62	6.99	41.51	2.27	2.65	4.89	3.94	42.73
61	0.78	0.64	1.2	1.64	0.96	1.44	0.73	2.11	1.68							
62	0.78	0.65	1.2	2.65	0.96	1.55	0.74	2.11	1.68	1.45	1.26	0.70	-	-	-	-
96	1.60	0.95	0.54	0.60	0.31	0.74	1.35	1.46	0.27	0.78	0.60	1.51	-	0.39	-	-
89	3.02	-	-	-	-	-	-	-	-	4.95	-	-	-	-	-	-
86	1.29	0.33	0.10	-	0.08	1.88	3.10	0.43	-	0.27	0.07	-	-	0.80	-	-
74	1.42	-	0.56	2.39	0.26	9.27	0.37	0.58	1.07	0.02	-	0.38	-	-	-	7.7
59	0.02	0.60	1.05	0.15	-	-	1.5	-	-	0.06	0.08	-	-	1.37	30.2	-
24	-	1.72	-	-	-	-	1.45	-	-	-	-	-	-	3.76	22.32	-

	Maha- rash- tra 1	Tamil Nadu 2	Karna- taka 3	Uttar Pra- desh 4	Madhya Pra- desh 5	Punjab 6	West Bengal 7	Delhi 8	Rajas- than 9	Guja- rat 10	A.P. 11	Bihar 12	Orissa 13	Kerala 14	Assam 15	J.&.K. 16
5	1.81	1.74	-	-	-	-	1.47	-	-	-	3.08	-	-	-	-	-
82	0.93	0.97	2.90	0.19	0.34	1.16	0.68	0.64	0.36	0.31	0.49	0.43	1.23	3.33	6.58	1.81
99	0.25	4.46	1.35	0.73	1.00	-	0.96	-	-	-	-	-	-	1.05	1.39	16.99
18	0.69	0.51	1.42	-	-	-	2.46	-	-	0.20	3.38	0.47	-	0.69	0.80	-
27	2.44	0.25	-	-	0.54	0.69	0.62	-	-	4.03	-	-	-	-	-	-
<u>Cluster XI</u>																
1	1.76	0.49	2.17	48.43	7.62	0.56	0.77	0.23	0.19	0.83	0.3	0.13	0.17	0.5	-	-
97	0.56	2.02	0.93	0.87	0.83	1.49	0.46	1.05	1.78	0.45	1.89	1.57	1.32	1.13	0.63	4.06
63	0.34	1.20	6.25	-	-	-	0.13	-	0.80	7.05	1.33	-	1.41	0.24	-	-
41	-	1.82	-	2.85	-	6.01	0.77	9.74	-	1.06	-	-	-	-	-	-
<u>Cluster XII</u>																
15	1.42	2.7	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-
36	1.67	-	-	1.89	-	1.01	-	-	9.03	1.45	-	3.78	-	-	-	-
85	1.18	1.69	0.29	0.39	0.49	0.35	2.38	1.17	-	-	0.23	0.39	-	0.56	-	-

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	Maha- rash- tra	Tamil Nadu	Karna- taka	Uttar Pra- desh	Madhya Prad- esh	Punjab	West Bengal	Delhi	Rajas- than		
	1	2	3	4	5	6	7	8	9	10	11
85											
21	1.63	1.00	0.93	0.32	0.43	0.13	1.01	-	-	3.31	0.
3	0.92	-	-	-	-	1.74	3.50	2.92	-	-	1.3
38	0.55	0.25	0.50	2.77	0.47	4.56	0.38	3.20	1.63	0.53	0.42
31	1.46	2.51	-	0.83	-	1.49	1.00	-	-	0.64	-
29	0.81	1.27	-	1.46	-	0.83	0.84	1.64	-	0.89	0.73
30	0.82	2.37	-	2.50	-	0.84	0.85	2.65	-	0.49	0.74

industries. These do not, however, reflect any real inter-connection between the groups of industries characteristic of real industrial development. The other industries are bricks, ceramics and cement (cluster VI), printing and publishing, electricity, repair workshops and leather manufactures.

The equipment industry is almost non-existent.

II.(G) COMPARISON OF THE INDUSTRIAL BASE OF THE REGIONS OF INDIA : 1960, 1965 and 1969

The tables of location quotient arranged with respect to the technological clusters are directly comparable in the sense that an industry-by-industry comparison can be made for each region contained in the individual technological clusters over the different years.¹

Instead of presenting a detailed account of the changes over the years, only the broad contours of changes that have occurred in the industrial base of the regions of India will be elucidated.

With the exception of chemical and petro-chemical projects and fertilizer plants, the period after 1965 is not generally characterised with the setting up of

1. Tables for 1960, 1965 are placed in the appendix text.

new plants and industries.¹ Most investements during this period were made by way of expanding existing capacity or measures to ensure better capacity utilization.

According to Dr. Alagh, Maharashtra, Tamil Nadu and Karnataka were, in 1965, the three most industrially diversified regions of India.

The two regions that followed in this scale of ranking were Uttar Pradesh and Madhya Pradesh. These states largely specialised in the resource-based industries. Uttar Pradesh in particular specialised in the agro-based industries while the industrial composition of Madhya Pradesh was dominated by the mineral and forest-based industries. Both states had some equipment industries mainly in the public sector.

The three states next in terms of the specialisation coefficient ranking were Punjab, West Bengal and Delhi. West Bengal and Delhi had a diversified engineering industry. The Delhi engineering industry evinced a concentration in the production of consumer goods, while Bengal possessed a large capital goods sector in addition to the capacity to produce a

1. Shirokov G.K. "Industrialisation of India"
Progress Publishers, Moscow 1973 pp. 188

host of consumer goods. Punjab, while possessing a diversified engineering industry also had a large agro-based sector. Delhi and West Bengal also enjoyed a fairly high incidence of chemical-based industries.

Following these in the hierarchy of diversification were Rajasthan, Gujarat, and Andhra Pradesh.

The industrial diversification of these states was mainly around the important resource-based industries. Secondary industries were comparatively underdeveloped in these regions.

Bihar and Orissa, though possessed of large public sector projects in the basic industries sector, such as iron and steel, did not show any substantial signs of industrial diversification around these projects.

The remaining three regions, namely Kerala, Assam, and Jammu and Kashmir had narrow industrial bases centred around the primary production of goods based on the extent of their natural endowments. Although being narrowly specialised, Kerala had a large manufacturing industry in the non-factory sector, a fact missed out in our study.

The period 1960-65 is characterised by the rapid growth of the capital goods industry. Between 1961-65 machinery manufacture grew at the rate of 18.2 per cent, metal-based industries at the rate of 12.2 per cent and electricity, gas and steam at the rate of 13.2 per cent.

Annual Compound rates of growth in percentages

<u>Category of industries</u>	<u>1961-65</u>	<u>1965-70</u>
Agro-based	4.4%	1.7 %
Minerals-based	7.0	4.6
Metals-based	12.2	2.3
Chemicals-based	7.9	9.0
Machinery manufacturing	18.2	.3
Electricity, gas and Steam	13.2	11.9
All Industry	8.9	3.3

(Table taken from Raj K.N. 1976 (see reference))

The import of finished products and some primary and inter-mediate materials was gradually reduced, and this provided favourable opportunities for domestic expansion and the diversification of industries. In general, this sub-period was characterised by a rapid rate of industrial growth, partly on account of conscious government policy towards self-reliance and on account of the ~~development~~ favourable opportunities for the development of capital goods and basic intermediaries of production.

According to the Engineering Association of India, in 1965 the country was producing complete sets of equipment for as many as 33 industries.¹

While the range of products indigenously produced had expanded considerably, the economy was still on shaky foundations. The rapid increase in industrial growth rates experienced a dramatic downturn around the mid-60s. The causes for this sudden slow-down are complex and constitute the focus of considerable debate among economists.²

Most generally and with the benefit of hindsight, it is clear that the downturn was part of a long-term trend towards stagnation in the economy. The consecutive bad harvests, and the war with Pakistan although contributory to the problems of the economy, were not central to the tendency towards stagnation.

From the point of view of the level of technology, the basic characteristics accounting for the economy's slow growth rate may be located in the highly oligopolistic structure of the industrial sector, the slow growth of agricultural output and related to this, the slow growth of the market.

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1. Engineering Association of India, Statistical hand book 1967, Calcutta 1968
 2. Nayyar Deepak 1978 "Industrial Development in India. Some reflections on Growth and Stagnation." EPW, Special Number 1978

An added dimension to the problem of limited demand is the fact that effective demand in our economy stems mainly from a small minority of the population. For the year 1964-65, using National Sample Survey Data, it has been estimated that in the rural sector, the richest 10 per cent of the population was responsible for 32.2 per cent of the total consumption of industrial goods, whereas the poorest 50 per cent accounted for only 22 per cent of the total consumption. Inequalities were even more pronounced in the urban sector, where the top decile of the population purchased 39.3 per cent of the industrial goods produced and the bottom five deciles absorbed just 19.9 per cent of the total.¹

The progressive shift in income towards the affluent minority is one reason for the limited demand for capital goods and basic intermediaries. A more broad based demand for mass consumption goods is necessary for the full utilization of capacity and the diversification of the industrial base of the economy.

This is not to say, however, that the growth rates attained during this period made scant difference to the economy's potential for modernisation. But the point to be made however, is that the overall conditions extant in the economy in terms of competition and the rate of accumulation and technical change were such that a

1. Sau, R. (1974) "Some aspects of Inter Sectoral Resource Flows" EPW Special Number, August pp. 1277 - 1284

situation of large scale production with its concomitant specialisation and technological interdependence did not fructify.

The period between 1965-69 brings out the above characteristics of the economy more explicitly. Due to the bad monsoons of 1965-66-67, there was a sharp decline in food production and other essential raw materials necessary to certain major spheres of industrial production. Shortages of agricultural commodities led to rapid acceleration in the price spiral as limited (falling) supplies adjusted to the existing demand conditions. One of the obverse of the coin, the inflationary situation resulted in a fall in the real incomes of a bulk of the population resulting in a further depression of total consumer demand. Demand for related inputs required in the production of these goods also registered a fall. The recession caused by a lack of effective demand was aggravated by heavy cut-backs in public investments, and was again further aggravated as the market created through import restrictions was rapidly satiated.¹

The cutbacks in public investment were partly due to the government's desire to curb inflation through demand management. The effect, however, of this cutback

1. Shetty S.L. "Structural Retrogression in Indian Economy since Mid-Sixties." EPW Annual Number 1978 pp 185

was the inadvertent creation of a severe disproportionality crisis in 1966-67, when the output of the capital goods and basic industries sector was far in excess of the demand for these goods. The result was that production and investments were curtailed and considerable under-utilised capacity developed in these sectors. Fresh investments were discouraged, resulting in the slow growth of the economy.

The bumper harvest of 1968 caused a slight upturn in the general climate of industrial investments, but in the main, construction of new plants was held back and the volume of output was expanded primarily through more efficient capacity utilisation.

Thus, during this period, the character of investment changed from the setting up of new plants to the completion of projects and expansion of existing plants. New construction was undertaken in only a limited number of industries, the biggest of these being the petrochemical and mineral fertilizers industries and oil refining.¹

The fillip to investments in these sectors was facilitated by the prevailing energy situation in the international market and domestic demand projections for these industries in the national economy.

1. Shirokov, G.K. op cit, pp. 188. The discussion on the downturn after the mid-60s is based to a large extent on Shirokov's work.

The process of diversification then clearly suffered a setback on account of economic recession. With large amounts of underutilised capacity, there was a growing tendency for producers to manufacture different items with the same machinery.

In addition to the smallness of the market, a constraint which discouraged specialisation, the prevailing system of indirect taxes also contributed towards the setting up of integrated plants. In order to circumvent various taxes on the purchase of intermediate goods, private investors were forced to eschew economies of large-scale production and the specialised production of various components was discouraged.

Thus, instead of specialisation, a reverse tendency was introduced in the economy. Besides entailing higher costs of production, this process tended to discourage attempts at technical change. The production of new articles was seen primarily as a side-line occupation, a stop-gap measure to make the best use of fixed capital investments.¹

In effect then, the slowing down in the economy implied a slowing down of the process of technical change and division of labour within the economy and also within individual units of production. Thus, in sum, the economy showed considerable regression as far as the process of diversification and all-round technological progress was concerned.

1. Shirokov, G.K. op cit, pp,188.

In terms of the regional economies, irrespective of the type of measure used for indicating the level of economic progress or backwardness such as the composite index of commodity production activity or indices of per capita consumer expenditure - there was a marked tendency towards the widening of inter-state inequalities, particularly since the mid-sixties.¹ The slowing down of public sector investments and expenditure affected the development of the backward states more severely.

II.(H) CONCLUSION

Coming back to our discussion of comparing diversification levels in 1960, 1965 and 1969, there are reasons to believe that on the whole, industrial growth rates of the states were not significant notwithstanding periods of rapid growth and diversification of commodities indigenously produced.

It is only a matter for conjecture as to had these rates of growth persisted and had the process of competition and technical change been liberated from the fetters of a highly oligopolistic market structure, whether specialization, technological interdependence and diversification would have taken place.

To conclude, the picture of the Indian economy in 1969 in terms of the industrial base of the regions was as follows:

1. Shetty S.L. "op cit" pp. 204

Maharashtra, Tamil Nadu and Karnataka had diversified industrial economies given the context of our national economy. Uttar Pradesh and Madhya Pradesh had industrial bases that were diversified in the agro-based industries. Madhya Pradesh had substantial public sector investments in the iron and steel, electrical equipment, and fertilizer industries, but there was little indication of diversification around these projects. Without substantial public sector projects, Punjab evinced both diversified agro-based and equipment industries.

West Bengal and Delhi has a diversified industrial mix which included the equipment and metal products blocks and chemical industries. Bengal also showed progress in the plantation based industries.

Industries in Rajasthan and Gujarat were primarily resource based and showed only a limited amount of diversification around their major industries created basically on account of their natural endowments' position.

In Orissa, public sector investments in ferrous metals, related metal products (steel structurals castings and forgings and pipes and tubes) and fertilizers are clearly reflected in the industrial base. However, there is little evidence of diversification in terms of the emergence of the equipment manufacturing group of industries, or consumer goods manufacturing industries.

In Bihar the situation is complicated by the fact that public sector investments in the heavy machinery, railway equipment, fertilizers and petroleum products sector are supplemented by private sector plants in the iron and steel, ferro alloys and transport equipment sectors. Basically, however, there is little diversification around these projects.

Andhra Pradesh and Kerala share the same problems as do these other states in terms of a lack of diversification. However, there has been considerable diversification in the agro-based group of industries in these states. Kerala in general has a number of resource-based industries in the agro-based, textile-based and forest based blocks.

Assam and Jammu and Kashmir possess almost entirely forest and plantation-based industries. Assam also has petroleum as a natural resource, and there was a limited amount of development around this sector.

Note: Figures in bracket indicate rank according to the adjoining column.

Table: 4.1

Relative Proportions of the Workers in
the Factory Sector and the Non-factory
Sector in Different States: 1971

Rank according to Col.(1)	Number of workers as per cent of total labour force of the States		
	Workers in the factory sector	Workers in the non- factory sector	Workers in the manufac- turing activity as a whole
	1	2	3
<u>Major States (i.e. States with population of one crore and above)</u>			
1. West Bengal	6.8	7.3(7)	14.1(2)
2. Maharashtra	5.7	7.4(6)	13.1(4)
3. Gujarat	5.3	6.7(8)	12.0(5)
4. Haryana	3.5	6.5(9)	10.0(8)
5. Kerala	3.4	12.4(1)	15.8(1)
6. Tamil Nadu	3.1	10.2(2)	13.3(3)
7. Punjab	3.0	8.3(3)	11.3(6)
8. Karnataka	2.8	7.4(5)	10.2(7)
9. Assam	1.8	2.2(15)	5.0(15)
10. Bihar	1.6	3.5(14)	5.1(14)
11. Andhra Pradesh	1.5	7.5(4)	9.0(9)
12. Madhya Pradesh	1.5	5.1(12)	6.6(11)
13. Uttar Pradesh	1.5	5.8(10)	7.3(10)
14. Rajasthan	1.1	4.9(13)	5.9(13)
<u>Other than Major States</u>			
16. Jammu & Kashmir	6.8	6.0(17)	6.8(17)
17. Himachal Pradesh	0.9	3.0(18)	3.9(18)
18. Manipur	0.5	10.5(16)	11.0(16)
19. Tripura	0.5	3.0(19)	3.5(19)
20. Meghalaya	...	2.5(20)	2.5(20)
21. Nagaland	...	1.1(21)	1.1(21)
22. Sikkim

CHAPTER IIIINDUSTRIAL BASE ANALYSIS FOR THE SMALL SCALE SECTORINTRODUCTION AND OVERVIEW

The combining of large-scale factory data with that of the small-scale sector is known to change the industrial profile of a region at the aggregative level. In order to correct the bias inherent in using only large-scale industrial data, an analysis of the essentially modern small-scale sector was conducted.

The basis for looking into the modern small scale sector lies in that it is an inalienable part of the reproduction of industrial capital.¹ That is to say, the sector both consumes products and tools manufactured by the large-scale sector, and also supplies the large-scale sector with various inputs necessary for production. In the case of the traditional small-scale sector, such as village industries, domestic industries etc. the inputs used in their production process are unprocessed raw materials and the tools and instruments used are traditional being independent, therefore, of modern large-scale industry. Thus, in the context of looking at the extent of technological linkages, the non-modernised sector is not relevant for the purpose of this limited study of region-wise industrial diversification levels.*

1. Shirokov G.K., 'op cit' chapter pp. 265

* See appendix on scope of data coverage.

Besides being an integral part of the reproduction of industrial capital, the small-scale sector occupies a pre-eminent position in the economy of developing countries. At one level, it is the most immediate competitor to pre-capitalist forms of production and exchange. It is, as it were, the vanguard of nascent capitalism emerging from the womb of feudalism. In this vanguard role, the modern small-scale sector, breaks down the self-sufficiency of the peasant proprietor and village artisan and thereby extends the home market furthering the division of labour in society.¹ Both these processes are pre-conditions to the introduction and application of scientific principles to the production process. Apart from being the culmination of the growth of pre-capitalist forms of production, the small-scale sector is also the product of large-scale industrial capital. In this latter role, the small-scale sector manufactures components and ancillary products for the large-scale industrial sector. The specialisation of production characteristic of this link-up between the small-scale sector and the large-scale sector contributes towards increasing the productivity of the economy as a whole

1. Marx K. 'op cit' Part VIII. The so called Primitive Accumulation/ Lenin, also makes this point in his "The Development of Capitalism in Russia."

Specifically in the context of our economy, the modern small-scale sector has come to play an important role in production and exchange on account of rises in incomes leading to the demand for goods that can only be produced through modern technology.¹ Goods such as bicycles sewing machines and radios and torches which possess high income elasticities, are providing markets for both small and large-scale producers. The fact that these markets for consumer durables in the urban sector and specially in the agricultural sector are still relatively small and fragmented means that large-scale producers are not in a position to benefit from economies of scale. This factor of small markets and the advantage of small producers in hiring cheap labour over the large-scale sector gives considerable scope to the modern small sector. There is also the importance of government protection to the small-scale sector.

In addition to these external conditions conducive to its growth, the small scale sector provides an outlet for a relatively large number of property owners to become entrepreneurs themselves. Situated in markets characterized by "free" competition, entrepreneurs have, by necessity, to be dynamic and innovative. All this makes the small-scale sector a potentially powerful lever of furthering economic growth and industrialization.

1. Dhar, P.N. 'Some observations Small Scale Enterprises Development.' Institute of Economic Growth, University of Delhi, monograph pp 9

While the small-scale sector seems to have grown more rapidly than the large-scale sector,¹ its growth is fettered and constrained by various counteracting tendencies. Amongst these is the competition from large producers who enjoy cost reductions due to economies of scale and their access to intrinsically superior technology. Again, their superior market powers and contact with the administration also puts the small-scale sector at a disadvantage. Even when reasons of efficiency do not apply, big firms are inclined towards setting up capital intensive integrated plants. Uncertainties surrounding markets for inputs and the disposal of output, together with problems of ensuring quality control dissuade entrepreneurs from sub-contracting.² The experience of having markets dry up induces them to strive for versatility in production, so that even in situations of shortages in demand, different goods can be produced with the same machinery. Another depressent factor is related to the cascading effect of fiscal levies on intermediary goods. All in all slowly growing markets and fluctuations in output have discouraged specialisation in the economy and have retarded the growth of ^{the} small-scale sector.

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1. "All-India Report on the Census of Small Scale Industries " Vol. I, Ministry of Industry and Civil Supplies
 2. Dhar P.N. 'op cit' pp 17

The other problems facing the small-scale sector is that of timely and adequate sources of credit with which to expand business. In the absence of alternative sources of credit, small-scale producers have to depend on the unorganised credit market which is generally more uneconomical than organised credit. The intervention of merchant capital in the activities of commodity producers leads to their appropriation of a large share of the surplus, thus blunting the stimulus to growth through reduced profit rates and reduced revenues available for further capitalisation.

Keeping in mind these general features, characteristic of the small-scale sector, we may go on to examine the situation of this sector in each region. The basic tool analysts have used were location quotient computations. The purpose of this method is to isolate the pattern that emerges in terms of clusters of high location quotient industries. The basic hypothesis behind this is that sets of high location quotient industries are indicative of technological interdependence and hence specialization, this constituting the hallmark of increasing social productivity for any economic system.

LOCATION QUOTIENTS FOR SMALL-SCALE INDUSTRIES.

	Food Products	Beverages	Hosiery and readymade garments	Wood products	Paper products and printing	Leather products	Rubber & Plastic Products	Chemicals	Mineral Products	Basic Metal & Alloy Industries	Metal Products.	Machinery and Parts	Electrical Machinery apparatus	Transport and parts equipment	Miscellaneous mfg. industries.	Repair and Service.
Andhra Pradesh	1.70	4.13	.15	1.05	.76	1.22	.67	.92	1.96	.63	1.19	.62	1.41	.77	1.10	1.95
Assam	1.45	.71	.51	5.53	.54	.05	.99	.55	1.11	1.19	1.21	.45	.20	.18	.38	3.55
Bihar	.76	.39	.24	2.03	.98	.16	.51	.92	3.37	1.33	1.04	.67	.85	.48	.18	2.20
Delhi	.24	.05	1.40	.24	1.31	.38	1.55	.99	.38	.61	.89	.83	2.43	1.82	1.65	.58
Gujarat	.42	.44	.80	1.10	.56	.24	.95	1.33	1.41	1.31	.82	2.10	.57	.91	.78	.83
Jammu and Kashmir	1.16	.96	.32	3.08	.32	.19	.33	.97	1.97	.55	1.78	.37	.72	.32	1.66	1.42
Kerala	7.23	1.70	.40	2.89	.78	.08	1.29	.54	.77	.22	.63	.29	.29	.32	.22	.93
Madhya Pradesh	.98	3.71	.43	3.68	.97	.24	.65	1.06	1.94	.72	1.07	.73	.61	.65	.80	1.06
Tamil Nadu	1.13	.48	1.87	.42	1.15	5.00	.78	.99	.64	.69	.59	.55	.99	.65	1.30	.76

.../-

	Food products	Beverages	Hosiery and readymade garments	Wood products	Paper products and printing	Leather products	Rubber & Plastic products	Chemicals	Mineral products	Basic Metal & Alloy Industries	Metal Products	Machinery and Parts.	Electrical Machinery apparatus	Transport and parts equipment	Miscellaneous mfg. industries.	Repair and Service.
Maharashtra	0.55	0.41	0.78	0.77	1.77	0.26	1.39	1.37	0.64	0.55	1.05	1.08	1.22	1.02	1.30	0.74
Karnataka	2.55	4.11	0.38	1.37	0.96	0.26	1.30	1.23	1.42	0.46	0.75	0.82	1.26	0.61	0.63	2.63
Orissa	1.79	--	0.25	2.68	1.22	0.29	0.88	1.04	1.22	0.83	1.14	0.41	0.83	0.62	0.44	3.58
Punjab	0.21	1.35	1.89	0.60	0.25	0.27	0.77	0.59	0.41	1.80	1.10	1.42	0.66	1.98	0.90	0.41
Rajasthan	0.55	0.75	0.94	0.58	0.60	0.65	0.72	1.39	2.35	1.13	1.14	0.61	0.89	0.62	0.63	1.52
Uttar Pradesh	0.53	0.93	0.43	0.49	0.71	1.35	0.70	0.85	1.73	1.29	1.37	1.07	0.92	0.70	1.09	1.06
West Bengal	0.63	0.58	0.85	0.84	1.07	0.49	1.00	0.83	0.73	2.07	1.12	0.86	1.06	0.94	0.80	1.09

III.(A) STATES' ANALYSESMAHARASHTRA

Maharashtra, which was found on the basis of our earlier studies to be one of the most technologically interdependent of the regional economies in India possesses, after Tamil Nadu, the largest number of small scale units in the country. This sector makes the largest contribution to total employment and gross output in the state. The percentage of gross output as a proportion of total output stands at 20.34 per cent. As regards the share of employment in small scale industries in total employment in manufacturing industries, Maharashtra's index for the above stands at 10 per cent which is the All-India average.

In terms of our location quotient analysis, industries with a location quotient greater than .75 included paper production and printing, rubber and plastic products, chemicals, metal products, transport equipment and parts, miscellaneous manufacturing, wood products and hosiery and ready-made garments.

In general, it appears that the growth of the modern small-scale sector in Maharashtra reflected in substantial measure the pattern of diversification that emerged from our earlier study of ASI census data.

The data we are using here is not disaggregated as in the case of the large-scale sector. As a result, we are not in a position to comment on the interlinkages within the broad industrial groups. One feature of Maharashtra's economy which becomes apparent in a study of the large-scale sector and also appears here is the relative deficiency of 'resource based' industries, namely the primarily processing of agricultural raw materials and minerals. In terms of the classification used here, it is the food products sector, beverages, mineral products and leather products that are under-represented in the industrial profile of Maharashtra.

TAMIL NADU

In the relatively diversified state of Tamil Nadu we find a relatively extensive small-scale sector. Tamil Nadu has the largest number of small scale units in the country, accounting for 11.46 per cent of all small-scale units in the country. In terms of gross output value, its contribution was the second largest after Maharashtra, accounting for 12.36% of the total value of gross output for the small scale sector. As a porportion of the total employment generated in the manufacturing sector, the contribution of the small sector was close to the all-India average of 10 per cent.

In terms of the relative concentration of industrial groups, the food products, hosiery and ready-made garments, paper products and printing, leather products and miscellaneous manufacturing industries were prominent. The other industries with a high location quotient included rubber and plastic products, chemicals, electrical machinery apparatus and repair and services.

In Tamil Nadu, the small scale sector has a preponderance of 'resource based' industries. This may be partly attributable to the fact that Tamil Nadu, has enjoyed moderate rates of growth of approximately 2.5 to 3 per annum without undergoing serious fluctuations in agricultural growth.¹ Stable rates of agricultural growth have implied rising incomes and the consequent emergence of a market for products that the small-scale can well supply despite competition from the large scale sector. The factor of stability is important for the small-scale sector given its vulnerable state of finances.

In addition to the presence of 'resource based' industries, there is a concentration of consumer products which are not agro-based in the sense of being dependent on agricultural inputs. These include products which are chemical-based such as synthetic textiles,

1. Raj, K.N. (op cit)

plastic goods, or products such as electrical appliances. The presence of these industries may be explained in terms of the relatively buoyant demand for consumer goods coming from the steadily prospering agricultural community and the rising urban middle class based largely around the bigger cities in Tamil Nadu.

KARNATAKA

In Karnataka, the share of employment generated by small scale industries in total employment in manufacturing industries was below the national average and lay in the range of 5-8 per cent. Karnataka's small-scale industries accounted for 4.03 per cent of the national total for employment and 3.06 per cent of national gross output value. In general, it appears that the modern small-scale sector is not extensively developed in Karnataka.

As in the case of its large-scale sector, the pattern of distribution of small-sector units was oriented towards both the 'resource-based' and 'secondary' industries. In Karnataka, there exists a relatively high concentration of food products, beverages, wood products, paper products and printing units on the one hand and also in the 'secondary' industries such as rubber and plastic products, chemicals, electrical machinery, metal products and machinery and parts sectors.

It seems that the orientation towards 'agro-based products has to do with the fact that Karnataka's agricultural sector enjoys high rates of growth of the order of 5 to 6 per cent per annum with only moderate year to year fluctuations. The small-scale group is not as extensive as one would expect in view of Karnataka's superior record of agricultural growth perhaps due to the existence of large-scale units. These units because of their superior market powers and lower production costs through economies of scale, are able to capture the lion's share of the market, at the expense of the small-scale sector.

The presence of a well diversified 'secondary industries' group is a reflection of the demand for consumer goods such as electrical appliances, synthetic textiles and rubber and plastic products. This demand is generated by the growth of income in the upper and middle strata of society and to a lesser extent by the poorer sections of the population in the manner of the oft-quoted Dusenberry effect by those of the middle and upper classes. Along with the demand for consumer goods, there arises also the concomitant demand for intermediate products such as components, accessories and replacement parts. The existence of extensive public sector investments and large-scale investments by the

private sector, is also a source of demand for products produced in the small-scale sector.

UTTAR PRADESH

In Uttar Pradesh, while the large-scale sector does not evince signs of any real diversification, there do exist a number of different industries in all the major groups of industries and clusters. The predominant group of industries were agro-based. A similar situation exists in the case of the small-scale sector. In terms of quantitative indicators, UP had between 10,000 to 15,000 small-scale units, which accounted for 9.21 per cent of the total sample of small scale units considered by the survey. In terms of proportion of gross-output value the figure was 8.56 per cent and the contribution of the small-scale sector to the state's total employment due to manufacturing activity was below the national average of 10 per cent.

The industrial groups that show prominence are the metal products, basic metal and alloy industries, mineral products, machinery and parts, leather products, beverages and chemicals and electrical machinery sectors.

In the metal products group and other equipment producing groups the products were connected to the

demand patterns of the agricultural sector and to a lesser extent to the urban market. Specifically, the small-scale sector was producing items such as leather goods and shoes, agricultural implements, utensils, bicycle and cycle parts, steel trunks, soaps, locks, rubber goods, and other light engineering products. Some sophisticated products were also being produced such as electronic products, medical instruments, PVC and plastic moulded products. A significant number of rice, dal and oil mills were located in the small scale sector.

The small-scale sector was seen to be oriented basically towards the production of consumer goods for both the rural and urban markets. From an input point of view, the industries were predominantly resource-based in terms of volume of production. There were, however, as pointed out earlier, a large number of units which did not depend on inputs from the agricultural sector, the metal-based and chemical products sectors being dependent for their inputs on the industrial sector.

MADHYA PRADESH

Madhya Pradesh, as we saw from our analysis of the large scale sector, is characterised by heavy investments in certain key capital and basic goods industries. There is, however, little diversification around these projects,

(6)

with the exception of some non-metallic, mineral-based goods. The small-scale sector reflected unfortunately a similar state of affairs. Not surprisingly then, the modern small-scale sector's contribution to employment as a proportion of total employment in the manufacturing sector was below the national average of 10 per cent. In addition, despite possessing 5.52 per cent of the total number of units, its contribution in terms of gross output value was only 2.69 per cent, suggesting the generally low productivity of this sector in Madhya Pradesh.

The small-scale sector specialises in 'resource-based' industries. These include food products, and the paper and printing industry. There is a high location quotient for metal products largely due to the production of agricultural hand tools and implements and utensils. In fact, these two combined sectors accounted for 17 per cent of the units in the state.

The other industries in Madhya Pradesh were the chemicals, repair and services and miscellaneous manufacture industries.

In general, the absence of a well-developed modern small-scale sector may be explained in terms of the poverty of the majority of the people in Madhya Pradesh. The existence of a large tribal population

residing in areas unconnected by roads or other means of rapid transport has been a major factor that has prevented the growth of production and exchange. The vast potential for the manufacture of ancillary goods for the large-scale sector has still ^{to} be realised, as also the processing of the state's mineral resource deposits.

Even after including the modern small scale sector into the analysis, we find no significant difference as far as the nature of industrial specialization is concerned in the state. The picture remains that of an essentially 'resource based' industrial sector, with comparatively little industrial activity and growth in other sectors of industrial production.

PUNJAB

The combined regions of Himachal Pradesh, Punjab Haryana and Chandigarh possess a large small-scale sector. Punjab has an exceptionally large small-scale sector with a comparatively high contribution of employment coming from the small-scale sector as a proportion of total employment in the manufacturing sector. The extent of employment in the small-scale sector is

around 28 per cent of employment in the manufacturing sector as a whole, thus exhibiting the predominant role of the modern small-scale sector in Punjab's economy.

The production of beverages, hosiery and ready-made garments, basic metal and alloy industries, metal products, machinery and parts, and rubber and plastic products predominated in the industrial base of Punjab's small-scale sector. Since the results are with respect to the aggregated picture of these three different states, the differences within these regions has of necessity been blurred. To correct this and give a brief idea of the inter-state differences, a description of the salient industries in these different regions is attempted.

In Punjab proper, the area accounting for the largest share of small-scale units, the dominant industries were in the spheres of agricultural implements, mill-knitted woollen clothing, forgings of iron and steel, parts and accessories of bicycles and steel trunks.

In Himachal Pradesh, the dominant industries were almost entirely 'resource-based' and specifically forest-based. These included wooden furniture

and fixtures, sawing and planing of wood, leather shoes and wooden boxes and barrels. In addition, there was a concentration in the production of agricultural implements.

In Haryana, the product composition of the small-scale sector was similar to that of Punjab, except that it was carried on on a smaller scale and without the high concentration of production of mill knitted woollen ware.

In general, we see that in addition to a diversified large-scale sector, independent of public sector projects, Punjab also possesses a well diversified modern small-scale sector. The orientation of the industries is towards the agricultural sector, in so far as the output of these industries serve as inputs for the agricultural sector and also provide a host of consumer goods for the agricultural population.

The rapid growth of income in Punjab has provided a pervasive and integrated market where entrepreneurs can expect to realise their profits. This necessary aspect of economic activity is woefully lacking in many states, causing substantial wastage of resource by way of under-utilised capacity and 'sickness' in industries.

WEST BENGAL

Large-scale industry in West Bengal, as we saw from our earlier exercise is comparatively well diversified. According to Annual Survey of Industries data, in 1974-75, the six major large-scale industries in terms of value were the basic metal and alloy industries, the manufacture of food products, manufacture of chemicals and chemical products (except products of petroleum and chemical products), manufacture of transport equipment and parts, and the manufacture of electrical machinery, apparatus, appliances and supplies and parts sectors. The small-scale sector in West Bengal, compared to the other states was quite extensive. In terms of number of units it had 9.98 per cent of the national total while its contribution in terms of gross output was 10.38 per cent. Also, as far as its contribution to total employment was concerned, the state fell into the "average category" of about 10 per cent. ~~qualitatively~~. The small-scale sector reflected a pattern of industrial specialization similar to the large-scale sector.

The prominent industries in terms of a high location quotients were, as in the case of the large scale sector, the chemicals, electrical machinery apparatus, transport equipment and basic metal and

alloy industries. In addition, the small-scale sector reflects a concentration in the areas of paper products and printing, wood products, hosiery and ready-made garments, rubber and plastic products, repair and services and miscellaneous manufacture industry.

The small-scale sector and the large-scale sector are technologically inter-linked, and form an integrated system of industrial production. Unlike in the case of the highly diversified state of Maharashtra, West Bengal specialised in both 'resource-based' industries and in 'secondary' industries.

DELHI

Delhi, along with Punjab, is one of those states where the small-scale sector's contribution to total manufacturing activity is comparatively high. The small-scale sector's contribution was in the range of 22.36 per cent of total employment in the manufacturing sector of the state. It had 3.66 per cent of total units and its contribution to total gross output value was about 5.26 per cent. As in the case of large-scale production, the small-scale sector was highly diversified, so much so that there was no single unit that accounted for more than 5 per cent of all units.

The industries with a high location quotient were the hosiery and ready-made garments, paper products and printing, rubber and plastic products, electrical machinery apparatus, transport equipment, miscellaneous manufacturing industries, chemicals, metal products and machinery and parts industries.

In general, due to the large consumer market provided by Delhi's population, the small-scale sector has developed extensively. To satisfy the input requirements and the equipment requirements of the consumer goods industry, there exist ^{the} chemicals, metal products and machinery and parts industries.

In general, due to the large consumer market provided by Delhi's population, the small-scale sector has developed extensively. To satisfy the input requirements and the equipment requirements of the consumer goods industry, industries have emerged in the Delhi region which produce a wide range of intermediary products. Looking at the small-scale sector, it is clear that the extent of diversification in Delhi's industrial base is liable to underestimation ~~in Delhi's industrial base is~~ if we simply look at the large-scale sector, given that a large portion of total output generated emanates from the small-scale sector.

RAJASTHAN

Compared to the other states in the country, Rajasthan is industrially backward. The contribution of large-scale manufacturing/factory establishments to the state's income in 1968/69 was only 4.9 per cent.¹ The main industries in the state were in the cotton textiles, engineering, non-metallic and mineral products and agro-based industries groups.

In the small-scale sector, most of the units in the area were of traditional industries. However, in the recent past, the small sector has diversified its activities and units have come up in the field of engineering and chemical industries. In terms of our location quotient analysis, we find that chemicals, mineral products, basic metals and alloys, metal products, beverages, hosiery and ready-made garments units and electrical machinery/were well represented.

In general, the small-scale sector is not very extensive in Rajasthan. As a percentage of units, Rajasthan possessed 5.06 per cent of the total sample of small scale units considered by the census and in terms of gross output value the proportion was much lower at 2.17 per cent. The contribution of employment to the state's total employment in the manufacturing

1. Industrial Potential Survey, Rajasthan

sector was around 10 per cent hovering around the all India average. It seems that the modern scale sector reflected roughly the pattern of industrialisation in the large-scale sector in so far as the small-scale sector was not diversified.

GUJARAT

The small-scale sector in Gujarat is quite extensive. There are between 10,000 to 15,000 units, representing 7.1 per cent of all small-scale units in the country covered by the census. The share of employment generated by the small-scale sector in Gujarat as ^a proportion of total employment generated in the manufacturing sector in the state was around the national average of 10 per cent.

The industries that showed a high location quotient were the wood products, chemicals, mineral products, basic metal and alloy industries, machinery and parts, hosiery and ready-made garments, rubber and plastic products, metal products, transport equipment, miscellaneous manufacture and repair and services sectors.

The small-scale sector appeared to be reasonably well diversified, specially around the textile-based industries and chemicals and mineral-based industries. In general, the structure of the modern small-scale sector was similar to that of the large-scale sector.

ANDHRA PRADESH

Andhra Pradesh had between 10,000 to 15,000 small-scale units. In terms of the total number of units, it had 5.8 per cent of the total units, and its contribution to the total gross output value was 3.3 per cent. The prominent industries in Andhra Pradesh's industrial profile were the mineral products, food products, beverages, woods products, leather products and paper products industries. These were all essentially 'resource-based' industries. In addition, Andhra Pradesh also had a concentration of industries such as metal products, electrical machinery apparatus, transport equipment and chemicals and miscellaneous manufacturing industries.

In general, the picture that emerges is of the small-scale sector playing a complementary role to the large-scale sector in the 'secondary' industries by way of providing ancillary goods. The 'resource-based' industries were essentially consumer goods oriented.

The share of the small-scale sector in employment in the manufacturing sector was below the national average. It was roughly between 5 to 8 per cent of total employment generated by the manufacturing sector.

BIHAR

For a state which has a large concentration of heavy capital and basic industries, the limited extent to which the small-scale sector has developed in Bihar reflects deep seated constraints to development in the state's economy.

The small-scale sector's contribution to employment in the manufacturing sector in the state was in the range of 5 - 8 per cent, that is, below the national average of 10 per cent. The number of units as a percentage of all small-scale units in Bihar was 3.77 per cent and the contribution to gross output value was 2.77 per cent.

The industrial groups which stand out in Bihar's profile are the wood products, mineral products, basic metal and alloy industries, metal products, food products, paper products and printing, chemicals and electrical machinery groups. As in the case of the large-scale sector in Bihar, we find that almost all important groups of industries are accounted for by the small-scale sector in Bihar. However, a closer look at the industrial structure ~~sector~~ in Bihar of the large-scale sector show us how investments in Bihar have not resulted in industrial diversification. The presence of large-scale units in Bihar was on

account of its rich mineral base on the one hand and partly because of its strategic location on the cross roads/rail routes to the major consumption and production centres of markets in Eastern India, the North Eastern territories, Northern India and the South East and Western India. Commodities basic to industrial production, such as coal, ores, cement and steel are produced in Bihar and are transported further through these arterial routes. The possible cost advantages for input users in Bihar are minimised by the government's freight equalization scheme which fixes a uniform price at all rail-heads.

The reasons for the lack of diversification, reflected both in the large-scale sector and the small-scale sector is connected to the impoverished nature of the state's economy. With low productivity in agriculture and the bulk of the population based in the agricultural sector, the market for consumer goods and inputs for agricultural production is extremely limited. In the absence of a significant market for consumer goods and for that matter, for basic industrial commodities, the pre-conditions for diversification are not fulfilled. The economy of Bihar essentially plays the self-defeating role of internal colonizer, exploiting its natural wealth, but unable to develop itself because of the internal

contradictions latent in the industrial structure and lack of dynamism. The absence of dynamism in the agricultural sector and the local economy accounts for the niggardly development of the small-scale sector. The presence of large-scale units in this case cannot be construed to reflect all-round industrial development.

KERALA

The small-scale sector in Kerala is more extensively developed than in most other states. In terms of employment the small-scale sector's contribution was in the range of 12-18 per cent. In terms of the number of units, it had 4.45 per cent of the units, while its share of gross output value was 4.44 per cent.

The prominent industries in Kerala were 'resource' based. In addition, there existed a concentration of production in the rubber products and plastic products sectors. Kerala has one of the highest co-efficients of specialisation in the country because of the extremely high concentration of food products, such as cashew nut processing, in the state's economy.

ORISSA

Orissa, like Bihar, is a state rich in natural resources of the kind that are vital to industrialising economies. These resources have in some measure begun to be exploited. There is, as we saw from our last analysis, some specialisation in ferrous metals, other metals, and in non-metallic mineral-based industries. Both these groups are resource based.

The small-scale sector reflects the utter backwardness of industrial development in Orissa. The pockets of modern industries are in the nature of enclaves integrated with production and consumption needs outside Orissa. Orissa has 1.29 per cent of the total sample of modern small-scale units and its contribution in terms of gross-output value was even lower, being 86 percent.¹ And not surprisingly, the share of small-scale employment in total employment generated by manufacturing was below the national average.

Notwithstanding this tiny base, a number of industries were prominent in terms of possessing a high location quotient. These included the food products, paper products and printing, chemicals, mineral products, metal products, rubber and plastic products, basic metal and alloy industries and electrical machinery industries.

1. Industrial Potential Survey, Orissa

In keeping with the picture of India as a predominantly agricultural country, Orissa reflected a specialization in the food products industries. Most of the other industries were either ancillary units servicing the larger projects or industries involved in minerals extraction.

The poor state of Orissa's economy embodies the modern day phenomenon of backwardness or underdevelopment. Due to low levels of productivity in most activities, the purchasing power of the people is very low. The absence of markets and primitive forms of production sustain equally backward looking institutions. Thus embedded in a set of social relations that are averse to rapid development, the economy stagnates at a low level. The lack of internal dynamism to grow is further compounded by the absence of a well developed infra-structure. The inaccessibility to parts of Orissa foreclose the possibility of development occurring and ^{the} setting up of more industries. The result is the location of a few large projects which, in the absence of any internal dynamism to grow, are compelled to remain outside the mainstream of the region's economic life. Their production goes to supply more developed regions where production and consumption requirements are of ^a much higher order.

JAMMU AND KASHMIR

In the state of Jammu and Kashmir, the small-scale sector reflected the features of the large-scale sector both in terms of its qualitative characteristics and in terms of its quantitative presence.

The contribution of the small-scale sector to employment generated by manufacturing activity was close to the national average of 10 per cent. The state possessed 0.74 per cent of the total number of units in this sector and its contribution in terms of gross-output was ^apaltry 0.42 per cent.

In terms of our location analysis, the industries that had a location quotient greater than .75 per cent were wood products, food products, mineral products, metal products, beverages and chemicals, miscellaneous manufacture and repair and services. The bulk of the small-scale production in the state was resource-based. The few other industries were 'secondary' industries producing consumer items such as utensils, steel trunks etc.

ASSAM

In Assam the large scale sector is not very extensive. In fact, Assam was one of the least diversified states of India. Within the small-scale

sector, we find that the modern small-scale sector is also not very extensive. Its share of employment in the state's manufacturing sector was, however, above the national average being in the range of 12-18 per cent. In terms of number of units, Assam had 1.1 per cent of the total and its contribution to gross output was around .87 per cent of the total gross output value of the small scale sector.

The industries to stand out were essentially resource based industries. These included the food products, wood products and mineral products industries. In addition, there were industries like the basic metal and alloy industries, metal products, rubber and plastics products and repair and service units. This latter group's presence suggests the beginning of modern production, but quantitatively its presence is not sufficiently large to make any dent on the low level of productivity in the state's economy.

III.(C) CONCLUSION

Qualitatively, our analysis of the different regions suggests the following. Maharashtra, in keeping with its well-developed industrial base, has a small-scale sector characterised by considerable diversification. However, the absence of both a dynamic agricultural sector and the lack of an extensive natural resource base has meant the comparative lack of development of resource-based industries. Tamil Nadu, another state with a high level of diversification possesses a large small-scale sector with specialisation in resource-based industries. The latter aspect of the small-scale sector in Tamil Nadu is possibly related to the fact that this state has consistently enjoyed steady, albeit moderate, rates of agricultural growth. Backed by a situation of growing markets, the stability in agricultural output affords the small-scale sector a more conducive environment in which to expand. Fluctuations in economic growth rates generally benefit large producers since they are financially less vulnerable and are able to avail of government patronage in the form of protectionist policies, even when these are meant for the benefit of small producers.

Thus, the process of concentration and centralisation of capital often works itself out through periods of crises. Large-scale producers attempt to maintain capacity utilisation at the expense of marginal small-scale producers. This occurs to the extent that large producers are more viable due to advantages of economies of scale and have a more efficient system of distributing their products.

Karnataka, despite high and stable rates of agricultural growth does not have an extensive small-scale sector. Karnataka's share of employment in total employment in manufacturing industries is below the national average of 10 per cent. While on a macro-scale, Karnataka and Tamil Nadu have similar rates of agricultural growth, ~~there~~ there exist marked differences in the growth of the small-scale sector in these states. It is not exactly clear what the reasons for these differences are. But this striking contrast does point to the complexity of the process of industrialisation, and to the existence of various paths of development. Uttar Pradesh and Madhya Pradesh have primarily agro-based small-scale sectors. The small-scale sector in these regions is not particularly extensive although a smattering of small-scale units are to be found in almost all the industrial groups.

Delhi and Punjab, by contrast, possess very extensive and well-diversified small-scale sectors. Both Delhi and Punjab are case studies of industrial growth which has followed the emergence of burgeoning markets arising due to rising incomes. The two states are also models in the manner in which small-scale enterprises are able to mobilise savings, entrepreneurship and skilled manpower towards trade and production on a general but decentralised basis.

Looking to the sector as a whole, apart from considerations of their being labour-intensive and capital saving, the presence of a large-number of units in any given industry leads to a situation akin to that of free competition. This implies that each individual entrepreneur is under constant pressure to innovate and grow, so as not to get left behind in the race for profits. To the extent that technical change leads to cost reductions, there is always a tendency under free competition for these cost reductions to translate themselves into price reductions. On the whole, this sector is more dynamic than the large-scale sector which is characterised by imperfect markets in that there exists the manipulation of both prices and output.

The situation in Delhi and Punjab is in sharp contrast to that prevailing in Bengal. It appears that in Bengal, the small-scale sector is led by the large-scale sector. That is to say, the small-scale sector plays a complementary role to the large-scale sector through the production of ancillaries and subsidiary products and forms a technologically inter-linked and integrated system of production with the large-scale sector. This is not to say, however, that the small-scale sector in Bengal is not oriented to consumer demand or that the sector is not producing goods in competition with the large-scale sector.

Gujarat, like Bengal, has an extensive small-scale sector, except that the sectoral output composition is less diversified. By and large, it appears that the pattern of specialisation in the small-scale sector, ~~namely that specialisation~~ is largely in the chemical-based, textile-based and non-metallic mineral-based industries.

The situation in Andhra Pradesh and Rajasthan is similar in this respect to that of Gujarat. In Andhra Pradesh, it appears that a significant section of the small-scale sector is engaged in producing goods for the large-scale sector.

In Orissa and Bihar, the small-scale sector is almost chronically underdeveloped despite the existence of heavy instruments in the production of various basic intermediary goods.

The sluggish development of the small-scale sector in these regional economies can, in general, said to be connected in a fundamental sense to the backwardness of the agricultural sector. The lack of an entrepreneurial spirit has been cited in various surveys and studies as one of the major causes for the wayward course of development in these regions.¹ This said dearth of entrepreneurship is itself a further reflection of the backward nature of production relations and production techniques prevailing in the region. Nothing short of a fundamental reorganisation in the structure of agrarian relations accompanied by large investment outlays in irrigation, infrastructural facilities and social overhead capital can provide the conditions in which agricultural output and incomes can grow on a scale commensurate to stimulate the broad based emergence of industrial production in these regions.

1. Industrial Potential Survey, Orissa

Kerala, Jammu and Kashmir and Assam all have essentially resource-based small-scale sectors. The small-scale sector in Kerala is particularly extensive and the manufacturing sector accounts for a higher than average quantum of employment of to total employment. Kerala manifests a specially high concentration of food products industries, such as cashew nut processing. Assam, which is rich in natural resources, shows evidence of the emergence of a few small-scale in the 'secondary' industries sector. These units are based on raw materials being produced in Assam.

In terms of regional variations, the general picture of the small-scale sector that emerges from our analysis shows a significant development of certain non-resource based industries in a number of states. In all states, except Himachal Pradesh, Kerala and parts of Assam, the leading industry in terms of the number of units extant was the metal-products industry. States like Andhra Pradesh, Bihar, Gujarat, Kerala, Maharashtra, Tamil Nadu, West Bengal and Delhi had a wide variety of industries, with only one or two industries accounting for over 5 per cent (but not over 10 per cent) of the total number of units in the respective states.

Tamil Nadu, Maharashtra, West Bengal, Punjab and Uttar Pradesh are foremost in small-scale industries development. An analysis of the distribution of units shows that 11.5 per cent of all small-scale units were located in Tamil Nadu, 11 per cent in Maharashtra and 29 per cent almost equally in the three states of West Bengal, Punjab and Uttar Pradesh.

The contribution of the small-scale sector to value added by the manufacturing sector hovered around an average of 14.5 per cent at the All-India level, varying between 17 per cent to 13 per cent in the states of Gujarat, Jammu and Kashmir, Tamil Nadu, West Bengal, Maharashtra, Karnataka, Uttar Pradesh and Andhra Pradesh. The percentages were high for Punjab, Delhi and Kerala, while those for Rajasthan, Orissa, Assam, Bihar and Madhya Pradesh were below the national average.

As regards employment in the small-scale sector, the regions closer to the All-India small unit average of 10 per cent of total employment in all the manufacturing industries were Gujarat, Tamil Nadu, Jammu and Kashmir, Maharashtra, West Bengal and Rajasthan. The percentage exceeded the All-India average of 12 to 18 per cent in the cases of Assam and Kerala and was comparatively high - approximately 22 per cent

to 36 per cent - for Delhi and Punjab. Uttar Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa and Andhra Pradesh had a much lower share in employment ranging from 5 to 8 per cent. Punjab and Delhi had the most extensive and diversified small-scale sectors of all the regions in the industrial economy.

In terms of a use classification, the small-scale sector was predominantly oriented towards the production of consumer goods and ancillary products. The major lines of production were in the following industries: cotton, knitted-wear, sawing and planing of wood, wooden furniture and fixtures, printing of wood, printing of envelopes, picture cards and journals, washing soda and soap powder, iron and steel castings and forgings, drums and other metal containers, structural metal products, agricultural hand tools and implements, utensils and automobile parts and accessories.

Of the 1.4 lakh units surveyed, about 900 were found to be engaged in pure assembly work, nearly a third of them being in assembling diesel engines and radios and transistors. Other industries where there was a sizeable number of assembling units were the sewing machine, bicycle and metal products industries.

Also, about 6000 units were found to be ancillary units being accounted for by 4 industries, namely bicycle and accessories, iron and steel castings, bolts, nuts and parts and accessories of industrial machinery.

Despite the impressive rates of growth of the small-scale sector, it must be kept in mind that the bulk of the small-scale units have been located around the larger metropolitan cities. This is a disquieting feature in so far as one of the objectives of affording protection to small-scale units is to encourage greater dispersal of production activity so as to reduce intra-regional and intra-regional disparities.

CHAPTER IVSHIFT ANALYSISIV.(A) INTRODUCTION

Our location quotient analysis for three different years gives us a picture of the economy's industrial structure both region-wise and over time. Looking at the different clusters and within these clusters, at different groups of industries with high location quotients, it is possible to hazard some comment on the structural change that have taken place within the economy. To complement our understanding of region-wise changes in the economy we have used the shift, technique developed by Perloff, Dumm, Lampard and Muth. This technique allows us to trace regional growth patterns relative to national growth patterns. The advantage of doing this is that our understanding of the causes of change in the structural base of the economy is facilitated by such analysis. By identifying the broad tendencies of growth in various industrial groups relative to national norms we are able to ascertain the specific sources of change in the location quotient with special regard to the elements of the ratios that have changed.

The shift technique conceptually divides changes in regional growth patterns into two types of phenomena. These two kinds of shifts are called the "proportionality shift". The net differential shift arise out of the fact that some states are expanding in certain industries more rapidly than in other states. In general, these upward differentials would be on account of superior natural resource endowments, better infra-structural facilities or better access to markets for disposal of goods relative to other states.

Proportionality shifts on the other hand, arise out of the fact that some industries are growing more rapidly than others on a nation-wide basis. As a result, states that tend to specialise in high growth industries would be characterised by upward proportionality shifts in employment and vice versa.

An example of this in the Indian context is the upward shift in employment in states such as Bihar, Madhya Pradesh and Orissa which have specialised in high growth industries such as capital goods and basic goods industries.

IV. (B) METHODOLOGY

The following will help clarify the computational procedure used to quantify these shifts.

Let

✓ E_{ij} = employment in the i th ^{to dummy} and j th state in the initial time period

✓ E^*_{ij} = the same in the terminal period

E_i = national employment in the i th industry

E_j = total state employment

$E..$ = total national employment in all industries

Then, the total shift for a state is:

$$(1) \quad S_t = E^*/j - (E^*../E..)E/J$$

The differential shift for the state is:

$$(2) \quad S_j = \sum_i [E^*ij - (E^*i/Ei) Eij]$$

And

$$(3) \quad S_t - S_j = \sum_i [(E^*i/Ei) - (E^*../E..)] Eij = S_p$$

is simply the proportionality shift, S_p , a weighted average of the excess of national industry growth rates over that for all industry nationally where the weights for a given state are its total industry employment in the initial period.¹

The broad industrial groupings used in computing shifts are as follows. Mechanical and transport equipment, chemical and chemical-based products, metal-products, electrical equipment, forest based products, textile-based products, agro-based products and the leather and rubber industries.²

The advantage of using this classification of industries is that functional categories are designed such as in terms of use classification or in terms of the source of inputs used. It will be noticed that while studying the results of the location quotient analysis placed in the

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1. Industrial Potential Survey Perloff H.S., et. al., 'Regions, Resources and Economic Growth.'
 2. Alagh F.K. "Regional Aspects of Industrialization"

Categories used in the shift analysis.
Cluster groups and corresponding code numbers

Mechanical and Transport Equipment

X	24	Tea Processing Machinery	VIII	32	Speed Reduction Equipments.
VII	19	Air-craft	VIII	35	Ag and Indus. Refrigerating Plant.
VII	14	Wagons and Passenger Coaches	XII	31	Conveying equipment
IX	16	Repairs of Motor Vehicles	VIII	22	Jute machinery
XII	36	Agricultural Implements	VII	29	Construction machinery
VII	37	Machine tools			
VII	42	Instruments			
VIII	26	Metallurgical and cement machinery.			
XII	15	Mfg. of Motor Vehicles	IV	93	Soap and Glycerine
X.	18	Boats and Ships	VIII	91	Insecticides and Pesticides, etc.
V.	39	Earth moving equipments	VI	95	Heavy Chemicals
IV	28	Paper and printing machinery	VI	79	Fertilisers
XI	41	Sewing Machines	IV	90	Paints and Varnishes
XII	30	Oil Mill and Rice Dal etc. machinery	X	96	Synthetic Rubber and Rubber Misc. and Rubber Misc. and Chemicals.
IV	23	Sugar Machinery	IX	4496	Cosmetics
XII	36	Ball bearings	VI	88	Plastic and Plastic Products.
V	44	Other non-electric machinery			

Chemical and Chemical-based products.

Electric Equipment

IX	25	Coal and other mining machinery	II	12	Other electrical mac
VII	13	Locomotives	II	6	Cables and Wires
II	34	Air Compressors	II	11	Refrigerators, Water Coolers and Air Conditioners.
XII	21	Textile Machinery	III	10	Electric Lamps
II	40	Office Machinery	VI	7	Radio receivers
VII	43	Tractor	II	9	Telegraph equipment
VIII	17	Motor Cycles, scooters and bicycles.	XI	1	Power machinery except electric motors
X	27	Chemical machinery			
VII	28	Power driven pumps			
VII	29	Power driven pumps			
II	20	Inds. boilers			

VIII	8	Telephone equipment	XII	85	Tyres and Tubes
II	4	Storage batteries	IV	55	Leather footwear leather
VIII	2	Electric Motors	III	56	Other/products
XII	3	Electric Fans	III		
X	5	Dry Cells	X	86	Other rubber products
XI	97	Electricity			

Forest-based

X	22	Wood Products.
X	99	Matches.
VI	100	Printing and Publishing mfg.
IV	87	Paper and Paper Products.

Non-metallic mineral-based.

IX	84	Petroleum products
I	98	Coke
VI	80	Bricks, ceramics
VI	52	Cement
III	83	Chinaware and pottery.
III	81	Glass and Glassware.

Metal Products

	50	Steel structural fabrication
	49	Pipes and tubes
VII	48	Castings and Forgings.
VIII		Metal Products
VIII	46	Iron and Steel
	47	Ferro Alloys

Leather and Rubber Products

III	54	Leather
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Textile based

IX	76	Man-made fibres
VI	69	Starch
IX	78	Other textiles
III	75	Raw silk and silk textiles.
X	74	Woolen yarn and textiles
IX	77	Artificial silk fabrics
VII	72	Cotton yarn and textiles
VIII	73	Jute textiles
X	89	Dye-stuffs

Agro-based

X	59	Plantations including tea and coffee proce- ssing.
VIII	71	Cashewnut processing
VI	70	Fruit and vegetable preservations
VI	57	Flour milling
VI	60	Gurand Khandsari
VIII	67	Milk and other misc. food products.
IX	65	Breweries, soft drinks etc.
VI	69	Other tobacco products
VI	68	Cigarettes
X	74	Woolen Yarn and textiles
X	62	Vanaspati
VI	58	Sugar
VI	66	Biscuits and confec- tionary
XI	63	Salt
IV	61	Vegetable oils and vegetable oil cakes.

SHIFT ANALYSIS (1965-69) : NET TOTAL SHIFT,
NET DIFFERENTIAL SHIFT AND NET PROPORTIONALITY SHIFT

1965-69	Andhra Pradesh	Assem	Bihar	Delhi	Gujarat	J&K	Kerala	Madhya Pradesh	Tamil-Nadu	Maharashtra	Karnataka	Orissa	Punjab	Rajasthan	Uttar Pradesh	West Bengal
Total shift in employment in 1965-69	+	-	+	-	-	+	+	+	+	+	+	+	+	+	-	-
	30104	9099	8035	2770	6911	5128	6344	15597	78964	6981	15353	14135	6049	7351	19307	156309
Net Differential shift (within industry) in total employment in 1965-69	+	-	-	+	+	+	+	+	+	+	+	-	+	+	-	-
	19414	4379	32405	510	1575	5884	8967	10554	107783	35850	10461	8630	1537	8870	8208	128169
Net Proportionality shift (industry group) in total employment in 1965-69	+	-	+	-	-	-	-	+	-	-	+	+	+	-	-	-
	10690	4720	40440	3280	8486	756	2623	5043	28819	28869	4892	22763	4512	1519	11099	28140

1966-69	A.P.	Assam	Bihar	Delhi	Gujarat	J.&K.	Kerala	M.P.	T.N.	Maha- rashtra	Karna- taka	Orissa	Punjab	Raja- sthan	U.P.	West Bengal
Net Total Shift in Employ- ment.	+	-	-	+	-	+	-	+	+	-	+	+	+	+	-	+
	21319	16532	15660	9751	47229	526	23509	27471	76815	91701	18786	35312	47636	9914	21419	31479
Net Differ- ential Shift (urthin Industry) in Total Employ- ment.	+	-	-	+	+	+	-	+	+	-	-	+	+	-	-	-
	27551	8247	18396	5417	3076	2399	3721	36563	82967	79487	29830	49677	38240	7026	22930	26076
Net propor- tionality (Industry gr.) Shift in Total Employ- ment	-	-	+	+	-	-	-	-	-	-	+	-	+	+	+	+
	6232	8285	2736	4334	50305	1873	19788	9092	6152	12214	48616	14365	9396	18940	1511	57555

Proportionality
 SHIFT ANALYSIS (1960-65) (DIFFERENTIAL SHIFT,
 INDUSTRY-WISE AND STATE-WISE)

	A.P.	Assam	Bihar	Delhi	Guja- rat	J.&K.	Kerala	M.P.	T.N.	Maha- rash- tra	Karna- taka	Orissa	Pun- jab	Raja- sthan	U.P.	West Bengal
1. Technical and Transport equipment.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	3015	115	5374	1556	3739	86	1843	703	5352	16677	2180	141	3323	3296	6729	24526
2. Chemical and Chemical based products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	62	--	592	76	478	20	196	36	422	1688	216	--	43	7	274	1236
3. Electrical																
Metal Products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	16	7070	33	64	--	15	14	148	525	165	39	110	19	189	1419
4. Electrical Equipment	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	8530	628	13019	4259	7664	-	4531	6853	17295	62183	17199	2368	5720	6505	25087	99204
5. Forest Based.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	110	80	139	82	74	7	163	60	298	600	630	103	180	19	204	551

A.P.	Assam	Bihar	Delhi	Guja- rat	J.&.K.	Kerala	M.P.	T.N.	Maha- rash- tra	Karna- taka	Orissa	Pun- jab	Rajas- than	U.P.	West Bengal
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6.	Non-met- allic min- eral based	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		552	76	1048	154	780	-	739	508	474	1258	630	324	166	307	706	1082
7.	Textile Based	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		7006	93	2861	4756	57623	1623	5240	13590	28386	87746	10543	1426	7042	3500	18413	68953
8.	Agro- based	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15332	10669	5627	340	2592	14	12825	2677	3014	9661	4027	750	1351	525	13566	9586
9.	Leather and rubber based	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		--	--	6	--	6	1	9	7	38	49	3	--	6	--	37	156

SHIFT ANALYSIS (1960-65) (DIFFERENTIAL SHIFT,
INDUSTRY-WISE AND STATE-WISE)

	A.P.	Assam	Bihar	Delhi	Gujarat	J.&K.	Kerala	M.P.	T.N.	Maha- rash- tra	Karna- taka	Orissa	Pun- jab	Rajas- than	U.P.	West Bengal
Mechanical and trans- port equip- ment.	+	-	+	+	+	-	-	+	+	-	+	+	+	* -	-	-
	50	2422	2898	428	999	389	7093	1730	26381	9325	12098	1246	5204	5465	4149	26793
Chemical/ and chemi- cal based.	+	+	-	+	+	-	+	+	-	+	+	+	+	+	+	-
	1038	124	4736	217	4305	342	612	1052	784	11826	1923	1019	1562	824	1711	822
Non-metallic mineral based	-	-	+	+	+	+	-	-	+	-	-	-	+	-	+	-
	1718	738	4956	912	658	935	3571	1121	1236	2482	1755	1372	3502	2713	73	1004
Leather and rubber products	-	-	-	+	-	-	+	-	+	+	+	-	*+	-	-	-
	8	--	40	381	796	57	59	700	657	1739	77	461	769	--	292	2677

	A.P.	Assam	Bihar	Delhi	G. jarat	J&K	Kerala	M.P.	T.N.	Maha- rash- tra	Karna- taka	Orissa	Pun- jab	Raja- sthan	Ú.P.	West Bengal.
Agrobased	+	-	-	+	+	+	+	-	+	-	-	+	+	+	-	-
	2940	10958	8386	927	8979	694	14218	1814	5302	5426	1398	1030	12234	439	5815	8042
Textile- Based	+	+	-	+	-	- 8	-	-	+	-	+	-	+	+	-	+
	1723	2093	4292	2552	17623	522	600	4681	11198	32707	5218	540	7451	756	6462	2923
Metal products	+	-	-	-	+	-	-	+	+	-	-	+	-	-	-	+
	1830	59	10724	1099	1325	-	18	25304	2445	17363	7068	26081	1875	2150	6026	64608
Electrical Equipment	+	+	+	+	+	+	-	+	+	-	-	+	+	+	+	-
	21132	3305	3846	2403	3707	1388	4790	14606	34879	22867	501	6954	21790	579	565	76854
Forest based	+	+	-	-	+	+	-	+	+	-	-	+	-	+	-	-
	569	8	1948	180	1522	692	3338	2187	1653	2882	38270	14798	5631	704	2535	3722

	A.P.	Assam	Bihar	Delhi	Guja- rat	J.&.K.	Kerala	M.P.	T.N.	Maha- rashtra	Karna- taka	Orissa	Pun- jab	Rajas- than	U.P.	West Beng- al.
Non-metallic Mineral based	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	196	18	519	79	332	16	239	188	217	471	227	109	131	77	290	426
A Textile based	3710	349	908	2686	26652	747	2545	6222	15545	39872	5902	647	4424	2668	8416	38006
Agro- based	2367	1328	637	73	607	19	2264	356	580	1312	568	137	500	89	1886	1237
Leather and rubber based	+	14	121	48	152	18	200	66	889	1234	50	10	213	-	748	3025

Shift Analysis (1965-69) (Differential Shift) (Industrywise and Statewise)

Page-3

	A.P.	Assam	Bihar	Delhi	Gujarat	J.&K.	Kerala	M.P.	T.N.	Mahara- shtra	Karna- taka	Orissa	Pun- jab	Rajas- than	U.P.	West Bengal
Mechanical Transport Equipment	+	+	-	-	+	+	+	+	+	-	-	+	+	+	+	-
	4497	1047	14579	2762	6207	525	295	1621	17076	9383	1906	2158	2855	928	11083	11457
Chemical and Chemical based	+	+	-	-	-	-	-	-	+	+	-	+	-	+	+	-
	3414	822	2554	839	1598	211	1071	585	4023	9330	5150	409	104	1113	551	12955
Non-Metallic Mineral based	-	+	-	-	+	+	-	+	+	-	-	+	-	+	+	-
	3708	640	2809	347	3150	212	1587	861	16436	608	591	1077	800	3314	596	248
Leather and Rubber - based	+	-	-	+	-	+	-	-	+	+	+	+	+	-	-	-
	540	--	227	91	509	148	422	5	1483	1732	460	257	756	--	3291	1011
Textile based	7592	1710	3173	2998	3697	330	531	12273	32686	18602	600	937	4011	4560	123	40815

	A.P.	Assam	Bihar	Delhi	Gujarat	J.&K.	Kerala	Mahara- shtra M.P.	T.N.	Maha- ra- shtra	Karna- taka	Orissa	Pun- jab	Raja- sthan	U.P.	West Bengal
Agro- Based	+	-	-	+	+	+	-	-	+	+	+	+	-	+	-	-
	17293	8129	4402	787	624	415	6653	5285	8170	1562	3141	88	2638	1851	3427	1056
Metal products	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	-
	371	865	9968	1154	1048	82	44	2712	1570	21929	5348	283	5284	3530	8473	28018
Electrical Equipment	+	+	+	-	+	+	+	-	+	-	+	-	-	+	-	-
	6568	957	7281	1579	393	4482	18297	2002	22235	6753	8185	1440	9324	2759	19578	29332
Forest based	-	-	-	+	+	+	+	+	+	-	+	-	+	-	-	-
	281	561	1974	1007	2007	561	595	964	4104	561	1574	12399	1497	455	2738	7420
	+	-	-	+												
	19414	4379	32465													

* Textile and agro in reverse order to 1960-65 listing.

framework of technological clusters, we imposed the above classification of industries to facilitate interpretation of the results. The search for clear patterns in the framework of the technology is, however, analogous to raking through leaves for the proverbial needle.

IV.(C) ANALYSIS OF STATES

What follows is the statewise analysis of our shift analysis, over the period 1960 to 1965 and 1965 to 1969.

MAHARASHTRA

Between the years 1960-65, Maharashtra experienced a total downward shift in employment of 91,701.* By differential shift we mean the shift which a region shows relative to the national average in employment in the broad industry components of total employment. By proportionality shift we mean the shift due to a region's relative composition in terms of employment in that sector relative to the

* For all references to shifts please refer to table attached.

national aggregate. The sources of the large downward differential shift were, in main, the textile based industries, metal based industries and electrical equipment industries.

The experience of the subsequent period was different. Instead of a downward total shift, Maharashtra experienced a small upward total shift. This was due to an upward differential shift, which was in part counteracted by a small downward proportionality shift. The interesting thing about this change in trend from a downward shift to an upward shift after the mid-60s is that it occurred amidst the phenomenon of general stagnation, like in the case of Tamil Nadu. This lends support to the claim of inter-regional disparities widening or at least not converging in the period after the mid-sixties. The downward proportionality shift was mainly due to the mechanical and transport equipment industry and the textile based industries. While the former group falls into the capital goods category the latter is a mass consumption item. Slow rates of growth in these two sectors highlight the nature and effects of inflation on the economy in this period.

The slow rate of growth of textile based products is attributable to the lack of demand for

consumer items following the rapid rates of inflation consequent on consecutive bad harvests in 1965/66/67. The decline in growth rates of capital goods such as mechanical and transport equipment was related to the inflation and shortages of effective demand in so far as the government cut back on investments in order to alleviate the pressure on prices. This measure did not succeed in containing inflation but actually aggravated the recessionary trends in the economy by curtailing the demand for capital goods such as mechanical and transport equipment.

TAMIL NADU

Tamil Nadu experienced an upward total net shift in employment of 76,815 in the first sub-period. This was due to a large upward differential shift, though reduced somewhat by a downward proportionality shift. The upward differential shift was on account of the relatively more rapid growth rate in all its industries except for the chemicals and chemical-based products industries as compared to the national growth rates for these industries. The downward proportionality shift was due to Tamil Nadu's relative specialization in the textile-based industry, which was nationally a slow growing industry.

In the subsequent sub-period Tamil Nadu experienced a total net upward shift of 78,764. This was again due to a large upward net differential shift. All the industries in Tamil Nadu enjoyed an accelerated increase in employment as compared to the national rates of growth. The net differential shift was however greater than the total employment because there is evidence of a simultaneous downward proportionality shift due to Tamil Nadu's relative specialization in textile-based industries, agro-based industries and the mechanical and transport equipment industry. The overall positive shift in the indices of Tamil Nadu's economy lends some support to the contention of various authors that after 1965, the earlier tendency of convergence between regions was reversed, and if not reversed, at least arrested. To fully substantiate the claim of this hypothesis, we would have to look to a more representative sample of industries. The data used in this exercise only pertains to the large-scale sector.

KARNATAKA

In the period between 1960-68, Karnataka experienced an upward total net shift of 18,786.

The differential shift for this period was negative to the extent of 29,830 but because the composition of industries in Karnataka was such that there was a preponderance of 'growth' industries, it experienced a net upward proportionality shift of 48,616. The industries mainly responsible for this upward shift were the electrical equipment industry and the mechanical and transport equipment industry. The forest-based industry and agro-based industries were mainly responsible for the downward differential shift. It is somewhat odd that despite high and steady rates of agricultural growth, Karnataka's agro-based industries should have grown more slowly than the national growth rate for agro-based industries. Given that the small scale sectors were not particularly extensive, one possible reason for the slow growth of the resource-based industries may be in that primary products are processed outside Karnataka.

In the second sub-period both differential and proportionality shifts were positive, and gave an upward total net shift of 15,353. The mechanical and transport equipment industry experienced a downward differential shift thus suggesting that the

post 1965 recession affected Karnataka severely in this industry especially considering the fact that there was a significant upward differential shift in this industry in the first sub-period. The significance of chemical, industrial and electrical equipment units in Karnataka's industrial composition is that these units were responsible for the upward net proportionality shift.

UTTAR PRADESH

Between the years 1960-65, Uttar Pradesh experienced a downward total net shift of 24,419. This was mainly on account of a large downward net differential shift. With the exception of electrical equipment units, chemical based industry, and non-metallic mineral based industry, all industries showed downward differential shifts. The small upward proportionality shift experienced was due to Uttar Pradesh's relative specialization in the mechanical and transport equipment and electrical equipment industries.

In the subsequent period from 1965 to 1969, Uttar Pradesh continued to evince a downward total net shift of employment. Of the 19,307 unemployed, 8,208 was on account of a downward net proportionality shift. The main reason for the downward differential shift seems to have been on account of the relatively slow growth of the electrical equipment industry. It appears that in UP the pace of

producing equipment to electrify the state has slowed down considerably. The other group of industries to experience a downward differential shift were the agro-based industries. The poor performance of the agro-based industries may be connected to the drastic shortfalls in agricultural output during the years 1965/66/67. The fact that the agro-based industries rely on the agricultural sector for their inputs, and also to a great extent for their markets, make them extremely vulnerable to agricultural output fluctuations.

MADHYA PRADESH

In the first sub-period Madhya Pradesh experienced an upward shift of 27,471. This was largely due to upward differential shifts on account of rapid growth in the metal products, forest-based and electrical equipment industrial groups. The downward proportionality shift was due to Madhya Pradesh's specialization in the agro-based and textile based industries which have proved themselves to be slow growth industries on a national scale.

In the second sub-period Madhya Pradesh experienced upward total net employment shifts of 15,597. Of this, 10,554 was accounted for by an upward differential shift and 5,043 by an upward proportionality shift. The upward

proportionality shift was largely due to the electrical equipment group of industries, and to a lesser extent due to the metal products group of industries. The interesting point to note here is that even though the growth rate in the metal products group of industries greatly declined in the post-1965 period, its growth rate was slightly greater than the overall growth rate of the economy, thus accounting for the positive proportionality shifts.

As far as the question of regional disparity is concerned, the experience of the large-scale sector in Madhya Pradesh during the post-1965 period is on the whole positive. By itself this sector's experience does not lend itself to the hypothesis that the backward states grew more slowly than did the developed states. Needless to say, the hypothesis may hold when the state's entire economic performance is taken into account.

PUNJAB

During the period between 1960-65, Punjab experienced an upward total net shift of 47,636 in employment. Of this, the contribution of the upward differential shift was 38,240 and of the upward proportionately shift 9,396. All industries in Punjab, in this period experienced an upward differential shift, except for the metal products and forest-based products industries. This upward shift, along

with the fact that Punjab enjoyed an upward proportionality shift suggests that not only did Punjab grow more rapidly in most sectors than the national rates of growth in these sectors but that its industrial composition was such that there were enough "growth" industries to balance the presence of slow growing industries like the textile based industries in the large-scale sector and the agro-based sector.

The period between 1965-69 reflected at one level the same broad trends in employment as in the first period except by smaller amounts. Looking more closely to the growth patterns, we see that from a large upward differential shift in the electrical equipment and agro-based industries sector, we are confronted with downward shifts. The same reversal process occurs although to a lesser extent in the case of chemicals and chemical-based industrial units and in the non-metallic mineral-based industry. The reason for the downward shifts in the chemicals and chemical-based industries and the electrical equipment industry in Punjab is perhaps due to the fact that these industries, in any case, were amongst the few industries that continued to enjoy reasonable growth rates alongside with national rates of growth even after the dramatic general economic slowdown in growth.¹ In effect then, the downward shifts in employment

1. Raj, K.N. (op cit)

were not so much because Punjab grew slowly, but because the national rates of growth in these industries were consistently high. The other factor responsible for the decline in growth, especially of the agro-based industries was perhaps due to the setbacks suffered on account of the successive years of bad harvests in 1965-66-67.

In terms of the proportionality shift, Punjab experienced an upward shift on account of the presence of 'growth' industries such as the electrical equipments, chemicals and chemical-based and the metal products industries. The gains from these high growth rate industries were offset to some extent by the presence of textile-based agro-based and mechanical and transport equipment industries which were nationally 'slow' growth industries.

Though the total net shift of employment in the second period was not substantial it is significantly given that a large part of Punjab's industrial output is not from the large-scale sector. That is, a combination of the large and small-scale sector data would reflect more accurately the overall trends in Punjab's economy.

WEST BENGAL

Between the period 1960-65, West Bengal experienced an upward employment shift of 31,479. This is the result of two counteracting trends in employment shifts:

- (a) a large upward net proportionality shift of 57,555 and
- (b) this trend being counteracted partially by a downward net differential employment shift of 26,076.

The downward net differential shift in employment is largely on account of the relatively slow growth rates in the mechanical and transport equipment sectors and in the electrical equipment industry. The slow growth rates of these industries is probably on account of ^{the} substantial initial industrial base unlike in some other states.

Though West Bengal had low relative rates of growth in these sectors, these sectors are precisely the same sectors that made up the category of growth inducing industries during this period. Because of the state's specialisation in these industries, West Bengal experienced an upward proportionality shift in employment of 24,526 in the mechanical and transport equipment group and an upward shift of 99,204 in the electrical equipment manufacturing sectors. ^{This} confirms our premise that West Bengal specialized strongly in the engineering and equipment producing industries.

The period from 1965-69 is characterised by a sharp reversal of broad trends in employment shifts in comparison to the preceeding periods. Instead of a total upward employment shift, West Bengal experienced a sharp downward

shift in total employment of 1,56,309. This decline is the result of both the net downward proportionality and differential shifts.

The mechanical and transport equipment industry which was a 'growth' industry in the earlier period, is a source of the downward proportionality shifts in this period.

However, the major cause of the downward proportionality shift is the textile-based sector. In the case of differential shifts West Bengal experienced downward differential shifts in virtually all industries.

It appears that in general West Bengal was particularly effected by the severe general stagnation trends in the post 1965 period. Political tensions aggravated the already bad industrial situation being a partial basis for the flight of capital away from Bengal.

DELHI

In the sub-period 1960-65 Delhi experienced a total upward employment shift of 9,751. The constituent elements in this shift, that is, the proportionality shift and differential shift were both positive in this period. Significant differential shift gains came from the textile based industries and the electrical equipment group of industries. In general, Delhi's industries seems to have grown more

rapidly than the national growth rates of the different industries. The proportionality shift gains were mostly due to the mechanical and transport group of industries and the electrical equipment industries.

In the second sub-period the picture that emerges is one of a slowdown in growth rates. Delhi had a total net downward decline in employment largely on account of a downward proportionality shift in employment. This decline was due to Delhi's relative specialization in the textile-based products. This was an industry that grew slowly on account of the lack of demand in this period. There was also a decline in employment in the mechanical and transport equipment group of industries. The slow growth rate of this group was marked in the post 1965 period on account of the general recessionary trends in the economy. The experience of Delhi illustrates the general trend in the economy after the mid-sixties in terms of a precipitous drop in growth in most industrial groups.

RAJASTHAN

Between the period 1960-65, Rajasthan experienced an upward total shift of employment of 9,914. This positive shift was on account of an upward net proportionality shift that compensated for the downward net differential shift in the economy of Rajasthan. The downward differential shift was largely due to the slow growth in the mechanical and transport equipment sector and in the metal-based and non-

metallic mineral based industries. The relatively slow growth in these areas typifies the backward nature of Rajasthan's economy, where 'secondary' industries are not pervasive and natural resources are only beginning to be exploited on a systematic and large scale basis.

The industries responsible for Rajasthan's upward net proportionality shift were predominantly the electrical equipment, and mechanical and transport equipment industries. In general, Rajasthan specialised in the slow growth industries, but since their downward shifts were not quantitatively large, it underwent a net upward proportionality shift.

In the period between 1965-69, Rajasthan also had an upward total net shift in employment. In this period, the state was subject to an upward net differential shift that was mitigated by a small net downward proportionality shift. With the exception of the metal products and forest based industries all the industries grew more rapidly than the national growth rates for these industries. The reasons for the net downward proportionality shifts are attributable mainly to Rajasthan's specialisation in the textile based industry, and to a slight extent because of the tardy rate of development in the mechanical and transport equipment industry.

The interesting feature about Rajasthan's shift pattern is that the state seems to have fared relatively well in the post-65 period unlike in the case of most backward states which seemed to have been more adversely affected by stagnation than the more developed states such as Tamil Nadu, Maharashtra, Punjab etc. The total net upward shift is not, however, of any magnitude sufficient to warrant any definitive conclusions on the hypothesis of inter-regional convergence or divergence.

GUJARAT

In Gujarat we find a decline in the total shift in employment for the first sub-period. The decline is largely due to the states specialization in slow growth industries such as the agro-based, textile-based and non-metallic mineral based industries. To compound the problems of slow-growth industries dominating the mix of industries, Gujarat also experienced downward differential shifts in the textile based industries. The net differential shift however was only nominally positive.

The sub-period between 1965-69 witnessed a total decline in employment. The reasons for this were the state's specialization in slow growth industries. However, because of the general slowdown in the economy, Gujarat did not experience any significant loss in employment on account of a proportionality shift of a downward nature, except in

the case of the textile-based industries where it lost by 26,652 in employment.

ANDHRA PRADESH

Between 1960-65, Andhra Pradesh experienced an increase in total employment of 21,319 and between 1965-69 an increase of 30,104. The differential shift was 27,551 in the aggregate. The industrial groups responsible for the net upward differential shift were the electrical equipment and to lesser extent the agro-based industry groups. The proportionality shift was of the order of 6,232 and in the downward direction. The reason for this downward shift can be located in Andhra Pradesh's relative specialisation in the agro-based industries.

The period from 1965-69 was characterised by both upward proportionality and differential shifts. The main industries responsible for the upward differential shifts were the electrical equipment sector and the agro-based sector, while the upward proportionality shift was mainly due to Andhra Pradesh's specialisation in the electrical equipment sector.

Comparing the two time periods under examination, it is notable that Andhra Pradesh should have experienced a large upward total shift in the second period amidst the general national stagnation in the economy.

BIHAR

In Bihar, the period between 1960-65 witnessed a total downward shift in employment of 15,660. The decline was due to a large downward differential shift, offset only slightly by an upward proportionality shift. The downward differential shift occurred primarily in the metal products group of industries. Despite the role of the basic industries group in providing the inputs for this sector, the slow rate of growth may well be interpreted in light of the absence of large-scale diversification in Bihar.

The period between 1965-69 showed a net total increase in employment. This was largely due to an upward proportionality shift emanating from the electrical equipment group and to a much smaller extent from the metal based industries group. As far^{as}/the net differential shift was concerned there was a downward shift, specially in the mechanical and transport equipment group. This suggests that the post 1965 recession hit Bihar's mechanical and transport industry harder than it hit the particular sector in the national economy.

ORISSA

In the period between 1960/65 Orissa evinced an 'upward' total employment shift of 35,312. This upward shift was due to positive differential shifts on account

of the metal products sector, which included the iron and steel industry, and to a lesser extent to the forest based sector and the electrical equipment industry.

The reasons for the high growth rates in these sectors was largely due to the location of public sector projects in capital goods and basic industries in the backward, but resource-rich states such as Orissa. The reason for the downward net proportionality shift can be said to be based on Orissa's relative specialization in the textile based industries and the agro-based industries. The presence of such units in Orissa was large enough to offset the upward proportionality shifts on account of the electrical equipment industry and to a much smaller extent, the mechanical and transport equipment industries.

In the next sub-period Orissa experienced an upward total shift, but of a smaller magnitude than that in the first sub-period. Unlike in the preceding sub-period, Orissa in these years experienced a downward net differential shift mainly on account of a rapid downward shift in the forest-based industry group. Interestingly enough, all the other industries showed an upward differential shift although in absolute terms their magnitudes were small and hence they were unable to offset the large downward shift in the forest-based industry group. This is to be expected given the stagnationary conditions in ^{the} economy, specially in capital goods and the basic goods industries.

The upward proportionality shift was due mainly to the metal-based industries, electrical equipment industry and to a lesser extent due to the chemicals and chemical-based industry and the non-metallic mineral based industry.

Comparing trends in the two periods, it appears that along with the general slowdown in the economy, Orissa suffered a decline in the growth rate. That is to say, compared to the national growth rates Orissa did not grow as rapidly as it had done in the first sub-period. This fact would support the observation that inter-regional disparities stopped converging in the post-65 period.

KERALA

The state of Kerala underwent a total decline in employment for the period between 1960 and 1965. This was on account of decline on both counts, that is, downward net proportionality and differential shifts. The reason for the larger decline in the proportionality shift was due to Kerala's specialisation in the resource based industries which are long-gestating and slow-growing on a national scale. In particular the agro-based and textile based industries contributed the most to the decline in this category of shifts.

In the second sub-period Kerala experienced an upward total shift of 6,344. This was mainly due to an upward differential shift. The total net shift however was less than this figure because of a downward proportionality shift on account of Kerala's specialization in the agro-based industries. The upward differential shift was largely due to the electrical equipment industries group, which showed an upward shift of 18,297.

The experience of Kerala in the first sub-period illustrates the close connection between growth in the agro-based industries and steady agricultural growth rates. The experience of a growth rate higher than the national average in Kerala in the agro-based group of industries was due to its moderate and steady rate of agricultural output growth over the past two decades.

JAMMU AND KASHMIR

The industrially underdeveloped state of Jammu and Kashmir experienced upward total employment shifts in both periods. This was due to the fact of large upward net differential shifts in both periods. Having begun with a small industrial base it is not altogether surprising that the differential shifts of various industries show positive signs. The main contributors to the upward differential shift were the electrical equipment

sector, and the non-metallic mineral-based and forest-based industries.

As far as the proportionality shift was concerned, in both periods the shift was in the downwards direction. This is to be expected of a state like Jammu and Kashmir which specialised in resource-based industries that have been slow to grow even in the aggregated national economy. The textile based sector was responsible for the largest downward proportionality shift.

IV.(B) CONCLUSION

In the foregoing analysis of employment shifts in regions and industrial groups, we highlighted the role of certain industrial blocks responsible for the broad trends in regional economic growth. In this section, we shall recapitulate the major results of our analysis and present a synoptic overview of the patterns of regional shifts observed, as well as the possible reasons for these shifts. This latter analysis has been conducted in light of the nation-wide tendencies of economic growth, in particular the period of rapid growth in the industrial sector upto 1965, and subsequently the tendency towards secular stagnation.

In the first period, we find that Maharashtra experienced a net total downward shift in employment largely on account of a downward differential shift. Odd as this fact may appear, especially for a well diversified regional economy such as Maharashtra, this tendency fits in with the overall trend in the economy of less developed regions growing more rapidly on account of conscious government policy to locate industries in backward areas, particularly those areas which abound in mineral and other natural resources.

In the second sub-period, between 1965 and 1969, there was a reversal in employment trends in the case of Maharashtra. The slight upward total shift in employment in the context of the general stagnation then prevalent in the economy is symptomatic of the changing patterns of regional growth rates during this period. The final upward shift in employment in Maharashtra is the result of two diverging tendencies. On the one hand, there is an upward differential shift and on the other, a downward proportionality shift in employment. At a general level, the reason for the upward differential shifts may lie in the fact that Maharashtra, ^{and} if compared to the other regional economies has a more mature infrastructural base, and a diversified economy, also enjoys the economies contingent on specialization and agglomeration.

The downward proportionality shift stems from the fact that in this period, there was a marked slowdown in the growth of investment in both the capital goods and consumer goods industries. Maharashtra, in particular, was also specially affected by the concentration of the slow growth industrial group of textile-based industries. Taken as a whole, the upward shift in employment during this period cannot be taken to be of positive import insofar as it is probably a manifestation of the process of concentration and centralisation of capital working itself out through a crisis-type spiral. While large-scale production may not in itself be undesirable, the emergence of oligopolistic structures acts as a fetter to rapid economic growth in general.

Tamil Nadu and Karnataka, the other well-diversified states, experienced significant upward total shifts in employment in both periods. Unlike in the case of Maharashtra, the dynamism of these economies may be traced in some measure to the moderate and high rates of agricultural growth. But, like Maharashtra, upward shifts in employment in the second sub-period may be associated with the factor of agglomeration economies, since both Tamil Nadu and Karnataka are diversified and in a position to enjoy economies of large-scale production.

During the post-1965 period, amidst the general recession in the economy, Karnataka evinced upward differential shifts in the agro-based, metal products and electrical equipment industries. At the same time, there was a downward shift in employment in the chemical and chemical-based industries and the mechanical and transport equipment industries. Although the pattern of growth in this period was mixed, in the sense of some industries growing more rapidly than the national norms for the same and others growing less rapidly, on the whole these states did comparatively well.

In the case of the less diversified states such as Uttar Pradesh, the fact of downward shifts in employment in both periods suggests that UP is a victim of a fundamental disequilibrium within its internal economy. At a general level, the problems of the state's economy may be identified with the problems attendant upon its agricultural sector. Low agricultural growth rates imply supply constraints in terms of shortages of inputs necessary for various agro-based industries. In addition to this, the absence of a dynamic primary sector implies slow growing markets, which translates itself ⁱⁿ to major demand constraints to economic activity and industrialization.

The importance of the resource-based industries is underscored by the quantitative declines - due to the downward proportionality shifts - in the agro-based and textile-based industries. This tendency is more marked in the

in the second sub-period under review.

Madhya Pradesh, another resource-based regional economy underwent a pattern of growth different from that of UP. Here in both periods there are upward total shifts in employment. In the first period, the central factor accounting for the total upward shift is the high growth rates in the capital goods and basic intermediary goods sector. In terms of the classification used in our study, the high growth industries were the mechanical and electrical equipment industries, and the chemical and chemical-based industries.

In the second period, the upward shift in employment is reduced somewhat on account of the slowing down of the growth industries which had come to base themselves in Madhya Pradesh. Somewhat surprising the textile-based industries did comparatively well, despite the widespread depression in the mass consumer goods sector in the economy.

Coming to the success stories of regional growth, Punjab and Delhi have derived ^{their} growth impetus from the burgeoning demand for consumer goods items. In the case of Punjab, this phenomena is related to its superior performance in agriculture.

In the second period, Punjab experienced upward total shifts in employment in both periods. Along with the growing market demand for consumer goods, there were concomitant increases in the demands for inputs and equipment required to produce these goods. The modernisation of

agriculture also brought in its wake the increased demand for better implements and more sophisticated farm machinery. As a consequence of this, there was a tendency for the regional economies to diversify, despite the absence of large-scale public sector projects.

Both Punjab and Delhi experienced positive differential shifts in all the industrial blocks, except for the metal products and forest-based sector, during the period of the first sub-period.

During the subsequent period, from 1965 onwards, Punjab and Delhi both suffered total downward differential shifts in employment. The inflationary conditions generated by consecutive poor agricultural seasons and reduced effective demand due to falling real income on the one hand and reduced public expenditures on the other further aggravated the situation. On the supply side also there were constraints on account of shortfalls in agricultural output.

This is particularly true of Punjab which possesses a large agro-based sector. The net outcome of this stagflationary situation in the economy, was that Delhi evinced downward total shifts in employment, while Punjab experienced only a nominal total upward shift in employment.

The experience of West Bengal presents an interesting contrast to that of Punjab and Delhi. Despite a longer history of industrialization when compared to Punjab and

Delhi, the economic climate of West Bengal remains frigid. Low rates of growth in agriculture have prevented the industrial sector from expanding on a sound footing.

In addition to the above, due to the fact of West Bengal's dependence on national markets for inputs and for the disposal of goods, the period of secular stagnation experienced by the country as a whole after 1965 severely affected the West Bengal economy. After 1965 West Bengal experienced downward differential shifts in all the industrial blocks. In contrast, the earlier sub-period was characterised by an upward total shift on account of its specialisation in growth industries.

Coming to an overview of the middle-level states, namely Rajasthan, Gujarat and Andhra Pradesh, we find that there are considerable inter-state variations existent. Rajasthan, a comparatively underdeveloped state, experienced upward shifts in employment in both periods. The fact that the magnitude of these shifts is not large is indicative of the smallness of the large-scale industrial sector in Rajasthan.

The upward shift in employment during the post-1965 period speaks of the relative lack of integration, vis a vis the rest of the economy, of the Rajasthan economy. In a sense, this comparative isolation was a cushion against the stagnation experienced by the national economy. This aspect of Rajasthan's growth is brought out in the shift

analysis by the fact the proportionality shifts in employment, in either direction, showed only nominal fluctuations.

In the case of Gujarat, there exists downward proportionality shifts in both periods. This is largely due to Gujarat's specialisation in the "slow" growth industries, such as the agro-based, textile-based and the non-metallic mineral based industries. While Gujarat's specialisation in these industries accounts for the downward proportionality shifts in employment, it enjoys at the same time, upward differential shifts in the agro-based and non-metallic mineral based industries in both periods. Consistent higher than average rates of growth in these sectors may be associated with cost reductions on account of agglomeration economies. In addition to this, the more superior natural resource endowments and high rates of agricultural growth in Gujarat have made for conditions conducive to growth in these sectors.

In the case of Andhra Pradesh, there were upward total shifts in employment in both periods. The shift in the second sub-period in Andhra Pradesh is greater than in the first. Another odd feature about Andhra Pradesh is that despite the generally low levels of growth in the agricultural sector, there is a significant upward differential shift on account of the agro-based industries in the second sub-period.

Andhra Pradesh, at the time of independence started out with a fairly restricted industrial base. In keeping with the generalised national economic trends, the period upto 1965 proved to be beneficial to Andhra Pradesh in terms of the location of certain capital goods industries. This was reflected in upward proportionality shifts in the mechanical and transport equipment block and the electrical equipments' block. In the subsequent period, while the electrical equipment industry continued to be ranked amongst the comparatively high growth industries, the mechanical and transport equipment sector fell below the national average, and the low growth rate was instrumental in reducing the net upward shift in employment in this region. Thus, Andhra Pradesh's industrial economy was affected by conditions of stagnation prevailing in the whole economy, but again, not as severely as in some other backward and highly diversified states such as Bengal.

Turning to the chronically backward states of India, namely Bihar and Orissa, we find that Bihar experienced total downward shifts in the first period, despite its being the recipient of large scale investments in the capital goods industries and basic intermediaries sector. These investments were mostly capital intensive and as a result of this, their effect on employment is not pronounced. In addition to this, Bihar with its backward agricultural sector and attendant regressive institutional and social arrangements is unable to respond to the opportunities thrown

up by the setting up of large industrial plants. In addition, recent government policy measures announcing uniform prices for steel at all railheads removed Bihar's natural advantage in this sphere. The downward differential shift in the metal products sector is striking in this context and reveals the limited nature of diversification in Bihar.

In the second period, Bihar suffered from a massive decline in the mechanical and transport equipment block on account of the cutbacks in public sector outlays and the general slowdown in the demand for capital goods. With the exception of the electrical equipment block, Bihar experienced downward differential shifts in all the industrial blocks.

Orissa experienced upward total shifts in both periods. Orissa's gains were on account of large upward differential shifts in the metal products (including iron and steel), electrical equipments and the forest-based products sector. In terms of the proportionality shift, Orissa experienced a downward shift for this period. During the subsequent period, Orissa's upward total shift was less than that of the previous period. The contributions on account of the differential shift and the proportionality shift were reversed. The downward differential shift was primarily on account of sharp declines in the rate of growth of forest-based products, while the positive

proportionality shift was mainly due to the metal products group and the electrical equipments block.

The interesting feature about the experiences of Bihar and Orissa, and in general of the economy as a whole, is that they are characterised by sharp discontinuities in their growth patterns. In particular, cyclical fluctuations in the economy highlight the propensity for our economy to suffer from disproportionality crises on the one hand, and more perniciously, to lapse into secular tendencies towards stagnation on the other.

Finally, the situation in the case of the predominantly agro-based regions is as follows.

Kerala experienced a downward shift in total employment in the first period. This is largely due to its specialization in the nationally slow growth industries such as the textile-based and agro-based industries. The decline on account of the differential shifts were of marginal significance. In the second period, Kerala experienced a slight upward total shift on account of a positive differential shift in employment. This latter shift was primarily on account of a large shift in employment in the electrical equipment sector.

With the exception of this sector, most of the other industrial blocks experienced downward shifts in employment.

In the case of Assam, its experience in the first period confirms the well-known fact about the lack of industrial development in Assam. There were downward shifts in employment on account of both the proportionality and differential shifts. The proportionality shift in employment reflected Assam's specialisation in the resource-based industries. The differential shift was on account of Assam being a late starter, or newcomer, to the process of industrialization. Assam lacks the infrastructure and extension facilities which are prerequisites to rapid industrial growth.

Finally, looking to the state of Jammu and Kashmir, we find in the first period that the shift in employment, albeit positive, was of nominal value. In the second period, there was a larger upward differential shift in employment as a consequence of the growth in the electrical industries block.

By and large, the experience of these states shows that large scale industry is neither pervasive, nor dynamic in this region. With the exception of some large investments in infra-structural items such as electrical equipments, the bulk of industrial activity is resource-based and in particular, agro-based. The exploitation of the national resource base in these regions is undoubtedly a beginning in terms of the development and growth in such economically untapped areas.

APPENDIX I : NOTE ON DATA

By combining the factory sector data with that of the non-factory sector, we see (refer tables) that the industrial profile of a state at an aggregative level undergoes substantial changes. Given the different weight assigned to the factory sector and the non-factory sector in various states, their structural bases may be different from what an analysis based purely on A.S.I. data would seem to suggest. This is all the more likely in view of ^{our} use of Census data. In order to minimise the bias inherent in using only Census sector A.S.I. data, it was thought worthwhile to do a similar analysis for the small-scale sector. This is done in order to enable us to roughly test the extent to which our earlier understanding of the structural base was representative of regions taken as a whole.

The analysis of the small scale sector was done on the basis of data available in the "All-India Report on the Census of Small Scale Industries." The Census of Small-Scale Industrial Units was conducted in 1973-74 with 1972 as the reference year. As only the qualitative nature of the 'industrial base' of the different regions is relevant for purposes of our analysis, the fact that the data pertains to 1972 does not preclude ^{an} analysis of different regions in time periods preceding 1972. The analysis of ~~the~~ production specialization in different regions in 1969 is therefore done ~~on~~ this premise.

One other advantage of using Census data is that it pertains to the modern small-scale sector. Census coverage excludes a large category of small-scale units which come within the purview of different operating specialised boards, committees and agencies. Data on the modern small scale sector is used because the sector plays an inalienable role in the reproduction of industrial capital. That is to say, the sector both consumes products and tools manufactured by the large-scale sector, and supplies the large-scale sector with certain goods. In case of the non-modern sector, such as village industries, domestic industries, etc., the inputs in the production process are unprocessed raw materials, and the tools and instruments used are traditional and therefore independent of modern large scale industry. In the context of inter-linkages between industries, the non-modernised sector is not relevant for purposes of this study, insofar as this sector is relatively self-sufficient and characterised by a low level of division of labour.

In order to put into perspective some of our results, a few points require further elucidation. The A.S.I. data which we have used does not cover the non-factory sector, which nonetheless comes within the purview of manufacturing activity. In fact this latter sector accounts for around two-thirds of all workers engaged in manufacturing activity as a whole. This limitation is important especially in

the context of a study of regional distribution because the relative shares of the factory sector and the non-factory sector are not the same in all states.

In addition, the data used here pertains to the Census sector only i.e. factories employing 50 or more workers and using power, or employing 100 workers and not using power. This further limits the representative nature of our survey in bringing out the real situation in terms of inter-regional variations in industrial development. The lack of quantitative representation is not very important for us in grasping the structural aspects of the industrial base of the different regions. Nonetheless the above qualifications need to be kept in mind while assessing our empirical results and analysis. To give a better idea of the extent to which the inclusion of the non-factory sector affects the region's industrial complexion, an attempt is made to combine region-wise the two sub-sectors of the manufacturing sector at an aggregative level. The data presented is based on the combination of two different sets of data : factory employment data released by the Labour Bureau, Simla; and data on the labour force engaged in manufacturing activity as a whole, as released by the Census organisation. On the basis of this data we get an overview of regional manufacturing activity for 1971.

To illustrate the point regarding different proportions of factory employment and non-factory employment we take a few examples from the data. In the case of West

Bengal, factory sector employment is 6.8% of total employment, which makes it, in this limited sense, the most industrialised state in India. However, on combining this with the non-factory sector, West Bengal's standing comes down to fourth position. Kerala represents an opposite case. Only 3.4% of its labour force is engaged in the factory sector. In this respect it therefore ranks fifth. But with as much as 12.4% of its labour force engaged in the non-factory sector, Kerala's combined index of employment in industry is the highest of all states.

The significance of these results lies in that the inclusion of data on the non-factory sector allows us to comment on the forms of manufacturing activity that are in a state of transition from pre-capitalist or traditional levels of industrial technology to modern methods of production. The presence of pockets of modern industry tell us very little about the processes of change now occurring, or about the emerging patterns of division of labour and specialization in the economy. By focussing on the factory sector, our study ignores the inter-linkages between this sector and the rest of the manufacturing sector.

APPENDIX II (A)NOTE ON THE DERIVATION OF DATA ESTIMATES

The basic problem we faced with data pertaining to 1969 was with regard to the region-wise allocation of the clubbed data. The clubbed information gave us the distribution of manufacturing units regionwise and industry-wise. As a first approximation, the clubbed data could have been allocated on a uniform basis according to the number of units in each clubbed state. However, since the average size of units in the different regions varies, and further, varies with the extent of industrialization, it was thought that a slightly more accurate method of allocating the data was to weigh the clubbed data by the average size of units in each state. Since both total employment in the particular state and the number of units are known to us, it was possible to get the average size of the unit in each region. It must be borne in mind, however, that this method is slightly biased in that it assumes that the particular industry under consideration shared the same features as the average of all units in the states. Computing the average size of the unit in each state for each industry is not a feasible proposition since totals regarding region-wise industrial employment is not available for the clubbed industries.

APPENDIX II(B)CHOICE OF DATA

The data used in this study to estimate the technological clusters of industries is obtained from the Annual Survey of Industries. The reason for choosing ASI data is that the data is sufficiently disaggregated to bring out the distinctions both between/and within the regions. ASI data gives us state-wise and industry-wise break-ups. However, certain problems do exist in the use of this data because of the constraint imposed by the survey clause which does not provide information about an industry unless the number of factory units located in a region are greater than two. As a result, what the ASI data does is to club all the regions of an industry where the number of factory units is two or less.

In order that comparability is maintained between the technological clusters estimated and the ASI data, the ASI classification of more than 200 industries was classified into 102 industry groups. The essential constraint is that of using 102 industry groups given by inter-industry tables used to prepare the technological clusters.

Regarding the use of variables in estimating location quotients and the industrial base, the industrial base could be computed using any important variable associated

with industries i.e. employment, output or capital employed. The results would vary depending on which variable was used. Data was available for Employment in Industry, Fixed Capital in Industry and Value Added in Industry. By running regressions it was found that employment was highly correlated with Value Added and that the estimates of the industrial base for different regions would not vary if either data on Employment in Industry or in a region, or Value Added in Industry or in a region was used. It was therefore decided to use employment figures to estimate the regional bases of the various regions.

The state-wise data was classified into 16 regions. Information on the Union Territories, apart from Delhi was amalgamated into that of adjoining states. For purposes of comparability the state of Haryana was added to Punjab, even though separate information was available for each of these states for 1969.

Appendix III: Large Scale Sector Data

Table-~~3~~4

Correspondence of Sector Numbers in the Present Study with those of M.R. Saluja's 144 Sector Inout Outout Model and ASI Code Numbers

<u>Serial Number in present study</u>	<u>Name of Sector</u>	<u>Serial Number in input Output Table</u>	<u>A.S.I. Code No.</u>
1	2	3	4
1.	Power machinery except Electric Motors	2	370.1-1
2.	Electric Motors	3	370.1-2
3.	Electric Fans	4	370.1-3
4.	Storage Batteries	5	370.1-10
5.	Dry Cells	6	370.1-11
6.	Cables and Wires	7	370.1-6
7.	Radio Receivers	8	370.2-3 & 2.4 and 370.1-8
8.	Telephone Equipment	9	370.2-1
9.	Telegraph Equipment	10	370.2-1
10.	Electric Lamps	11	370.1-4
11.	Refrigerator, water cooler and Air Conditioners	12	360.11-3
12.	Other Electrical Machinery	13	370.1-5 & 1.9 & 370.4 and 370 2.6.
13.	Locomotives	14	382-1
14.	Wagons & Passenger Coaches	15	382.2-
15.	Mfg. of Motor Vehicles	16	383.1
16.	Repairs of Motor Vehicles	17	384
17.	Motor Cycles, Scooters and Bicycles.	18	385, 389
18.	Boats and Ships	19	381.1-2
19.	Air Craft	20	386
20.	Diesel Engines and Industrial Boilers	21	360.3
	Textile Machinery	22	360.4-1

1.	2.	3.	4.
22.	Jute Machinery	23	360.4-2
23.	Sugar Machinery	24	360.4-4
24.	Tea Processing Machinery	25	360.4-5
25.	Coal and other Mining Machinery	26	360.4-6
26.	Metallurgical and Cement Machinery	27	360.4-8
27.	Chemical Machinery	28	360.4-9-10
28.	Paper and Printing Machinery	29	360.4.11
29.	Construction Machinery	30	360.4.12-14
30.	Oil mill and Rice Dal etc. machinery	31	360.4.13-14
31.	Conveying Equipment	32	360.5 1-2
32.	Speed Reduction Equipment	33	360.6.2, 5,6
33.	Power Driven Pumps	34	360.5.11
34.	Air Compressor	35	360.5.12
35.	Air Conditioning and Industrial Refrigeration plant	36	360.5.13
36.	Ball Bearings	37	360.61.
37.	Machine Tools	38	360.7
38.	Agricultural Implements	39	360.8.2.
39.	Earth Moving Equipment	40	360.9
40.	Office Machinery	41	360.11.1-2,6
41.	Sewing Machines	42	360.11.5
42.	Instruments	43	391-1, 2.1 2.2-3-4, 393
43.	Tractor	44	360.8.1
44.	Other Non-electrical Machinery	45	360.8.1 360.1-2-4-3 4.7-14, 360.12-13-5. 4-5-7-10
45.	Metal Products	46	350.1
46.	Metal Products Iron & Steel	48, 49	341.1
47.	Ferro Alloys	50	341.2
48.	Castings and Forgings	51	341.3

1.	2.	3.	4.
49	Pipes and Tubes	52	341.5
50.	Steel Structural Fabrication	53	341.4
51.	Non-ferrous Metals and alloys	54,60	342, 394-2(2), 394-1-2, 395, 399-14
52	Cement	61	334, 339-1, 339-2
53.	Mica Factories		339.7
54.	Leather	71	291
55.	Leather Footwear	72	241
56.	Other Leather Products	73	293
57.	Flour Milling	75	205-1-2-3
58.	Sugar	76	207-1.1
59.	Plantations (including processing of Tea & Coffee)	77	209-4, 209-5.
60.	Gur and Khandsari	78	207-2
61.	Vegetable Oils and Vegetable Oil Cakes	79,80	209-2, 312-1
62.	Vanaspati	81	209-3
63.	Salt	82	209.9
64.	Starch	83	209.7
65.	Breweries, Soft Drinks etc.	84	211, 212, 213, 214
66.	Biscuits and Confectionery	85	206, 208
67.	Milk and Other Misc., Food Products.	86	202-1, 209-1, 209-10
68.	Cigarettes	87	220-3
69.	Other Tobacco Products	88	220.1-2-4-5-6
70.	Fruits & Vegetable Preservation	89	203, 209.8, 204
71.	Cashewnut Processing	90	209-6
72.	Cotton Yarn and Textiles	95,96	231.1
73.	Jute Textiles	98	231.2

Table IX Contd.

- 4 -

1	2.	3.	4.
74	Woollen Yarn and Textiles	99,100	231.3
75.	Raw Silk & Silk Textiles	101, 102	231.4
76.	Manmade fibres	103	311.5
77.	Artificial silk fabrics	104	231.5
78.	Other Textile	105	231.6 to 231.9 232, 233, 239.1 to 239.8, 243.1-2
79.	Fertilizers	111, 113	311.1.1, 1.3
80.	Bricks, Ceramics	116	331-2-4, 333-2-3, 339.5-8
81.	Glass and Glassware	117	332-1 to 3 and 5 to 6
82	Wood Products	118	251-1-2, 252, 259- 1-2, 260-1-2, 399-11, 399-16
83.	Chinaware and Pottery	120	333.1
84.	Petroleum Products	123	321
85.	Tyres and Tubes	125	300-1.
86.	Other Rubber Products	126	300.2-3-4
87.	Paper and Paper Products	127	271-1 to 7
88	Plastic and Plastic Products	128	311-3, 399-3-4- 5-7-8-10-12, 392, 324
89.	Dyestuffs	129	311.7
90.	Paints & Varnishes	130	313
91.	Insecticides, Pesticides etc.	131	319.2
92.	Drugs and Pharmaceuticals	132	319.5
93.	Soaps and Glycerine	133	319.6
94.	Perfumes and Cosmetics	134	319.7
95.	Heavy Chemicals	135-137	311-2.1
96.	Synthetic Rubber & Rubber Miscellaneous Chemicals	70, 138	311-2.2,-4,-6, 8 to 10, 319- 1,-3,-4,-9 to 12

Table IX contd.

- 5 -

1.	2.	3.	4.
97.	Electricity	140	511.12
98.	Coke	142	329
99.	Matches	143	319.8
100	Printing & Publishing	144	280.1-2
101.	Mfg. of Watches & Clocks	*	393
102.	Miscellaneous	*	399-1, -6, 14, 15, 17, 201, 243.3, 331.3

* New Sectors introduced in present study with ASI data for 1965, not included in Technological Clusters as these sectors are not included in M.R. Saluja's inter-industry study. Sulphur and Rock phosphate (Sectors 114 & 115 in M.R. Saluja's input output table have been dropped because there were no inter-industry flows corresponding to them).

Appendix III

Appendix Table 3.1

FINAL EMPLOYMENT DATA ESTIMATES BY INDUSTRY FOR EACH REGION OF INDIA, 1960

Sector/ Region	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Andhra Pradesh	126	-	-	-	-	887	314	-	-	-	-	1349	-
2. Assam & Tripura	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Bihar	-	-	-	-	-	986	413	-	-	308	-	206	8503
4. Delhi	82	306	149	-	-	423	528	-	-	-	-	106	-
5. Gujarat	41	-	-	-	-	-	-	-	-	-	-	106	2902
6. Jammu & Kashmir	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Kerala	457	456	-	-	-	636	-	-	-	-	-	156	-
8. Madhya Pradesh	-	-	-	-	-	-	-	-	808	-	-	-	-
9. Madras & Pondi cherry	2251	2530	-	-	565	-	213	-	-	-	-	1314	-
10. Maharashtra	2762	1557	1260	997	764	1633	2497	2642	1033	-	1188	1893	8317
11. Mysore & Goa	1543	606	-	498	-	-	-	3642	-	307	-	205	Rs
12. Orissa	-	-	-	-	-	786	-	-	-	-	-	-	-
13. Punjab & Himachal Pradesh	492	-	299	-	-	753	184	-	-	-	146	96	3415
14. Rajasthan	-	-	-	-	-	-	-	-	-	-	-	-	6225
15. Uttar Pradesh	-	-	-	-	-	636	-	-	808	1104	-	962	2840
16. West Bengal & Andaman Nicobar	3978	2698	7791	1035	1788	2204	599	3141	2594	1643	1223	1265	9750
Total	11732	8153	9499	2530	3117	8944	4748	9425	5243	3362	2557	7658	41952

Appendix Table 2.1 (contd.)

- 2 -

Sector/ Region	14	15	16	17	18	19	20	21	22	23	24	25	26*	27	28*
1.	-	3383	3019	-	5262	838	-	161	-	107	-	-	-	-	-
2.	3960	-	524	-	236	-	-	-	-	-	561	246	-	-	-
3.	3345	9956	701	446	460	-	-	52	850	-	318	-	-	-	-
4.	-	382	1629	1091	-	895	115	-	-	-	-	-	-	-	-
5.	4467	-	2827	417	376	-	277	4165	-	-	-	-	-	-	-
6.	-	-	439	-	-	-	-	-	-	-	-	-	-	-	-
7.	-	-	906	182	-	-	-	2229	-	-	-	-	-	-	-
8.	-	-	906	182	-	-	-	2270	-	475	-	175	-	-	-
9.	454	7572	4677	2744	-	-	1175	5270	-	475	-	175	-	-	-
10.	16839	11861	6807	3679	7435	2629	5810	6830	-	1156	-	-	-	523	-
11.	-	1877	1120	-	-	-	-	590	-	108	-	-	-	-	-
12.	167	-	213	-	-	-	-	-	-	-	-	-	-	-	-
13.	4597	824	680	3151	-	-	492	52	-	678	-	-	-	-	-
14.	8620	-	206	-	-	-	-	52	-	-	-	-	-	-	-
15.	19106	2705	3554	1491	-	-	440	395	-	897	-	-	-	-	-
16.	57403	6547	4740	3000	15769	1703	230	3855	837	1238	2282	-	-	104	-
Total	119857	48812	33687	6280	30335	6065	8539	23720	837	5509	3090	739	6	627	-

Appendix Table 2.1 (contd.)

- 3 -

Sector/ Region	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1	267	-	-	-	-	-	-	-	626	-	259	-	-	243	-	775
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	75	-	-	-	-	-	-	-	569	-	-	-	-	-	1326
4	-	-	-	-	-	-	104	-	1251	627	-	1006	494	-	-	117
5	156	386	-	-	2168	-	-	-	-	-	159	-	-	-	-	229
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	936	-	-	-	3=6	-	228
8.	136	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-
9	135	203	-	207	775	-	103	-	190	-	802	514	-	296	87	667
10	215	285	863	307	1674	542	-	919	766	1192	125	1005	-	445	-	2421
11	-	73	-	-	-	-	-	-	5521	307	-	-	-	693	-	512
12	-	-	-	-	-	-	-	-	-	-	208	-	-	-	-	111
13	-	-	-	-	-	-	-	1118	-	-	-	-	-	-	-	-
13	-	-	-	-	-	234	-	-	311	579	296	-	660	494	-	-
14	-	-	-	-	-	-	-	1118	-	-	-	-	-	-	-	111
15	-	74	-	-	102	234	-	-	-	1134	-	-	653	610	-	109
16	251	73	420	-	102	-	-	-	627	120	2024	854	2029	1544	86	5949
Total	1160	1169	1283	514	4821	1010	207	2037	9292	5464	3873	2373	4348	5235	204	12665

Appendix Table 2.1 (contd.)

Sector/ Region	45	46	47	48	49	50	51	52	53	54	55	56	57	58
1	793	-	477	191	-	268	-	3851	844	97	-	-	4611	7191
2	998	-	-	-	-	-	-	-	-	-	-	-	766	559
3	1280	36258	-	3837	3026	268	3213	5184	7688	309	537	-	1934	20981
4	1095	658	-	116	-	227	-	1132	-	-	-	-	407	-
5	1114	153	-	332	884	1561	340	3644	-	-	-	-	440	583
6	-	-	-	-	-	-	-	-	-	162	-	-	-	-
7	500	-	-	-	-	445	340	742	-	-	-	-	214	409
8	149	380	-	186	-	193	-	4202	-	93	187	-	4889	2170
9	3698	1173	-	607	477	3369	391	5299	-	4387	287	-	1722	5171
10	14311	4621	808	4346	228	8730	4837	4014	-	391	-	-	1499	14470
11	585	8806	-	483	-	497	122	2513	-	94	-	28	132	4392
12	-	843	478	550	577	-	565	1041	-	-	-	-	3080	558
13	3077	1707	-	117	188	1791	-	1871	-	110	-	-	1097	3181
14	614	592	-	-	-	-	539	3710	256	-	-	-	-	975
15	4283	4128	-	330	376	2783	314	783	-	4983	173	87	1644	56190
16	22010	36640	-	19425	11741	5440	6184	1067	-	325	-	116	11878	536
Total	54507	89959	1763	30520	17497	25572	16842	39053	8788	10951	1184	231	33473	117366

Appendix Table 2. (contd.)

Sector/ Region	59	60	61	62	63	64	65	66	67	68	69	70	71	72
1	308	39	2830	380	-	259	371	349	-	2420	61110	-	104	13113
2	54484	-	127	-	-	-	147	-	-	-	-	-	-	-
3	-	253	528	481	-	-	252	374	353	3742	165	153	-	4586
4	-	-	123	750	-	-	-	254	158	-	-	75	-	14104
5	133	345	2656	1432	6365	1146	-	-	277	-	1226	-	-	180098
6	-	-	-	-	-	-	-	-	-	-	-	75	-	-
7.	4656	-	107	-	-	184	101	-	-	-	66	518	64716	9712
8	-	56	1301	308	-	183	224	64	135	-	4873	59	-	39275
9.	5259	-	678	296	329	-	62	66	288	-	1728	-	-	97637
10	505	802	6982	2893	1572	-	440	1917	994	2111	14431	774	773	260675
11	1917	56	2122	280	452	-	540	66	208	2243	2223	75	6203	27433
12	-	-	-	-	-	-	-	-	-	-	258	-	-	5310
13	266	180	941	270	-	589	667	254	159	-	-	-	-	6224
14	-	-	248	-	851	-	221	-	-	-	430	-	-	10189
15	905	1812	3954	1576	-	-	1739	216	1037	743	168	452	-	55075
16	27000	-	1748	1397	-	-	692	1867	438	2959	879	376	-	36140
Total	95432	3543	24345	10063	9569	2361	5456	5427	4047	14218	87557	2557	71796	760271

Appendix Table 2.1 (contd.)

- 6 -

Sector/Region	73	74	75	76	77	78	79	80	81	82	83	84	85	86
1	8294	-	-	-	2060	2368	374	572	355	944	375	1232	-	-
2	-	-	-	-	-	346	-	92	-	2597	-	1233	-	-
3	3863	231	77	-	307	1592	9415	9049	2242	265	157	-	-	-
4	-	-	-	-	121	3370	-	312	240	275	980	-	-	47
5	-	1530	-	-	8022	22160	-	6692	1126	207	2055	-	-	909
6	-	806	3566	-	-	1672	-	-	-	155	-	-	-	-
7	-	-	-	2309	1645	5665	756	11684	390	6622	-	-	187	1118
8	1717	-	-	1401	1004	7038	-	3339	81	321	1177	-	-	693
9.	-	-	78	-	878	7128	2425	1635	1031	3414	158	-	374	448
10	-	4815	-	2139	19063	37580	919	8929	5985	7749	511	2361	2439	4191
11	-	180	3449	-	344	7861	1979	7483	306	1939	613	-	-	272
12	-	-	-	-	-	-	-	3189	1441	440	-	-	-	-
13	-	7021	-	-	2525	9169	-	90	514	555	405	-	-	765
14	-	180	-	-	-	2669	-	1045	566	-	-	-	-	-
15	5152	4001	181	-	2384	7565	1167	4038	8381	5905	5180	-	5719	16141
16	20965	935	-	-	-	-	-	-	-	-	-	-	-	-
15	5152	4001	181	-	2068	2101	110	-	11264	379	183	-	-	-
16	20965	935	-	-	2384	7565	1167	4038	8381	5905	5180	-	5719	16141
Total	228677	19699	7351	5849	40421	118284	17145	58149	33922	31767	11794	4826	8719	24584

Appendix Table 2.1 (contd.)

- 7 -

Sector/ Region	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	4455	-	-	-	-	471	-	134	-	173	803	-	69	1233
2	-	-	-	-	-	-	-	-	-	-	-	256	1512	759
3	5642	280	-	-	-	323	198	-	404	401	3407	1534	-	2555
4	87	403	118	-	239	356	-	-	301	109	143	-	-	4626
5	1460	104	1655	-	-	4073	-	-	4395	332	2979	-	656	2159
6	-	-	-	-	-	111	-	-	-	265	-	-	-	261
7	1015	88	-	-	239	380	1531	-	658	-	143	-	143	2138
8	1480	-	-	227	-	111	-	-	-	334	1987	-	69	1818
9	-	1197	-	228	-	704	-	221	1573	1511	181	90	8151	6620
10	5508	8575	2531	1886	729	12170	3478	544	1258	1896	9778	-	947	22427
11	3533	77	-	-	-	261	339	694	677	-	214	-	-	923
12	5091	-	-	-	-	-	-	-	-	-	180	-	-	767
13	2751	115	-	-	-	156	-	-	302	232	363	-	-	2682
14	-	-	-	-	-	-	-	±34	-	-	2653	-	-	1134
15	2186	255	-	312	-	1858	199	-	1940	426	6722	-	1313	8588
16	13758	1761	133	3130	-	6756	1773	892	3016	4531	10503	90	2768	11139
Total	46966	12856	4437	5783	1207	27730	7518	2619	14524	10210	40312	1714	15628	69829

Appendix Table 2.1 (contd.)

Sector/Region	101	102	Total
1.	-	1889	143023
2	-	-	68713
3	-	-	165858
4	-	238	40369
5	72	423	282414
6	-	-	7512
7	-	2231	132488
8	-	238	86054
9	-	1193	205605
10	218	3056	625675
11	-	106	110322
12	-	-	25853
13	-	276	69743
14	-	246	43584
15	-	510	231353
16	-	3712	665382
Total	290	14118	2903948

Note: For the sector names and the corresponding A.S.I. code numbers see Table I.
 * The industries listed under Sectors 26 and 28 in Table I did not exist in 1960.
 Hence these columns in this Table are completely blank.

Source: op.cit., A.S.I. 1960, Vols. I-X.

Appendix Table 3.2

Final Employment Data Estimates by Industry for Each Region of India, 1965

Sector/Region	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Andhra Pradesh	395	-	-	-	-	1119	186	-	-	-	1707	534	-
2. Assam & Tripura	-	-	-	-	-	356	90	-	-	-	-	306	-
3. Bihar	103	-	-	-	-	860	558	-	-	470	-	414	6552
4. Delhi	161	458	233	551	-	658	1342	-	-	-	1618	58	-
5. Gujarat	2738	394	-	-	-	757	68	-	-	-	-	-	5869
6. Jammu & Kashmir	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Kerala	474	-	-	-	-	996	-	-	-	-	-	388	-
8. Madhya Pradesh	13870	-	-	-	-	639	-	-	863	-	-	99	-
9. Madras & Pondicherry	3154	3082	200	395	1469	448	514	2636	859	110	707	1623	5762
10. Maharashtra	7920	3490	1985	859	1469	5355	5616	3131	1726	587	1917	3601	6618
11. Mysore & Goa	2838	460	-	913	-	-	-	3895	-	389	-	532	-
12. Orissa	-	-	-	-	-	436	-	-	-	-	1417	-	-
13. Punjab & Himachal Pradesh	894	444	-	-	-	1768	724	-	-	196	805	1251	-
14. Rajasthan	-	-	-	-	-	749	321	-	-	-	-	317	5313
15. Uttar Pradesh	914	882	217	-	-	239	-	-	867	2473	-	1588	7125
16. West Bengal & Andaman Nicobar	5841	3084	9696	1009	1468	4502	1458	3204	3938	2124	2124	2346	16079
Total	39302	12294	12331	3727	4406	18882	10877	12866	8253	6349	10295	13057	53318

Appendix Table 2.2 (Contd.)

Sector/Region	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	951	427	8085	459	6057	892	230	404	-	496	-	-	532	-	122
2	3158	-	1297	160	148	651	-	-	-	-	718	-	-	-	-
3	2909	20284	1441	469	685	-	-	1155	-	724	-	1660	-	-	-
4.	1575	1210	2224	747	-	1706	396	-	-	327	-	-	-	-	-
5	2581	673	4364	677	498	-	1437	6663	-	-	-	225	-	894	-
6	-	-	302	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	2475	-	543	-	-	-	-	-	83	-	-	-	-
8	1305	1065	1305	307	-	-	368	570	-	186	-	-	-	-	-
9	15460	14453	10378	4580	448	722	2345	4471	-	1999	-	228	-	-	-
10	17720	23007	11318	5419	3721	3421	9274	12875	-	2170	-	-	-	1730	119
11	6259	4403	4567	185	819	-	198	608	-	-	-	-	523	-	-
12	565	182	996	-	-	-	-	-	-	-	-	-	317	-	-
13	4441	4378	1736	5548	-	-	1192	347	-	1525	-	231	-	-	122
14	11320	312	828	-	-	-	-	304	-	-	-	-	-	-	-
15	20993	2336	6102	1384	-	797	682	695	-	1399	-	-	-	-	122
16	61605	11359	7785	4088	15101	1583	193	5728	2275	827	166	-	-	681	470
Total	150842	84089	65203	24023	28020	9772	16315	33820	2275	9653	967	2344	1372	3965	955

Appendix Table 2.2(contd.)

Sector/Region	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1	-	202	-	-	-	-	-	-	1160	172	644	-	812	1249	-	680
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	149
3	215	136	616	-	-	-	-	1470	-	771	155	-	-	-	-	5589
4	158	-	272	-	-	272	349	-	761	161	122	258	752	980	-	300
5	257	68	245	122	933	218	-	1317	665	134	-	364	-	724	340	906
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	2484	696	-	-	-	603	-	401
8	121	70	-	-	207	-	88	-	-	144	191	-	-	278	700	311
9	525	292	144	-	1306	-	174	270	638	399	688	280	-	645	650	1284
10	1021	604	2458	344	3828	1672	-	1143	2467	1827	224	167	534	2559	-	4567
11	-	83	647	-	285	-	-	-	8803	417	-	-	-	665	-	643
12	-	-	-	-	-	-	-	-	-	211	-	-	-	-	-	266
13	160	102	591	250	-	492	-	157	4333	1228	641	87	1102	1289	710	472
14	-	-	-	-	-	236	-	625	-	554	97	-	-	662	-	-
15	-	203	591	-	325	244	-	-	67	1491	115	86	1405	1213	352	627
16	3699	273	3519	692	390	242	92	-	1492	239	1357	2645	1396	3289	349	16927
Total	6156	2033	9083	1408	7274	3376	703	4982	22870	8354	4234	3887	6001	14156	3101	33022

Appendix Table 2.2(contd.)

Sector/Retion	45	46	47	48	49	50	51	52	53	54	55	56	57	58
1	973	331	645	201	852	2147	94	5565	702	124	--	-	5214	10047
2	843	1061	-	-	-	234	-	102	-	-	-	-	100	484
3	1801	3446	-	5775	2689	2975	3197	7905	5494	147	968	-	1787	18386
4	30822	1025	-	437	-	283	-	2000	-	116	-	-	644	-
5	1865	812	-	1454	2271	2276	864	5368	-	-	233	128	452	1194
6	51	-	-	-	-	-	-	787	-	164	-	-	-	-
7	680	328	-	155	-	721	458	1298	-	-	-	-	-	1650
8	510	24933	-	1087	-	516	425	4999	-	-	431	-	3646	2226
9	6058	4939	-	3138	612	6407	1369	5239	-	4317	603	-	2097	8697
10	27377	5837	810	8332	1443	11051	8372	5583	238	585	-	-	1512	19227
11	1234	4420	518	844	-	1222	306	2679	141	107	-	-	227	6173
12	189	25196	525	964	667	2051	441	1160	-	92	-	-	4447	720
13	6250	3394	-	303	976	2869	891	4140	-	108	-	65	1084	4277
14	519	2908	-	289	351	238	1558	2112	107	-	-	-	20	966
15	8388	4239	-	1119	731	4032	884	1889	-	3223	3481	67	1786	53830
16	31121	55242	-	28167	10769	12003	11714	1347	122	722	-	133	12701	550
Total	90740	173112	2498	52265	21361	49024	30573	52174	6804	9705	5716	393	35727	128427

Appendix Table 2.2 (contd.)

Sector/Region	59	60	61	62	63	64	65	66	67	68	69	70	71	72
1	379	3728	3525	926	1194	353	435	670	-	3298	67192	135	267	17826
2	53753	-	74	-	-	-	-	-	-	-	-	-	-	1061
3	-	181	530	360	-	-	354	913	427	2576	-	221	-	1032
4	-	-	184	435	-	-	237	277	965	-	-	270	-	19238
5	193	57	4772	1356	10163	743	-	-	1650	-	3004	-	-	175728
6	-	-	-	-	-	-	92	-	298	-	-	-	-	-
7	5186	-	74	-	137	263	-	-	-	-	-	1202	84549	11808
8	-	165	1517	366	-	801	398	755	1442	-	3526	48	-	33751
9	5915	-	877	327	832	-	174	241	1070	-	1640	-	1898	116857
10	264	380	9049	2864	1544	-	940	2525	2765	2467	1433	1108	754	243028
11	3582	67	1880	418	152	-	845	375	429	808	1313	542	6169	35774
12	-	108	61	-	-	-	-	-	-	-	292	-	-	5324
13	330	117	1077	456	-	512	1349	161	1006	-	-	134	-	14831
14	-	123	384	-	1434	-	22	-	-	-	-	-	-	15129
15	768	2408	3512	1992	-	-	3340	514	1957	1463	389	1470	-	57120
16	24225	-	1757	1539	236	-	983	2628	340	2406	1076	425	-	42508
Total	94595	7334	29273	11039	15692	2672	9369	9069	12349	13018	79865	5555	93639	791015

Appendix Table 2.2 (contd.)

Sector/Region	73	74	75	76	77	78	79	80	81	82	83	84	85	86
1	8540	-	216	-	1347	2255	865	1466	1541	1793	257	2052	-	-
2	1279	-	76	-	-	459	-	215	-	5003	-	519	-	-
3	5298	347	126	-	-	673	7448	10640	3277	2068	404	2681	-	-
4	-	-	-	-	1340	1398	-	1016	349	471	1050	-	177	152
5	-	2019	-	1018	9429	27565	1299	8043	2282	1057	2170	570	-	1037
6	-	393	3906	-	813	1040	-	148	-	561	-	-	-	-
7	-	-	-	1794	1102	5982	1250	11560	169	5318	255	-	982	859
8	1294	499	87	1341	2583	10868	853	4961	-	1157	490	-	-	197
9	-	-	146	-	3661	7276	1479	3817	1033	4840	378	-	2043	1200
10	-	6940	-	1470	28600	44300	1798	9437	8161	8223	483	2175	3512	7231
11	-	296	4978	-	260	7270	2971	9173	187	4895	559	-	354	-
12	-	-	-	-	-	-	775	4231	489	932	206	-	-	-
13	-	10521	-	-	1912	8637	164	1078	1427	1314	644	-	176	1615
14	-	506	-	1341	700	4283	-	1954	218	77	-	-	-	-
15	2601	3878	253	-	1223	4189	853	613	13216	1676	438	-	-	98
16	251547	1825	92	-	8041	8659	977	5687	10322	9135	3645	-	6504	20421
Total	270559	27224	9880	6964	61012	134844	20732	74039	42671	48520	10979	7997	13748	32810

Appendix Table 2.2 (contd.)

Sector/Region	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	3445	60	-	-	-	1105	-	-	378	145	30267	-	204	4216
2	-	-	-	-	-	-	-	-	124	-	3532	168	440	1168
3	4906	-	-	-	-	455	158	-	615	1125	21750	3938	-	2556
4	-	563	135	-	174	694	-	-	350	293	3571	-	-	6115
5	3152	1050	2858	-	-	6522	-	-	5260	1919	10268	-	-	3392
6	-	-	-	-	-	71	-	-	-	83	1388	-	359	336
7	1411	53	-	-	347	389	1312	-	1620	458	420	-	440	2946
8	3851	-	-	-	-	333	-	115	322	315	9456	-	440	2241
9	3004	1532	-	172	262	1557	-	230	2027	2323	44315	1578	5929	12546
10	7933	13729	3825	3304	1172	20046	3230	1523	3292	5207	27200	337	879	29769
11	6266	440	-	219	-	488	359	1958	190	610	17103	-	585	2062
12	6087	-	-	173	-	71	-	-	-	-	8795	-	440	2073
13	4089	791	-	190	-	785	-	-	330	364	23439	-	-	3864
14	340	311	-	-	174	141	-	115	260	-	9338	-	384	1441
15	2947	245	-	414	-	2570	316	-	2398	1642	31835	-	440	9311
16	14001	4074	136	3766	174	8947	1681	1008	2341	6582	36906	2660	3047	15629
Total	60932	22848	6954	8238	2303	44174	7056	4949	19507	21066	279583	8681	13587	99665

Appendix Table 2.2 (contd.)

Sector/Region	101	102	Total
1	201	2902	217653
2	-	50	77793
3	-	145	212020
4	-	478	65168
5	484	345	340453
6	-	46	10838
7	-	2044	158363
8	-	479	145601
9	-	1075	359059
10	1592	3861	767190
11	420	230	170230
12	-	93	70802
13	260	229	143375
14	-	363	69744
15.	261	616	296169
16	519	5543	881919
Total	3797	18499	3986377

Note: For the sector names and the corresponding A.S.I. code numbers See Table I.

Source: op.cit., A.S.I. 1965, Vols. I-X.

Appendix Table 3.3

Final Employment Data by industry for each region of India, 1969

	1	2	3	4	5	6	7	8	9	10	11
Andhra Pradesh	399	-	706	-	1261	322	157	-	-	-	1382
Assam, Tripura & Manipur	-	-	-	-	-	-	-	-	-	-	-
Bihar	349	-	-	393	-	2009	-	-	-	740	-
Delhi	181	343	464	168	-	390	1508	-	-	158	165
Gujarat	3394	615	-	-	-	466	744	-	-	215	619
Jammu & Kashmir											
Kaerala	1024	-	-	-	-	1099	298	-	-	198	-
Madhya Pradesh	15096	-	-	-	-	1002	-	-	830	-	-
Madras/Pondicherry	2652	3790	-	256	1261	584	508	911	1081	240	692
Maharashtra	11167	4324	1816	1155	2332	4710	9926	422	1999	1071	1914
Mysore/Goa	4947	926	-	243	-	2236	-	13864	-	456	1713
Orissa	179	-	-	316	-	186	-	-	-	-	471
Punjab, Haryana, H.P.	1035	299	661	-	-	2138	530	-	-	-	1294
Rajasthan	185	-	-	-	-	1669	200	-	-	-	-
Uttar Pradesh	1493	1250	-	-	-	426	307	-	-	2430	-
West Bengal	6963	1383	6892	1869	1789	5080	1969	647	3063	1970	1731

	12	13	14	15	16	17	18	19	20	
Andhra Pradesh	346	-	1023	-	7059	324	5449	621	672	19721
Assam, Tripura Manipur	321	-	3634	-	1252	194	364	-	-	5765
Bihar	532	8672	2388	-	1146	69	679	-	-	16977
Delhi	45	-	604	-	3324	1006	-	816	221	9393
Gujarat	61	3780	2080	-	6301	763	432	-	2555	22025
Jammu & Kashmir	-	-	-	-	819	-	-	-	-	819
Kerala	443	-	-	-	2802	688	745	-	-	7297
Madya Pradesh	-	-	1571	-	2525	641	-	-	677	22342
Madras/Pondicherry	2533	5634	21825	6066	12190	4717	1467	621	7154	74182
Maharashtra	3580	5210	16460	5609	14073	7965	3504	3926	12544	113707
Mysore/Goa	1252	-	6608	-	5608	396	1719	-	772	39740
Orissa	-	-	2532	-	1041	-	-	-	-	4725
Punjab, Haryana, H.P.	1690	-	5065	-	2912	7330	-	-	2152	25106
Rajasthan	885	5116	11143	-	901	-	-	-	-	20099
Uttar Pradesh	812	7176	19895	-	8163	1271	-	-	731	43954
West Bengal (Andaman Nicobar)	2972	17997	62964	8606	5845	1328	11779	1760	312	146519

	21	22	23	24	25	26	27	28	29	30	31
Andhra Pradesh	593	-	353	-	-	765	-	-	-	112	-
Assam, Tripura Manipur	-	-	-	608	771	-	-	-	-	52	-
Bihar	84	-	272	-	1636	-	-	-	232	173	538
Delhi	-	-	-	-	-	-	-	-	-	102	-
Gujarat	7232	-	-	-	1488	686	1140	-	269	101	313
Jammu & Kashmir											
Kerala	-	-	-	241	-	-	-	-	-	-	-
Madya Pradesh	456	-	-	-	-	419	73	-	115	-	-
Madras/Pondicherry	2834	-	146	292	1663	383	94	-	618	635	1600
Maharashtra	8237	-	2557	-	1538	354	1604	295	769	391	1659
Mysore/Goa	1124	-	-	-	-	364	-	-	-	-	-
Orissa	-	-	-	-	-	-	-	394	-	-	-
Punjab, Haryana, H.P.	127	-	1657	-	-	-	88	232	-	77	327
Rajasthan											
Uttar Pradesh	581	-	1408	-	-	-	-	625	-	431	342
West Bengal (Andaman & Nicobar)	4831	2111	251	2413	2360	385	385	530	483	1380	1070
Total	26099	2111	6643	1554	9456	2972	3384	2076	2417	2454	5850

32	33	34	35	36	37	38	39	40	
-	161	175	-	-	7745	179	895	-	10978
-	-	-	-	-	-	-	-	-	1431
-	-	-	-	1129	1263	760	337	-	6424
-	106	115	196	-	715	347	72	96	1749
381	1810	314	-	656	1083	304	98	382	16257
-	-	-	-	-	676	669	-	-	1586
-	722	-	243	-	315	130	182	-	2655
-	1811	175	316	-	326	188	660	456	12097
801	5008	2237	1361	1752	3757	744	-	440	33504
-	469	-	-	-	7739	161	-	-	9857
-	-	-	-	-	-	210	-	-	604
519	110	328	296	205	3129	1181	1121	112	9510
-	-	-	-	939	525	217	-	-	1681
416	158	171	-	718	402	1347	223	323	7145
1229	478	497	225	-	801	481	1209	2705	20370
3346	10732	4012	2637	5399	28475	6918	4798	4512	135845

	41	42	43	44	45	46	47	48	49	50
Andhra Pradesh	-	872	414	178	787	494	722	860	727	2396
Assam Tripura Manipur	-	-	-	277	596	162	-	-	-	118
Bihar	-	622	-	8998	2162	42563	-	8651	1119	2606
Delhi	814	666	-	371	1904	1115	-	314	-	167
Gujarat	473	958	371	1881	2643	1047	324	2712	2033	1449
Jammu & Kashmir	-	-	-	-	82	-	-	-	-	-
Kerala	-	926	-	628	712	497	-	-	-	535
Madya Pradesh	-	-	318	253	364	33245	-	1298	350	132
Madras/Pondicherry	1056	2047	863	7749	6377	4010	-	4636	1451	5392
Maharashtra	-	2446	766	4275	28996	6537	1785	10825	1121	9602
Mysore/Goa	-	792	-	633	1828	10390	343	971	-	1233
Orissa	-	-	-	262	-	35243	1249	853	1799	671
Punjab, Haryana, H.P.	1199	1497	3031	750	7455	2500	-	657	2473	2339
Rajasthan	-	970	531	270	164	810	-	260	-	326
Uttar Pradesh	1037	1682	134	1021	8062	4848	-	456	1059	4656
West Bengal Andaman, Nicobar	750	4527	588	8453	25043	59573	-	16955	7849	5322
Total	5328	18004	7017	36000	87175	203034	4423	49498	19981	36944

51	52	53	54	55	56	57	58	59	60	
1641	3794	994	263	-	-	2532	10840	457	7576	35547
-	366	-	-	-	-	434	156	46715	-	48828
3184	7256	6670	202	452	-	1116	14404	-	572	100577
287	2032	-	-	-	-	651	-	-	-	8321
1092	5960	-	-	-	230	240	2034	409	252	24108
-	943	-	337	-	-	-	-	-	-	1362
224	711	-	-	-	-	140	1069	4989	-	10432
209	6044	-	-	225	-	1890	1369	-	81	45778
1410	6384	-	5176	873	-	1701	12457	5770	289	67641
9953	5455	-	678	173	-	1510	23382	422	943	108869
258	3190	-	-	556	-	448	7063	4300	924	32929
541	1978	-	-	363	-	2880	1074	-	86	46999
508	2912	-	90	-	-	713	4614	-	112	30850
717	4061	-	-	-	-	109	1052	-	178	9448
4435	1286	-	3901	221	-	1829	50306	902	3368	89203
12097	1932	-	1065	-	-	10307	477	24293	-	179231
36556	54301	7664	11712	2863	230	26500	130297	88257	14381	840115

	61	62	63	64	65	66	67	68	69	70
Andhra Pradesh	3433	871	1382	787	858	910	358	2158	84778	225
Assam, Tripura Manipur	25	-	-	-	-	58	-	-	-	-
Bihar	81	434	-	-	204	742	394	3326	-	392
Delhi	69	370	-	-	1326	560	444	-	43	151
Gujarat	3194	1351	10671	705	121	278	3148	-	3640	-
Jammu & Kashmir	-	-	-	-	170	-	210	-	-	-
Kerala	44	-	168	650	109	256	211	-	-	2245
Madya Pradesh	1256	433	-	302	533	477	653	-	2632	-
Madras/Pondicherry	158	797	2212	45	844	636	1388	-	1221	110
Maharashtra	6005	1682	1126	-	1471	4090	3535	2998	216	679
Mysore/Goa	1548	634	193	-	818	548	590	1025	1799	549
Orissa	240	-	504	-	332	68	317	-	335	-
Punjab, Haryana, H.P.	867	648	-	637	744	211	889	-	-	-
Rajasthan	338	361	261	-	721	-	328	-	-	-
Uttar Pradesh	2251	2083	-	-	3370	365	2587	2119	193	1556
West Bengal Andaman, Nicobar	1336	1510	399	-	1382	3796	1008	3062	998	326
Total	20846	11174	16916	3128	13003	12996	16160	14688	95858	6233

71	72	73	74	75	76	77	78	79	80	
-	17651	8079	-	229	-	750	1218	1242	1402	126331
-	1489	1223	-	53	-	-	240	992	252	4332
-	943	1816	583	-	-	1154	1056	6968	9428	27521
-	20552	-	249	-	-	492	1131	-	743	26130
-	157014	-	678	-	2435	8644	26068	2745	8890	229582
-	-	-	835	2828	-	960	734	-	230	5967
78899	13766	-	-	-	2242	1236	3181	1924	9933	114864
-	45736	1012	291	176	1042	3186	8878	821	4622	72050
4227	114761	-	-	207	-	5299	5875	3964	5456	147300
881	224874	-	7544	106	1245	28296	46803	4322	10680	346553
5658	32995	-	718	4125	-	712	3937	2124	8607	66680
-	5718	-	-	-	-	-	140	1323	2210	11187
-	16580	-	9515	-	-	2906	8031	728	730	42486
-	17912	-	566	-	1742	960	3678	1072	3473	31413
-	51663	2585	4604	112	1332	3418	3018	2096	685	84037
-	30252	183608	1852	-	-	13877	8763	564	6648	269381
89665	751906	208323	27436	7837	10042	71990	122751	30885	73989	1605826

	101	102	Total
Andra Pradesh	289	1296	257731
Assam, Tripura Manipur	-	269	72284
Bihar	-	22087	229771
Delhi	-	1689	65738
Gujarat	579	2648	349143
Jammu & Kashmir	-	210	16463
Kerala	-	741	171964
Madya Pradesh	-	1249	167870
Madras/Pondicherry	289	14096	454477
Maharashtra	1819	17450	809327
Mysore/Goa	547	6819	193384
Orissa	-	359	88180
Punjab, Haryana, H.P.	-	6193	155994
Rajasthan	-	567	80291
Uttar Pradesh	283	4015	290436
West Bengal	819	8020	766021
Andaman, Nicobar			
Total	4624	87708	4169077

Appendix IV: Small Scale Sector Data

Table 4.1

Number of units in the States/Union Territories and the important industries in them.

Sl.No.	Name of State Union Territory	No. of Units.	Important industries in the State/UT (figures in brackets) indicate percentage of units in the State/UT.
1.	2	3	4
1.	Andhra Pradesh	8091	Utensils (6%), Wooden furniture and fixtures (5%), Printing of books, journals etc. (5%).
2.	Assam	1648	Printing of books, journals etc. (10%), Candles (9%), Wooden furniture & fixtures (9%), Repair-motor vehicles & motor cycles (8%) Washing soap & soap power (5%).
3.	Bihar	5260	Sawing and planing of wood (7%), Agricultural hand tools and implements (5%), Repair-motor vehicles & motor cycles (5%), Wooden furniture & fixture (5%), Printing books, journals etc. (5%).
4.	Gujarat	9904	Parts & accessories of food and textile machinery (5%).
5.	Haryana	4591	Utensils (14%), Agricultural hand tools & implements (10%), Steel Trunks (8%).
6.	Himachal Pradesh	1495	Wooden furniture and fixtures (13%), Sawing and planing of wood (13%), leather shoes (10%), Wooden boxes, barrels (10%), Agricultural hand tools & implements (8%).
7.	Jammu & Kashmir	1039	Utensils (27%), Enamelling, electroplating (13%), Wooden boxes and barrels (7%) steel trunks(6%).
8.	Karnataka	5618	Agricultural hand tools & implements (11%), Printing envelopes, picture cards etc. (5%), utensil (53%).
9.	Kerala	6205	Wooden furniture and fixtures (7%); Printing books, Journals etc. (5%), Ayurvedic medicines (5%), Structural metal products (5%).
10.	Madhya Pradesh	7701	Agricultural hand tools & implements (10%), Utensils (7%), Wooden furniture and fixtures (6%), Sawing & Planing of wood (6%).

11. Maharashtra	15358	Printing books, journals etc. (6%).
12. Manipur	485	Wooden furniture & fixtures (48%), Readymade garments (14%)
13. Meghalaya	164	Wooden furnitures & fixtures (14%), Repair-motor vehicles and motor cycles (13%), Bread (19%), R.C.C. Bricks & Tiles (8%), Printing books, journals etc. (6%), Sawing and planing of wood (5%), Retreading of tyres (5%)
14. Nagaland	38	Candles (21%), Printing books, journals etc. (10%), structural metal products (10%), Repair-motor vehicles and motor cycles (10%)
15. Orissa	1779	Utensils (10%), Sawing & Planing of wood (7%), Repair motor vehicles & motor cycles (7%), Wooden furniture & fixtures (5%), Ready-made garments (5%), Printing books, journals etc. (5%).
16. Punjab	13675	Agricultural hand tools & implements ((9%), Mill knitted Woollen ware (7%), forgings of iron & steel (6%), Parts and accessories of bicycles (6%), steel trunks (5%)
17. Rajasthan	7062	Leather shoes (15%), Agricultural hand tools and implements (8%).
18. Tamil Nadu	16002	Mill-knitted cotton ware (6%), Utensils (6%), Printing of books, journals etc. (5%).
19. Tripura	246	Agricultural hand tools and implements (10%), Repair-motor vehicles & motor cycles (9%), Candles (8%), Biscuits, cake and pastries etc. (7%), Wooden furniture and fixtures (6%), Washing soap and soap powder (6%) Steel trunks (6%).
20. Uttar Pradesh	12851	Agricultural hand tools, and implements (9%), Utensils (7%).
21. West Bengal	13931	Utensils (10%).

22. Arunachal Pradesh	11	Sawing & planing of wood (36%), Candles (27%).
23. Chandigarh	284	Structural metal products (11%), Steel trunks (7%).
24. Dadra & Nagar Haveli	25	Sawing and planing of wood (8%), Spectacle frames (8%) R.C.C. Bricks and tiles (8%).
25. Delhi	5102	No single industry accounting for 5% or more of units.
26. Goa, Daman & Diu	637	Bread (15%), Repair-motor vehicles & motor cycles (10%) Printing books, journals etc. (9%), structural metal products (21%).
27. Mizoram	61	Biscuits, cakes, pastries etc. (21%), Wooden furniture and fixture (18%), Repair-motor vehicles and motor cycles (13%).
28. Pondicherry	294	Wooden furniture and fixtures (10%), Wax & Polishes (5%).

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Table 4.2

Statewise percentage of No. of Units and Gross output

State/Union Territory	Per cent <u>No. of Unit</u>	Per cent <u>Gross value of output</u>
1. Andhra Pradesh ...	5.80	3.30
2. Assam ...	1.18	0.87
3. Bihar ...	3.77	2.77
4. Gujarat ...	7.10	8.02
5. Haryana ...	3.29	3.91
6. Himachal Pradesh ...	1.07	0.17
7. Jammu & Kashmir ...	0.74	0.42
8. Karnataka ...	4.03	3.06
9. Kerala ...	4.45	4.44
10. Madhya Pradesh ...	5.52	2.69
11. Maharashtra ...	11.00	20.34
12. Manipur ...	0.35	0.13
13. Meghalaya ...	0.12	0.05
14. Nagaland ...	0.03	0.02
15. Orissa ...	1.29	0.86
16. Punjab ...	9.80	9.35
17. Rajasthan ...	5.06	2.17
18. Tamil Nadu ...	11.46	12.36
19. Tripura ...	0.18	0.06
20. Uttar Pradesh ...	9.21	8.56
21. West Bengal ...	9.98	10.38
22. Arunachal Pradesh ...	0.01	0.00
23. Chandigarh ...	0.20	0.24
24. Dadra & Nagar Haveli ..	0.02	0.02
25. Delhi ...	3.66	5.26
26. Goa, Daman & Diu ...	0.46	0.41
27. Mizoram ...	0.04	0.01
28. Pondicherry ...	0.21	0.12
All India	100.00	100.00

Statewise number of units, employment, investment in fixed assets and gross output.

S.No.	Name of State/U.T.	No. of <u>Units</u>	No. em- <u>ployed</u>	Investment in fixed assets <u>(Rs. Lakh)</u>	Gross output <u>(Rs. lakh)</u>
1.	Andhra Pradesh ...	8091	78673	4587	8591
2.	Assam ...	1648	19652	1109	2264
3.	Bihar ...	5260	61465	3179	7203
4.	Gujarat ...	9904	114500	9604	20862
5.	Haryana ...	4591	48503	4045	10179
6.	Himachal Pradesh ...	1495	5851	316	452
7.	Jammu & Kashmir ...	1039	9614	367	1103
8.	Karnataka ...	5618	64385	4379	7977
9.	Kerala ...	6205	126514	4408	11565
10.	Madhya Pradesh ...	7701	59612	3043	7003
11.	Maharashtra ...	15358	239770	22666	52947
12.	Manipur ...	485	3409	90	332
13.	Meghalaya ...	164	1188	87	120
14.	Nagaland ...	38	446	28	48
15.	Orissa ...	1799	18624	879	2226
16.	Punjab ...	13675	123544	8154	24337
17.	Rajasthan ...	7062	45680	2559	5638
18.	Tamil Nadu ...	16002	215182	11115	32178
19.	Tripura ...	246	1698	79	145
20.	Uttar Pradesh ...	12851	160027	9133	22267
21.	West Bengal ...	13931	176198	9190	27022
22.	Arunachal Pradesh ...	11	181	1	11
23.	Chandigarh ...	284	2882	333	635
24.	Dadra & Nagar Haveli ...	25	361	31	47
25.	Delhi ...	5102	64880	5268	13698
26.	Goa, Daman & Diu ...	637	7253	600	1080
27.	Mizoram ...	61	336	21	30
28.	Pondicherry ...	294	2570	197	314
All India ...		139577	1653178	105468	260274

Small Scale Industries outside the purview of small Industrial Development Organisation.

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- (i) Handlooms and powerlooms
- (ii) Khadi.
- (iii) Village industries such as:

1. hand-pounding of paddy
2. Village oil (ghani)
3. gae and Khandsari
4. palm gur
5. Village leather
6. non-edible oils and soap
manufactured with non-edible oils.
7. handmade paper
8. bee-keeping

- (iv) Sericulture (silk)
- (v) Coir and coir products
- (vi) Slaughtering and preparation of meat
- (vii) Grain mill products (rice mills, flour mills etc)
- (viii) Manufacture and refining of sugar
- (ix) Production of common salt
- (x) Hydrogenated oils
- (xi) Other edible oils
- (xii) Dairy products
- (xiii) Cotton ginning, cleaning and baling
- (xiv) Cotton textiles
- (xv) Woollen silk and synthetic fibre
textiles
- (xvi) Jute, hemp and mesta textiles

§ Including all woven
§ material and process of
§ bleaching & dyeing.

- (xvii) Handicrafts such as:

1. bamboo and cane products (baskets, mat & furniture)
2. embroidery, crapes, laces and fringes
3. artistic leather products
4. fur and felt wearing apparels
5. earthenwares and plaster statues
6. art metalwares
7. bone, ivory and horn products
8. goldsmithy and silversmithy
9. miscellaneous art works, presentation articles,
novelties etc.

- (xviii) Broomsticks
- (xix) Coffee curing, roasting and grinding
- (xx) Manufacture of bidi cigar, cigarettes, cheroots, snuffs
and other tobacco products.
- (xxi) Publishing and allied industries
- (xxii) Repacking.

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