CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

In planning for development, industrialization is assigned a crucial role because it is perceived to be the dynamic force with which to galvanise the rest of the economy. An assessment of the overall Indian experience of industrialisation is not an easy task considering the multiplicity of the objectives that were sought to be achieved. A number of studies have tried to analyse individual aspects of the process of industrialization in India.

Studies reviewed in this chapter are broadly grouped under four heads namely,

(1) Studies on the structural changes and growth pattern of industries.
(2) Studies on the industrial growth performance of states.
(3) Studies on productivity trends in the industrial sector.
(4) Studies on the regional disparities in industrial development within and among the Indian states.

2.2 STUDIES ON STRUCTURAL CHANGES AND GROWTH PATTERN

The literature on Indian industrialisation is rich with analytical studies that capture the structural transformation and the pattern of growth in the industrial economy in different time periods since independence. In particular, there have been notable contributions on the question of industrial
deceleration (stagnation) since the mid-sixties. There is also a burgeoning literature on the recovery of overall growth in the eighties which to some is due to high growth of certain newer types of industries with qualitatively different types of structural change as compared to the earlier phase. It is attempted to review the major studies in this area.

At the All-India level S.L. Shetty (1978) analysed the structural retrogression in the Indian economy and found that the share of the ‘secondary’ sector in net domestic product which was continuously rising earlier, remained stagnant or declined in the sixties. Within the industrial sector, the growth of basic and capital goods industries had been slower than in the past and also slower than the average growth in industrial output. He also observed that in a majority of the industries which belonged to the elite oriented consumer goods sector, the growth had been moderately high. The industries which were manufacturing mass consumption requirements like cotton textiles had gone up marginally. Also within cotton textiles, the share of coarser varieties of cloth had declined drastically.

Sharma’s (1981) study revealed that industrial policies in the first two five year plans had created a good industrial base, but failed to generate adequate growth of employment in the industrial sector. Sharma underlined the need for an integrated approach to planned industrial growth covering all agencies involved viz. banking, finance and agriculture for the overall development.

Shetty (1982) examined the industrial growth and structural changes as seen through the ASI data for the factory sector of India. According to him, the share of fixed capital of the various industries remained the same in 1978-79 as it was in 1973-74. The share of employment and emoluments paid showed a declining trend whereas the share of profits and interest payments rose sharply. The analysis at two-digit level industry-classification showed that 43.9 per cent of total capital was accounted for by the electricity generation, transmission and distribution industry. However, its share in other attributes like employment, emoluments and gross output were low. Shetty concluded that over the years, the three industry groups which emerged as predominant in the factory sector in terms of fixed capital were electricity, basic metals and chemical and chemical products, but in terms of number of units these three industries had a very low share. On the inter-industry differences in structural ratios, the capital
output ratio was high (8.25) in the electricity and basic metals and alloys and low (3.18) in cotton and jute textiles, metal products, wood products, beverages and tobacco products.

Kumar (1985)\textsuperscript{xvi} examined the developments in the industrial sector in India during the period 1950 to 1970. Based on the weights assigned to the output of various industry-categories, he found that the weights of basic and capital goods industries increased from 20 per cent in 1950 to more than 48 per cent in 1970. According to him, the growth of capital goods industries in India could increase, only if adequate provisions were planned to ensure a steady growth in consumer goods industries. But the growth of consumer goods industries remained constrained because of fluctuations in the performance of agriculture and inequitable distribution of income.

Ahluwalia (1985)\textsuperscript{xvii} studied the industrial growth in India by focusing on the specific question of stagnation since mid-sixties. To analyse the trends across industries, she had estimated semi-logarithmic time trends for each of the measures like value added, value of output, etc. The period of analysis was from 1959-60 to 1979-80 with a break at 1965-66/1966-67. She found that the result obtained in the trend analysis using NAS and ASI data on value added and value of output were very much different from those using the industrial production data. NAS and ASI data showed that the industrial deceleration was concentrated in heavy industries (i.e., basic goods and capital goods), while the industrial production data revealed deceleration across the board. Based on the empirical analysis of industrial deceleration, she concluded that four principal factors were responsible for deceleration are (1) slow down in investment, (2) poor management of the infrastructure sector, (3) slow growth in agricultural incomes and the resulting slow growth in demand for industrial products and (4) restrictive industrial and foreign trade policies leading to high-cost industrial structure.

C.P. Chandrasekhar (1988)\textsuperscript{xviii} while analyzing growth and structural change in Indian industry adopted the following periodisation: 1951-1965 period of growth; 1966-1975 period of stagnation; and 1976-1985 period of recovery. He concluded that in 1950’s and the early 1960’s industrial growth occurred across the board. During this period, consumer goods as a whole grew at a pace slower than the basic, capital and inter-mediate goods sector. After the mid-sixties, though the consumer goods sector as a whole did record a slight deceleration, consumer durables continued to grow at a rate (6.2 per cent per annum) much higher than the rate of growth of the capital and intermediate goods sector. According to
him, the 1960's growth was dependent on ‘chemical-based’ and ‘metal-based’ industries rather than on ‘agro-based’ industries. He also argued that the policies of liberalization in the eighties were directed towards consumer-goods led industrial growth.

T. Rama Rao (1989) analysed the structural changes in the registered manufacturing sector and their impact on different aspects of the Indian economy. The main data source for his analysis was ASI and the period of analysis was from 1965 to 1985. He observed that the cotton textiles industry and agro-based industry which were predominant in 1950’s lost their importance gradually. On the other hand, the importance of engineering and chemical based industries increased and in later years, electrical products and the electronic goods dominated the industrial scene. Two industry groups viz. ‘food products’ and ‘non-electrical machinery’ were found to be having a larger share in total value added. In terms of total fixed assets, ‘basic metals and alloys’ constituted the highest share at 14.8 per cent followed by chemical industries with 9.5 per cent.

Raphael Kaplinsky (1997) made a study on ‘India's Industrial Development: An Interpretative Survey’, and argued that there has been a significant shift in Indian industrial strategy, from a heavily regulated and inward-oriented structure toward significant liberalization in both domestic and trade policy. Further, it is argued that Indian industry has sustained its historically impressive growth performance. The two waves of liberalization - in the 1980s and after 1991 - have been associated with significant structural changes.

Kaliappa Kalirajan (2004) questioned whether the manufacturing sector in Indian is an engine of growth? The main objective of the study was to analyse the sources of output growth in manufacturing in the post-reform periods, and to identify the crucial factors influencing manufacturing productivity. He has also examined the characteristics of foreign direct investment in Indian manufacturing to determine the prospects for technical progress in manufacturing in India. The analysis revealed that manufacturing output growth in the post-reform period is ‘input-driven’ rather than efficiency driven. The analysis indicated that on an average, about 15 per cent output growth could be achieved by improving firms’ efficiency without having to increase any inputs. The study advocated policies to
improve production efficiency through encouraging firms to invest more in R & D, technical training for workers, and facilitating managers with more computer aided design and decision making processes.

S. K. Mishra (2006) xxiii has done a study on ‘Globalization and Structural Changes in the Indian Industrial Sector: An Analysis of Production Functions’. This study investigated the structural changes in the manufacturing sector of India brought about by liberalization and globalization of the economy. Structural changes in terms of employment of labour and capital, indicated by replacement of the former by the latter, and changes in returns-to-scale have been examined by estimating production functions. State-wise data for 1990-91 and 2003-04 have been analyzed. The findings indicated that the rise in industrial output during the reference period is accounted to substitution of capital for labour in almost all states. Elasticity of substitution has declined for most of the industrialized states. In the pre-globalization period, the industries experienced increasing returns to scale. Globalization has possibly given way to diminishing returns to scale. Along with a rise in industrial output, globalization has led to a decline in regional disparities in terms of population-deflated indices of employment of manpower and capital, and the resultant output.

Growth and structural change in manufacturing industries since 1980-81 to 2001-02 was analysed by Avaneendra Misra (2006)xxiii. The study examined the impact of India’s economic reforms on industrial structure and productivity. The study used the ASI data covering both two and three- digit levels of industries. It is argued that the performance of manufacturing sector in India was quite low during the study period and this pattern was not only the result of exogenous factors, but also the consequence of the policies being followed under economic reforms.

Sumon Kumar Bhaumik and Subal C. Kumbhakar (2010)xxiv used empirical evidence from plant-level data to study the efficiency levels in the Indian manufacturing sector. It is generally believed that the structural reforms that were introduced in India following the macro-economic crisis of 1991 ushered in competition and forced companies to become more efficient. However, whether the post-1991 growth is an outcome of more efficient use of resources or greater use of factor inputs remains an open empirical question. The results of this study indicated that while there was an increase in the
productivity of factor inputs during the 1990s, most of the growth in value added is explained by growth in the use of factor inputs.

The performance of Indian manufacturing in the post reform period was studied by Poonam Gupta and Utsav Kumar (2010). The study discussed the reasons behind the modest performance of the manufacturing sector in India. It argued that there are many factors that have inhibited the growth of the industrial sector in India. One major factor is the rigid and strict labor laws which have affected the industrial performance in a number of ways, by keeping the size of the establishments small, by not encouraging the production of labor intensive goods, by pushing activities to the unorganized sector, and by keeping the Indian industry uncompetitive. Besides the labor laws, other factors that are responsible for the modest performance of the manufacturing sector include difficulty in the acquisition of land for industrial use, inadequate financing and infrastructure, and a cumbersome business climate.

A study on ‘Pro-Market Reforms and Indian Industry: Developments in the Last Two Decades’ was done by Bishwanath Goldar (2010). The post-1991 pro-market reforms in India were expected to reduce price-cost margins in industries, lower inter-firm productivity dispersion, increase export intensity of firms, and cause changes in the size structure and industrial composition. But, barring the increase in export intensity, the other effects have not occurred or occurred only marginally, despite the reforms induced increases in import competition and possibly some intensification of competition among domestic firms as well. The industrial growth rate has not accelerated in the post-reform period compared to the 1980s. This seems less attributable to stalled reforms, than to infrastructure bottlenecks and demand deficiency.

2.3 STUDIES ON INDUSTRIAL GROWTH PERFORMANCE OF STATES

Studies which have examined the issues of structural change and growth at the regional (State) level are reviewed and presented.
Mahesh Bhatt and Chavada V K (1970) made a study on ‘Industrial Growth in Gujarat: An Appraisal’. The criteria of industrial growth identified are, (i) contribution of manufacturing sector to the State income; (ii) number of registered factories; (iii) growth of industrial employment; (iv) gross value of output of the manufacturing sector; and (v) share of value added in the State income which originates from the manufacturing sector. It was found that the State is by no means in the forefront of industrial development, and the industrial structure of Gujarat represents lopsided development, and needs diversification with respect to industries as well as regions. This slow growth of the industrial economy of Gujarat was attributed to the inadequacy of the infrastructure including power, water, roads and communications, and to the concentration of entrepreneurship in the hands of a few castes.

Y.K. Alagh and P.G. Pathak (1973) analysed the structural aspects of industrialisation in Gujarat during 1960-69. Their analysis revealed that the major industries in Gujarat consisted of textiles, chemical and non-metallic mineral products, with machinery industries becoming more important in the later decade. During the period of analysis, the fastest growing industries were machinery industries, bicycles and jewellery, closely followed by agro-based industries. They concluded that agro-based and engineering industries were at the core of the fast growing industrial sectors of the state economy.

Minocha A.C. (1981) attempted to examine industrial development experience of Madhya Pradesh during 1960–1975. This study used the data published by ASI which covers entire registered factories sector, up to 3 – digit level of industrial classification. The study concluded that, the state has not witnessed anything like the industrial revolution and the industrial structure of the state is lopsided and unbalanced. It concluded that regional imbalances have been accentuated in the state during the period under study.

Kulwinder Kaur (1983) critically examined the growth pattern of industries in Haryana over the period 1966-78 and observed that employment, output and value added in the registered factory sector of Haryana exhibited a higher annual average growth rate than that of Punjab. The factors which contribute to rapid industrialization in the state were geographic location, rapid development of
infrastructure (power and transport facilities), agricultural development and special incentives, facilities and concessions offered by the State Government.

C. Thangamuthu (1983)\textsuperscript{xxxi} in his study on ‘Industrial Structure and Changes in Tamil Nadu’ analysed the changing trends in the relative shares of different industrial groups in terms of labour, capital employed and value added during 1960-80. The study observed a declining trend in food processing, textile, paper and printing and construction industry groups, whereas chemicals, engineering, metal products and transport equipment showed a substantial progress in their relative contributions to the industrial sector till mid-sixties. From mid-sixties onwards, the declining trend was seen in food processing and textiles, but the rate of decline was slower. On the other hand, the capital goods industries which were increasing till 1966, showed deceleration after 1966. However, he pointed out that the industrial sector of Tamil Nadu witnessed a sort of structural stagnation since the mid-sixties. Regarding the spatial dimension of industrial structure in Tamil Nadu, he pointed out that Madras and its sub-urban Chengalpattu accounted for the major share of 57 per cent of total capital, 50 per cent of value added and 40 per cent of labour employed in the industrial sector. The least industrialized districts were Pudukottai and Dharmapuri which accounted for a meager share of 0.35 per cent of total capital, 0.14 per cent of value added and 0.68 per cent of labour employed in 1976-77.

Mathew P.M. (1984)\textsuperscript{xxxii} attempted to analyse the impact of industrial policy in Kerala on the industrial growth of the state over the period 1960 – 1978, using Annual Survey of Industries (ASI) data. The study argued that the central issue of industrialization in Kerala is choosing those industries which can create the right type of linkages. It concluded that provision of the right type of legal and institutional framework and a concrete programme of action for the same are the imperatives for the orderly growth of Kerala industry.

The study made by M.L. Pandit (1985)\textsuperscript{xxxiii} on ‘Industrial Development in Punjab and Haryana’ attempted to enquire the factors which influence the location of footloose industries and the development of a particular region in terms of such industries. On the basis of comparative analysis of the cost of
production, he found that the location and development of foot loose industries in Punjab and Haryana regions were influenced by the easy availability of skilled labour and entrepreneurial capabilities.

Rana Pratap (1985) studied the regional pattern of industrial complexes in Bihar. The objectives of his study was to delimit the industrial complex on the basis of workers employed and units clustered together and their regional pattern, to present a chronological study of the growth of industries and industrial complexes and to analyse the factors affecting the growth of industrial complexes. From the analysis, he found that the industrial development of the state was lop-sided. He identified six industrial complexes and found that the locational trend of these complexes was raw-material oriented.

In another study, M.N. Sivasubramanian (1986) analysed the structural change in the manufacturing sector of Tamil Nadu during 1960-80. Using ASI data, he analysed the growth pattern of value added and employment for the sub-periods 1960-65, 1965-70, 1970-75 and 1975-80. The study revealed that the traditional industries viz. food products, textiles, tobacco & beverages and leather & leather products together accounted for about 60 per cent of the total value added in 1960. But, their shares together went down and the share of non-traditional industries went up in 1970. Between 1970 and 1980, there was no major change except that the share of chemical and chemical products went up. Regarding the employment structure, it was observed that in 1960, traditional industries accounted for about 60 per cent of the total factory employment. Their share fell down to 45 per cent in 1970 but marginally rose to 50 per cent in 1980. In terms of input-based classification, the agro-based industries registered a fall in their shares while metal-based industries increased their shares between 1960 and 1970. During 1970-80, chemical based industries increased their share while metal based industries experienced a decline in their share in value added. In terms of use-based classification, the basic goods and capital goods industries increased their shares during 1960-70 and a fall in their shares during 1970-80. The study concluded that the industrial structure of Tamil Nadu underwent a substantial change between 1960 and 1970 and that there was no major change in the industrial structure between 1970 and 1980.
In a study on trends in industrialization in Tamil Nadu, Nasir Tyabji and Padmini Swaminathan (1989)\textsuperscript{xxxvi} found that machinery and machine tools, transport equipment, rubber, plastic, petroleum and coal products, chemicals and chemical products and cotton textiles accounted for 55.4 per cent of value added in 1985-86. These industries formed the base of the industrial structure of Tamil Nadu since Independence. Tobacco and beverage recorded the highest annual compound growth rate of 14 per cent during 1970-1980 which had showed a decline of 8.3 per cent during 1960-70. Transport equipment which grew at 16.7 per cent in 1960-70, virtually stagnated during 1970-80. In terms of modernization of the industrial structure, there had been a substantial progress. In 1960, the traditional group accounted for 68.5 per cent of value added and the modern for 25.8 per cent. In 1970, the corresponding proportions were 42.6 per cent and 45.8 per cent. By 1980, the traditional sector rose marginally to 44.7 per cent and the modern more substantially to 54.6 per cent. The study concluded that the industrial situation in Tamil Nadu showed a mixed pattern, and that, stagnation seems to stem from the early 1980’s.

Surjeet Singh (1989)\textsuperscript{xxxvii} did a study on the industrial structure of Rajasthan. The period of the study was from 1977-78 to 1984-85. He found that the share of manufacturing sector in the State Domestic Product had declined. There was an increase in consumer goods industries in contrast to a decline in capital goods industries. The average capital-output ratio marginally increased but the major capital goods industries showed a decline. Capital intensity was the highest in electricity group followed by chemical and chemical products with lowest in repair services. The highest labour productivity was in chemical industry and the lowest in leather and fur products.

In a study on “Industrial Growth and Structure: Analysis of Manufacturing Sector in Karnataka” by Upendranth C, Vijayabaskar M and Vinod Vyasulu (1994)\textsuperscript{xxxvii} a disaggregated analysis of growth and structure of the manufacturing sector at the district and industry level was attempted. The analysis pointed to a growing capitalization of the industrial sector and stagnant employment growth. It was also observed that there has been concentration of industries in few districts. Based on the analysis some policy recommendations such as spatial diversification of industries and employment generation in backward areas were made.
Sreemanta Dasgupta (1998) studied the industrial development of West Bengal with a regional perspective. An attempt has been made primarily to assess the performance of the industrial sector in West Bengal. The state’s industrialisation experience has been analysed relative to the performance of seven other leading industrialized states for the period 1965 to 1987. A component of change analysis has been carried out for each period to determine the characteristics of industrialization in the states. The period 1965 to 1987, has been sub-divided into three shorter periods – 1965 to 1970, 1970 to 1977 and 1977 to 1987. The periods were selected so that each period has certain uniform characteristics relating to the performance of the industrial sector in the country as a whole. On the basis of the component of change analysis, he found that consistently for the three periods of the study, the structural component as well as the differential component was negative consistently. This implied that the state had predominantly industries which registered lower growth rates than their national counterparts. The industries in the state also lacked competitive edge since the competitive component was negative. It also lacked locational advantage as indicated by the negative allocative component. The state was thus a stagnant region industrially.

The study made by Burange L G (1999) on “Industrial Growth and Structure: Manufacturing Sector in Maharashtra”, revealed that Maharashtra occupies a very significant position as far as the manufacturing sector in India is concerned. However, since 1970s the share of the secondary sector in the state domestic product has been stagnating around 33 to 34 per cent. Further, the state is experiencing significant changes in the industrial composition wherein capital and intermediate goods industries are becoming dominant. The manufacturing sector itself was undergoing major structural changes. Over the period 1979-80 to 1994-95 the state realised a high growth rate in fixed capital resulting in decrease in employment. The rising capital intensity and thereby substitution of capital for labour, low growth rates of output and value added, all did not indicate satisfactory performance of the state on the industrial front. However, there was a revival in the manufacturing sector in the post-reform period.

Dinesh N Awasthi (2000) did a study on “Recent Changes in Gujarat Industry: Issues and Evidence”. From the study it was founded that Gujarat state has responded well to economic reforms and industry, especially manufacturing industry has grown at a faster pace. The state has also improved its relative
rank from 4th in 1988-81 to 1st in 1990-91. Gujarat’s industrial structure is dominated by 10 major groups which account for over 80 per cent of the number of factories, about 97 percent of fixed capital investment, 92 per cent of gross output and 86 per cent employment in factory sector. The concentration analysis suggest that the investments have flowed mostly to talukas that have proximity to some major industrial concentrations, with the advantage of forward and backward linkages, or are on major trunk route or near the ports. The study concluded that though the government of Gujarat has been offering an impressive array of fiscal and financial incentives to attract industries, a critical bottleneck that could dampen the flow of industrial investment is that of infrastructure. For long term growth, a greater emphasis on the infrastructure sector is needed. Small scale industry can be helped by promoting cluster. The government of Gujarat must take note of this fact, while formulating its policies for industrial development.

Subrahmanian K.K & E. Abdul Azeez (2000) in their study on “Industrial Growth in Kerala: Trends and Explanations”. traced the trends in industrial growth against the backdrop of the overall economic growth in Kerala under the influence of the ongoing economic reforms and evaluated it against the performance of Karnataka, Tamil Nadu and all-India. The analysis revealed that a phase of growth revival has set in the overall economy since the late eighties. Though the manufacturing industry had improved its growth performance over time, the growth rates recorded during the nineties are not higher than the corresponding figures for the eighties. The relatively low growth profile of the manufacturing industry, when the general economy is growing remarkably well, appears a riddle of the recent growth trends under the reform process in Kerala. It is argued that inadequate growth of investment has constrained the pace of modernisation of old units and establishment of new units based on ‘state-of-art’ technology needed for the survival and growth of industries in a globally competitive environment.

Economic reforms and productivity trends in Indian manufacturing, was examined by Jeemol Unni, N. Lalitha, Uma Rani (2001). They analysed the trends in growth and efficiency in the utilisation of resources in the Indian manufacturing industry before and after the introduction of economic reforms. It used a comparative analysis of all-India figures with Gujarat, one of the most industrially developed
states of the country. The study showed that both the organised and unorganised sectors in Gujarat seemed to be doing better than the all-India average in terms of growth of value added. Growth in the manufacturing sector in Gujarat was also more efficient than average all-India growth after the reforms were introduced. Gujarat's strategy of physical infrastructure development, leading to industrialisation, has been the main reason for the growth of the state's manufacturing sector.

A Study on ‘Output Growth, Inputs Productivity and Technical Progress in the Major Manufacturing Industries in Tamil Nadu’ was made by Muthuraj, M (2004)xliv. The study aimed at analyzing the total factor productivity growth, production function, technical change and sources of output growth in the major manufacturing industries in Tamil Nadu. This is divided into two sub-periods 1979-80 to 1990-91 and 1991-92 to 1997-98. The seven industries which contribute more than 70 per cent of the total value of industrial production are selected (20-21, 23, 29, 30, 31, 35-36 and 40). The Cobb-Douglas, Constant Elasticity of Substitution and Variable Elasticity of Substitution were applied. The study revealed that the state of Tamil Nadu has achieved significant progress in the development of industries.

Vanitha, S. (2005)xlv attempted a study on “Total Factor Productivity Growth in Tamil Nadu Manufacturing Industry”. The main aim of the study was to analyse the growth of labour, labour productivity, labour absorption capacity and labour efficiency besides TFP in the manufacturing sector at the aggregate and at two-digit level during the period 1973-74 to 1997-98. The performance is studied with parameters like, growth rate of output, value added, real capital stock, capital output ratio, incremental capital output ratio, labour and capital productivities, capital intensity, labour absorption capacity, efficiency in the utilization of labour and total factor productivity. Six two-digit industries were selected. The study period 1973-74 to 1997-98 has been divided into three distinct sub-periods namely (1) Pre-liberalization period (1973-74 to 1981-82), (2) Mild-liberalization period (1982-83 to 1990-91) and (3) Intensive-liberalization (1991-92 to 1997-98). It is inferred that mild-liberalization measures introduced in the early 1980s have accelerated the growth rate of labour productivity in Tamil Nadu registered manufacturing industries during 1980-81. However, intensive liberalization and globalization policies introduced during nineties have not resulted in improvement in the growth rate of labour productivity; rather they reduced the growth rate. It was also found that mild-liberalization policies have
resulted in positive growth rate in total factor productivity at the aggregate as well as the disaggregate two-digit level, and intensive liberalization policies have resulted in negative growth rate.

Vanaja, S.R. (2007) undertook a study on “Industrialisation in Tamil Nadu: A Study in Growth and Structure”. The main objective of the study was to trace the trends in the growth of industries in Tamil Nadu during 1980-81 to 1997-98 and the changes that occurred thereby in the structure and location of industries in Tamil Nadu. The study gave a three dimension picture showing growth structure and location of industries using simple statistical tools like linear trend, percentages and quotient of industrialization. The variables used in the study were, number of factories, productive capital, employment, total output and net value added. The industries were grouped under the heads as basic, capital, intermediate and consumer goods based on CSO use-base classification. The study revealed the fact that there was capital intensive nature of industrial development. More than 50 per cent of the total industrial activity of the state is concentrated in industries like cotton textile, chemical products, machinery and machine tools, transport equipment, textile products and food products. More than 50 per cent of the total numbers of factories are located in Coimbatore, Chengalpattu, Chennai and Salem districts in Tamil Nadu. The study recommended that the Government of Tamil Nadu should take steps for effective implementation of dispersal policy in the state.

A Report on the Industrial Status of Orissa (1973-2006) was prepared by Subhajit Sr. (2008). Orissa was considered one of the most backward states in terms of industrial development in India. With a high level of the population below the poverty line, (about 66.7% of rural households are below the poverty line) the status of industrial development does not look to be very encouraging. Beside the persistent level of high poverty, the state has also suffered from devastating natural calamities (floods, cyclones) at a high frequency. This has prevented the state from recovering from its past damages and hence has really halted the industrial growth. But at the same time the Economic Reforms (1991) which is considered as the economic renaissance of India has gone about in improving the industrial status of Orissa in different aspects. With this viewpoint that the industrial status of Orissa although not the best in economy but trying to improve in the recent past, the study provided a brief analysis of the performance of the various industrial wings of Orissa in the last decade.
A study on “Growth and Structure of Industries in Madhya Pradesh”, was done by Malhotra Gunjan (2009). The major objective of the study was to find the position of Madhya Pradesh economy after its partition with Chattisgarh state since it was believed that it would be better after its partition. On the basis of key indicators like net value added, productive capital, number of registrations and the employment prospects in the manufacturing units of the economy are not very encouraging. The study revealed that neither liberalization nor the bifurcation of the state could boost up the industrial growth in the state. The relative position of Madhya Pradesh economy was far behind that of India in the manufacturing sector and the major industries that had shown some improvement over the study period were beverages, chemical and chemical products, basic metal and alloy, power, automobiles and textile products.

The study on “State Business Relations and Performance of Manufacturing Sector in Andhra Pradesh”, by G. Alivelu, K. Srinivasulu, M. Gopinath Reddy (2010) attempted to enquire into the politics of the government and business relation and how it affected the industrial development in general and expansion of manufacturing sector in particular in the state of Andhra Pradesh. In Andhra Pradesh, State Business Relations (SBR) have evolved gradually under different political regimes – from 'indifferent' SBR's during initial decades, passing through critical junctures in the form of 'active' and 'pro-active' phases and finally SBRs reaching its zenith during Chandrababu Naidu regime and there after continuing in the Congress regime. The SBRs impact on the performance of manufacturing sector was captured through both qualitative and quantitative sources. Examination of the secondary data revealed the dominance of registered manufacturing in the total manufacturing output of the state. Firm level perceptions revealed that business associations play a major role in dissemination of information rather than lobbying the government. The small firms are at a disadvantage compared to large and medium firms.

2.4 STUDIES ON PRODUCTIVITY TRENDS IN INDUSTRIAL DEVELOPMENT
Anil Kumar Chatterjee (1973) made an attempt to study the productivity in selected manufacturing industries during 1946 - 1965. The main objective of the study was to estimate productivity in selected manufacturing industries for the period 1946 to 1965. The first part of the estimate (1946-1958) covers 26 manufacturing industries and is based on the figures of the 'Census of Indian Manufactures'. The second part (1960-1965) covers 25 manufacturing industries and is based on the figures of the 'Annual Survey of Industries'. In the estimate he has accepted the most widely prevalent definition of productivity, namely, productivity of human labour, ie, "the ratio of output to the corresponding input of labour". He has, first, constructed the quantity index of output of each industry applying the 'Laspeyers' formula. Then, using the figures of 'man-hours worked', He has constructed the indices of productivity per man-hour. The 'gross product' and not the 'net product' is taken into account in the estimate. The results of the estimate revealed that there has been a definite improvement in productivity in most of the manufacturing industries covered by the study, though no consistent or uniform pattern is noticed in the individual industries. There are also wide variations in the degree of improvement in productivity. Furthermore, there are wide and significant differences in productivity between various industries in absolute value terms.

Deepak Gupta (1985) studied the productivity trends and factor substitutability in the manufacturing sector in Maharastra, based on data from various issues of Annual Survey of Industries (ASI) for the period of 1968 – 69 to 1977 – 78. This study estimated Kendrick’s Arithmetic Index as well as the Cobb-Douglas production function. This study observed that the price of labour has fallen relative to the price of capital. The study concluded that labour productivity has been falling during the period under considerations, while the capital productivity has increased and the capital intensity has fallen.

A study on “Market Reforms and Industrial Productivity: An Explanation” was made by Murali Patibandla (2004). The study brought out the factors that determine micro level (firm level) productivity in the context of a developing economy that had undertaken the policy reforms towards a freer market. It econometrically tested a few hypotheses on the basis of firm level panel data for a set of Indian industries. One of the strong results of the study was that firm level outward orientation of exports and imports contribute significantly and positively to firm level productivity. This finding
supports one of the propositions of the new growth theory that developing economies benefit significantly by free trade with developed economies through free flow of new ideas and technologies and externalities.

Deb Kusum Das (2004) undertook a study on “Manufacturing Productivity under Varying Trade Regimes, 1980-2000”. The study examined the productivity performance of Indian manufacturing under varying trade regimes. The analysis focused on the overall period of 1980-2000 and four sub-periods to reflect the shifts in trade policy regime. Using ASI data the total factor productivity (TFP) growth rate was computed. The results at the three-digit level of disaggregation indicated that the TFP growth of 0.08 per cent per annum averaged over 75 three-digit industries for the entire period. There was no evidence of much change in total factor productivity growth following liberalisation of the regime initiated in the early 1990s. Comparison across the phases of trade reform showed that in all the three use-based sectors, TFP growth performance was best either in the third phase (1991-95) or the second phase (1986-90). As in the 1980s, factor accumulation rather than productivity growth accounted for most of the output growth during this period.

The study on “Investment Climate and Total Factor Productivity in Manufacturing: Analysis of Indian States” done by C. Veeramani and Bishwanath Goldar (2004) examined the influence of investment climate (IC) on the levels of total factor productivity (TFP) in the organised manufacturing sector across the major Indian states. Using data from the Annual Survey of Industries (ASI), they estimated multilateral TFP indices for the total registered manufacturing sector in all the major states for the period 1980-2000. For a comparison of the states with significantly different IC, they also presented a detailed estimate of TFP (at the 2-digit industry level) for three states – Maharashtra, Punjab, and Uttar Pradesh. A descriptive analysis of TFP in the states’ aggregate manufacturing and a comparison of TFP in individual industries across the three states indicate a positive relationship between a market friendly IC and TFP. The regression analysis, after controlling for other industry and year specific factors, clearly revealed that IC matter for TFP.

It is argued that India’s overall economic progress since 1991 is leaving some of the states behind. Evidently, the most effective way to eliminate regional growth inequality is to ensure that the lagging states initiate reforms to make their IC more market friendly.
Liberalization, Market Power, and Productivity Growth in Indian Industry, was studied by Pulapre Balakrishnan; M. Parameswaran; K. Pushpangadan and M. Suresh Babu (2006). Using firm-level panel data they investigated whether reform of the trade and industrial policy regimes in India introduced in 1991 resulted in a reduction in market power and/or an acceleration in productivity growth, consequences that have been predicted in theory. Econometric testing of the theory for every industry group at the two-digit level in India yielded limited evidence of acceleration in productivity growth and no evidence of a reduction in market power. This was interpreted as suggesting that in the case of Indian industry, trade liberalization has not exhibited the potential often attributed to it.

Suresh Chand Aggarwal (2007) made a study on “Productivity in Public, Joint and Private Sectors of Indian Industry: An Assessment of Relative Performance in Pre and Post Reform Periods”. The study compared the performance of the public sector with the joint and private sectors of the Indian industry with the help of different methods, including TFP and production function for the pre and post reform period. It observed that public sector has done quite remarkably if the growth in TFP and technological progress are analysed.

A study on “Indian Manufacturing Sector: Growth and Productivity under the New Policy Regime” was done by Manpreet Kaur and Ravi Kiran (2008). The study analysed the trends in output (value added) and inputs (labour, capital) as well as partial productivity and total factor productivity for all India manufacturing i.e. at aggregative level as well as at disaggregative level for twenty-two industrial groups. The period for the study was 1980-81 to 2002-03. Analysis was done for two sub periods, period I, pre reform period 1980-81 to 1990-91 and period II, 1991-92 to 2002-03 i.e. the post reform period. The study tried to view the changes in growth of output and inputs and productivity in the pre and post reform period. The comparative picture of pre liberalisation and post liberalisation period depicted a slower growth of the manufacturing sector in India in the post reform era for aggregative as well as for disaggregative i.e. sectoral level.
“Pro-Market Reforms and Indian Industry: Developments in the Last Two Decades” was the study made by Bishwanath Goldar (2010). The post-1991 pro-market reforms in India are expected to reduce price-cost margins in industries, lower inter-firm productivity dispersion, increase export intensity of firms and cause changes in the size, structure and industrial composition. But, barring the increase in export intensity, the other effects have not occurred or occurred only marginally, despite the reforms induced increases in import competition and possibly some intensification of competition among domestic firms as well. The industrial growth rate has not accelerated in the post-reform period compared to the 1980s. This seems less attributable to stalled reforms, than to infrastructure bottlenecks and demand deficiency.

2.5 STUDIES ON REGIONAL INDUSTRIAL DISPARITIES

The review of various studies on regional industrial disparities provides a broad spectrum about the regional aspects of industrialisation and helps in the formulation of an appropriate methodology and base to the present study. Since the growth pattern of the industrial sector varies across regions and over time significantly, the question of inter-regional disparity in industrial growth was also a major concern that attracted the attention of many scholars. This issue is examined at two levels, i.e., state level using inter-state data and district level using inter-district data.

Williamson (1965) measured regional income differentials in terms of relatives by taking the income per capita of each region as a percentage of the average national income per capita. Attempting a plausible rationale of regional disparities, Williamson stated that “regions within a nation do not possess equal capacity for growth, and when development begins in some of these islands, regional barriers may be too great to communicate the growth stimulus to other less fortunate regions. As long as the barriers to trade and factor flows persist, regional inequalities will clearly increase”. His study concluded that the countries in middle income group have highest regional inequality while relatively less developed and more developed countries have smaller regional inequality.
P.N. Dhar and D.V. Sastry (1969) studied inter-state variations in industrial development during the period 1951-61. Using the shift-share technique, they found that there was a gradual decline in the industrial development of Maharashtra and West Bengal, whereas Punjab, Orissa, Madhya Pradesh and Andhra Pradesh which were industrially backward, had improved their positions. Using co-efficient of variation they concluded that the regional variation in manufacturing industry had tended to narrow down across states during the period under study. It should be noted that they had taken power consumption as the relevant indicator because they found a high positive correlation between power consumption and industrial output from the cross-section data of the Annual Survey of Industries.

Nath (1970) examined regional disparities in economic development and growth in India at State and District levels. He used per capita income to examine regional disparities. Moreover, a composite index was also derived by the method of combining rank from the census data relating to urbanisation, literacy, and industrial classification of worker indicators. From his study, he concluded that Maharashtra and Tamil Nadu came out to be the most developed states, while Gujarat, West Bengal, Punjab and Kerala came next. It was also found that during 1950-60, developed states showed more rapid growth than the less developed states.

Alagh, Y.K., Subrahmainan, K.K., and Kashyap, S.P., (1971) in their study on regional industrial diversification in India used ‘economic-base’ type of analysis, viz., estimation of location quotients and specialisation co-efficient for each of the 15 states that have been identified as regions. The estimates are based on factory employment statistics. From the location quotient analysis, they found that traditional primary-resource-oriented base is the basic character of the industrial base of the regional economies in India, except Maharashtra, West Bengal, Tamil Nadu and to some extent Punjab, which besides specializing in resource-based industries also specialize in capital goods and foot-loose industries. They classified the regions into three broad groups according to their levels of diversification and found that in 1966, Maharashtra, West Bengal and Tamil Nadu were the industrially diversified regions; Punjab, Mysore, Madhya Pradesh, Gujarat and Uttar Pradesh were grouped in the ‘middle level’ of diversification; while Rajasthan, Bihar, Andhra Pradesh, Jammu and Kashmir, Orissa, Kerala and Assam, were regarded as less diversified regions. Finally, they examined the relationship between
industrial diversification and levels of industrialisation of the regions and found that a diversified industrial structure is a concomitant of a high level of industrialization of a region.

Ravindra H. Dholakia (1979) made an inter-state analysis of capital and output in the registered manufacturing sector with two-fold objectives (1) to estimate the real output and net stock of real capital in the registered manufacturing sector of different state economies in India for the years 1960-61 and 1970-71 and (2) to examine the extent and behavior of state inequalities in these aggregates in the sixties. Based on the Annual Survey of Industries data of the manufacturing sector, he derived the estimates of income and capital stock in real terms of the major state economies in India for two years - 1960-61 and 1970-71. He found that there were significant inter-state variations in the per capita output and capital stock and that the inequalities declined between 1960-61 and 1970-71. The decline in the capital stock inequality was greater than the state income inequality. Neither did the investments in different states take place strictly on the criterion of reducing the regional disparities, nor were they based on the principle of exploiting the best technology. In order to reduce the state inequalities, he argued for a more rational allocation of investment consistent with national objectives.

Krishna Bharadwaj (1982) made an attempt to analyse the regional differentiation in India. She adopted the periodisation conforming to qualitative changes in the overall growth situation and discussed the ‘regional’ problem with reference to (1) the colonial period until the world war, (2) inter-war periods and after, until independence, (3) post-independence period until the mid-sixties and (4) period after the mid-sixties. To measure the pattern of agglomerated growth based on generally capital-intensive, large-scale manufacturing units located in a few cities and the ‘dispersed’ pattern where growth was relatively dispersed in small towns and rural settlements, composite indices were constructed. The finding of the study was that city-based industrial development was found to be localized in six regions viz., (1) Calcutta conurbation (2) Madras conurbation (3) Bombay-Gujarat conurbation (4) Delhi metropolitan region (5) Jamshedpur-Dhanbad-Bokaro complex and (6) Ludhiana-Jullunder complex. She observed a higher industrial activity in those areas where agricultural growth had been promising or favourable as in Gujarat and Haryana.
Uday Sekhar, A., (1982) examined the trends in the inter-state distribution of industry in India during 1961-75. The main objective of the study was to determine whether the disparities was increasing or decreasing over time. The main data source was Annual Survey of Industries. He used Hirschman-Herfindahl and Theil’s Inequality Indices to measure concentration. His results revealed a continuous and significant reduction of inter-state imbalance in industrial development during the period 1961-75.

Vijay K. Seth (1986) did a study on state and spatial aspects of industrialization in post-independence India. The paper analyses the nature of a mixed economy, as it has evolved over time, to determine how far deliberate processes as against market processes are relevant to an understanding of the spatial spread of industrialization in India. To evaluate the role of spatial organization of political power in the spatial spread of industry, changes in the federal policy have been analysed. To observe empirically how far the state has been able to influence, deliberately, the spatial pattern of industrialization, the role of two important policy instruments that are relevant in understanding the spatial behaviour of the Indian state have been analysed. These policy instruments are (a) the location of public-sector projects, and (b) the spatial distribution of industrial licenses issued by the government.

Tewari, R.T. (1988) studied the changes in the inter-regional pattern of industrialization in India during the period 1971-81. The States which are politico-administrative units of India were taken as regions. Using composite index and ‘normative’ approach, the analysis was carried out at selected two points of time viz., 1970-71 and 1980-81. The index method was used to construct composite indices of industrialization for different regions/states. The co-efficient of variation was used as a measure to assess the magnitude of regional disparities in levels of industrialization. The ratio of value added between consumer goods and capital goods industries had been used to analyse changes in the organization of industrial production over the period 1961-81. In order to analyse the relative importance of agricultural development, economic infrastructure and urbanization, the multiple regression model was employed. Using the composite index approach, he found that the six States of Gujarat, Maharashtra, Tamil Nadu, West Bengal, Punjab and Kerala were industrialized on the one hand, and on the other hand, by normative approach, only the first four states were industrialized states. In the multiple regression analysis, urbanization emerged as a dominant explanatory variable for the
observed variations in levels of industrialization across the states followed by economic infrastructure and agricultural development.

Brijesh K. Bajpai (1989) looked into industrial disparities in India in a historical perspective. He analysed the trends in the per capita industrial output for 16 states and observed that the magnitude of inter-regional disparities in industrial development which was 73 per cent in terms of co-efficient of variation in 1969, reduced to 67 per cent during 1977. The range between the states of the highest and the lowest ratios which stood at 245.31 in 1969 also decreased to 238.27 during 1977. An interesting part of the analysis was that the states of Maharashtra, West Bengal, Haryana, Gujarat and Tamil Nadu which were industrially developed states in 1969 were found to have maintained their same position during 1977. He had also looked into the causes of industrial disparity and categorized the causes under two heads namely, (1) the disparities caused by the production efficiency, negligence and shortage of raw materials in backward regions and (2) the disparities due to better industrial performance and proper resource utilization for industrial production in industrially advanced regions. According to him, these joint effects of positive and negative industrial performance magnify the extent of disparity.

Bishwanath Goldar and Vijay Seth (1989) studied the trends in industrial output in 12 major states during the period 1960-61 to 1985-86 with the objective of finding out the spatial variations in the rate of industrial growth in India. They divided the growth experience of Indian manufacturing sector into three distinct sub-periods viz. (1) 1956-65: the period of rapid industrial growth, (2) 1965-75: the period of industrial deceleration on relative industrial stagnation and (3) 1975 onwards: the period of recovery and acceleration. They estimated the growth rates by fitting separate exponential trend lines by the ordinary least squares method to each sub-periods of the series. From the analysis, they found that the industrial growth experience of the different states in the three sub-periods of the series. From the analysis, they found that the industrial growth experience of the different states in the three sub-periods followed three patterns and the states were accordingly divided into three groups. The first group consisted of states which did not experience any marked improvement in the growth rate after the mid-seventies i.e. the states in which industrial output grew by and large at a uniform rate. This category included Tamil Nadu along with Maharashtra, Andhra Pradesh, Gujarat and Karnataka. Second group consisted of states which experienced a significant deceleration in the growth rate of industrial
output after the mid-sixties and a significant recovery after the mid-seventies: they were Bihar, West Bengal, Orissa, Rajasthan and Uttar Pradesh. The third group consisted of Kerala and Madhya Pradesh which experienced a continuing deceleration in the rate of industrial growth.

Dholakia (1989) analysed the regional aspects of industrialization in India over the period 1979-84 and found a significant regional differentiation in the pattern and growth of industry. The nature of industrialization in terms of capital per worker and capital productivity sharply divided the national economy into the North and the South. It was observed that in the North, the capital per worker was higher and capital productivity was lower whereas in the South, the capital per worker was lower and the capital productivity was higher. He made the following suggestions to reduce regional disparity without sacrificing growth: (1) greater regional spread of individual industries (2) diversification of industrial base for the northern states and (3) greater specialization of industrial structure for the southern states.

Dinesh N. Awasthi (1989) made a study on the trends in the inter-regional inequalities in India between 1961 and 1978. He used various measures of inequalities such as Co-efficient of variation (weighted and unweighted), standard deviation of logs, gini co-efficients, theil’s inequality index and Hirschman-Herfindahl index. The major data source for the analysis was the Annual Survey of Industries. He had carried out the analysis in terms of variables like fixed capital, employment and value added. The results showed a clear trend towards reduction in the level of inter-regional inequalities over the years, irrespective of the index or variable considered. He also found that inequality in terms of fixed capital declined most rapidly compared to the other two variables. Overall, regional industrial inequalities, on an average, declined at an annual compound rate of growth of approximately 1.5 per cent in value added, 1.75 per cent in employment and 2.0 per cent in fixed capital per annum.

Rama Rao T. (1989) while studying the regional pattern of industrial development in terms of number of factories and output found that the western region accounted for 30 per cent of the total factories and 39 per cent of total value of output in 1984-85. The state of Maharashtra dominated the factory sector both in terms of number and output. However, a gradual decline in the growth rate of factories
was found in Gujarat, claiming a share of 11 per cent each in total factories and output in the country. Southern region occupied the second position accounting for 33 per cent in total factories and 23 per cent in total output. Within this region, Tamil Nadu accounted for a higher share of 14 per cent in total factories and 10 per cent in output.

“Regional Growth and Disparity in India: Comparison of Pre-and Post-Reform Decades” was the study made by B. B. Bhattacharya and S. Sakthivel (2004). The main focus of the study was to find an answer for the question has regional disparity widened in the post-reform period? This study probes this question by analysing growth rates of aggregate and sectoral domestic product of major states in the pre-and post-reform decades. The results indicate that while the growth rate of gross domestic product has improved only marginally in the post-reform decade, regional disparity in state domestic product (SDP) has widened much more drastically. Industrial states are now growing much faster than backward states, and there is no evidence of convergence of growth rates among states. Disturbingly, there is now also an inverse relationship between population growth and SDP growth. This has serious implications for employment and for the political economy of India.

Dipika Das (2008) in his study on “Regional Variation of the Productivity Performance in Indian Manufacturing Industries” examined the productivity of 15 major states of India based on Annual Survey of Industries data from 1979-80 to 2003-04. Since the impact of reform is not same for different types of industries; industries have been categorized into three - Traditional, Basic and High-Tech industries and production frontier has been estimated and productivity have been computed for the three categories separately. Malmquist Productivity Index (MPI) along with its decomposition - OTEC (Overall Technical Efficiency Change Index), PEC (Pure Efficiency Change Index), SEC (Scale Efficiency Index) and TECH (Technical Change Index) was constructed for 25 years and for 15 major states of India for the three categories of industry. From efficiency results, it was observed that, basic industry is the most inefficient industry in terms of overall technical efficiency. However, in terms of scale efficiency, basic industry is the most efficient industry and traditional industry is the most inefficient industry. But, the scale efficiency of traditional industry has improved after reform. From MPI results, it is observed that regional differences in TFP growth persist and the variation has increased in the post-reform period. However, variation in TFP growth is due to increased variability in the rate of technical progress across
A study on “Productivity Growth of Manufacturing Sector in India an Inter-State Analysis” was carried out by Manoj Kumar Dash, Gaurav Kabra and Ajay Singh (2010). The main purpose of the study was to estimate the total factor productivity growth of the manufacturing industries of different states of India using the translog production function and to know the structure and growth of registered manufacturing factory sector. The study also examines the extent of employment concentration in Orissa’s manufacturing industries relative to all India, and to explore the sources of output growth in manufacturing industries. They have considered two inputs labour (L), Capital (K) and time (T) representing technical progress. In the analysis, they have used two estimates of output namely (1) Single deflated gross value added and (2) Double deflated gross value added. The analysis revealed wide differences in the figures of TFPG(Y) and TFPG (Z) for most cases. Hence they concluded that TFPG estimates depend significantly on the measurement of output. Secondly, TFPG (Y) and TFPG (Z) remained low and stagnant for a large number of states during 1970s which supports the existing ideas. Finally, productivity of at least three states namely Karnataka U.P. and M.P. have increased during 1990s for both of the two measure of output taken up for the study.

The focus of the studies referred above was on the question of inter-state industrial disparity at the national level. Most of these studies were inclined to accept the view that the regional disparity in industrial growth across states had been declining over time. In addition to this there are a few studies which have tried to examine this issue at a disaggregated level i.e., at the state level using district level data.

Yoginder K.Alagh and Pravin G.Pathak (1973) examined the relative position of different districts in the industrial economy of Gujarat state. They analysed the regional dispersal of industries based on employment data and found that six districts accounted for roughly 3/4 of the state’s industrial
activity. They concluded that changes had taken place on an industry-wise than a region-wise pattern within the state.

The spatial diversification of industries in Uttar Pradesh for the period 1960 to 1975 was analysed by T.S.Papola et.al. (1979) and T.S.Papola (1980). It was observed that the industrial concentration remained unchanged during the period under study. There was a significant growth in chemicals and engineering industries compared to sugar and textiles and a decline in the raw material location specific industries. They had also examined the hypothesis that the spatial distribution of industrial activity would be determined by the availability of basic raw materials and nearness to the market. They found that infrastructure and agglomeration emerged as the major determinants of location overshadowing the importance of the location of raw materials and markets. They argued that fiscal and financial incentives played only a marginal role in the diversification of industries mutually supporting each other and using and providing certain facilities for the promotion of skills, entrepreneurial training, economy in raw material procurement and marketing for effective industrial development in backward areas.

The changes in the spatial distribution of industries in Haryana State during the period between 1966 and 1978 was examined by Kulvinder Kaur (1983). Using data from Annual Survey of Industries, he concluded that regional disparities in industrial development in Haryana had widened.

Harpool singh (1987) analysed the regional disparity in the industrial growth of Rajasthan. His study mainly focused on the implication and significance of industrial growth centres, causes responsible for industrial disparity and backwardness, the role of state government and private enterprises, the impact of industrial centres on economic growth and the future prospects of expansion of industrial growth centres in Rajasthan. The study was mainly based on sample survey of districts and centres of industrial location. He examined the disparity of industrial development at three levels viz., infrastructure level, manufacturing level and demographic level-pattern. He observed that the disparity is maximum at the manufacturing level followed by the infra-structure level and the demographic level. But all the three levels had shown a declining pattern of disparity. A highly concentrated pattern of industrial growth
leading to extensive industrial disparity in the state was observed. He concluded that regional disparity in industrial development increased over the years.

Jayalakshmi and Abdul Aziz (1988)\textsuperscript{88} in their study on “Industrialisation and Regional Development in Tamilnadu”, attempted to examine the regional imbalance by using the indicators such as the number of registered factories in 1000 sq. km. of geographical area, productive capital, value added and employment in the factories per lakh of population. They computed a composite index of industrial development. From their analysis, they concluded that the disparities in the levels of development between the districts continue to be there as before.

Sebastian and Leonard (1988)\textsuperscript{89} attempted to explain district – wise industrial development in Tamil Nadu during 1976–77 to 1981–82. They used indicators such as number of registered units, number of employees and value added. They found that districts such as Coimbatore, Salem, Tirunelveli, Madras and Chengalpattu dominated in the number of factory units and they accounted for 63.2 percent of the total registered factory units whereas the remaining districts accounted only for 36.8 percent of the total registered factory units. It concluded that that gap between developed and underdeveloped district had not been reduced.

Jyotsna Paranjape (1989)\textsuperscript{90} attempted to identify the factors determining industrial location in Maharashtra and Gujarat. The analysis was done at two levels (I) by using secondary data with districts as regions, and (ii) by using data collected through field surveys of industrial units at selected growth centres. To find out the inter-regional industrial disparities, industrial employment per thousand population and value of gross industrial output per capita were used as indications. She used incremental industrial employment for observing changes in regional patterns of industrial development, and correlation analysis to identify the variables responsible for the location of industrial activity at the district level. The correlation analysis showed that the incremental industrial employment in a region was positively related to the initial level of industrial employment in the region. Incremental industrial employment in a region was influenced by the economic efficiency of already existing industrial units in the region. The attraction exerted by industrialised districts on industries was not only
due to the availability of local markets and input sources but also due to the existence of many complementary and supplementary factors like well-developed infra-structural facilities, lower costs of production, higher industrial credit which strengthen locational advantages by providing agglomeration economies. Using the field survey data, she examined the impact of government intervention and found that, industrially developed areas usually formed the first location preference and backward areas were often selected as the second best location. From the analysis, it was clear that government incentives had been effective in promoting industry mainly in areas which were relatively nearer to the established industrial centres and areas which had fairly developed urban and industrial facilities. She concluded that government assistance for inducing industrial development would be successful only in areas where incentives were available in combination with other facilities, mainly infra-structural facilities.

Debas Mukhopadhyay’s (1989) study was an enquiry into the reasons for district-wise variation in employment in the industrial sector in West Bengal during the period 1970-71 to 1982-83. By using coefficient of variation, he found that the degree of variability in employment among the districts had been decreasing over the period 1971-81. Using the composite ranking approach, he noticed that several districts like Burdwan, Howrah, Calcutta, and Nadia had maintained their position in the hierarchical ordering of districts as compared to 1971. He had also used the normative approach to analyse the problem. For the sake of convenience, he clubbed the districts into different categories like non-industrialised districts where the average daily employment in factories was between 0.015 to 0.64, industrializing districts (0.265 to 1.150), semi-industrialised districts (1.151 to 2.000) and highly industrialized districts (2.00 and above). To highlight the spatial cluster of industries, he has calculated location quotient and found that the districts of Calcutta, Burdwan, Darjeeling etc. which were most developed industrially had specialized in large number of industrial activities, and also the districts that benefited by public sector investments. From the analysis, he concluded that the variability is caused by two sets of factors (1) economic and (2) non-economic factors.

Manjula Reddy R. (2000) in her study on “Acceleration and Spatial Distribution of Industrial Activity in Karnataka” attempted to examine the extent of success of various promotional measures initiated in accelerating industrialization and correcting the regional imbalance during 1960–61 to 1997–98 using Annual Survey of Industries data. The study concluded that the state of Karnataka and private corporate
have to join hands to shape the industrial policies, design industrial activity and create favorable environment for higher degree of industrialisation

2.6 SUMMARY

The foregoing review of selected studies on growth pattern and structural changes has revealed that the growth pattern of industrial sector in India is a complex one. There is a structural change in the process of industrial development over time and the industrial growth pattern varies across industries and states.

From the studies on regional disparities, it is observed that the industrial disparity is significant across districts within each state. Studies generally show that there is increasing inter-regional variation in the level and rates of industrial growth across different regions. The specific regional studies with reference to Haryana and Rajasthan concluded that the disparity had been widening. Moreover, the different regions vary in terms of the industrial structure and there is a general consensus that the industrial structure has a significant influence on a region’s industrial growth. This highlights the necessity of local level (district level) studies to examine the spatial dimension of industrial growth. In this context, the present study attempts to examine the inter-district variations of industrial growth with reference to Tamil Nadu. Thus, one can conclude that regional level studies are necessary to understand structural change and growth pattern and to examine the regional disparity in industrial growth.

Though there are many studies undertaken to examine the productivity in Indian industry in the post reform period, there is limited literature on variation in productivity at different regions/states of India. Most of the studies done so far are aggregative or if disaggregating has been done, the coverage is not till 2007-08 or it is over some periods of time and not for the whole of the period. Existing studies have focused upon measurement of partial and total factor productivity or entry aspect of firms. The present study has taken a detailed analysis of inputs (labour and capital) and output and also Partial and Total factor productivity for the entire period i.e. 1973-74 to 2007-08 as well as sub periods; period I-pre
reform period 1973-74 to 1990-91 and period II- 1990-91 to 2007-08 to analyze the adjustment process of manufacturing sector in India during reforms. This study is unique and tries to present an integrated and holistic view of the manufacturing sector trends in Tamil Nadu in the pre and post reform era for the entire manufacturing as well as for two digit level industries.

In sum, the above review of earlier literature on growth, structure and location analysis of industries has helped the researcher identify the research gap. There are sufficient studies pertaining to industrial development examining the aspects of growth, structure and location separately. There are also a few studies that throw light on the two inter-related aspects of the industrial development namely growth and structure. But the studies that give a three dimensional picture discussing growth, structure and location of industries with an approach of integration is very much limited. Moreover, most of the earlier studies throw light on the growth of industrial sector at national level and studies on this aspect at state or micro level is limited. Hence, the present study becomes relevant in examining industrial development in Tamil Nadu in terms of growth, structure and location of industries and its disparities at district level.