CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

Small scale sector constitutes a significant proportion of the Indian industrial segment and accounts for a sizable proportion of the national income, employment and output. India’s small industry policy and small-scale industrialization have been a widely known phenomenon. The relative merits of less capital intensity and more labour absorption capacity, among others, have endeared the sector to the policy makers as an instrument to achieve a variety of economic objectives such as employment generation, production of mass consumption goods, balanced regional development, equitable distribution of income, etc. hence, small scale sector continue to remain a fascinating area and academics and administrators show keen interest in the examination of its growth and structural characteristics. Research work has been conducted from time to time on this sector at all India, state and district levels. This chapter presents a brief review of the earlier studies.

2.2 STUDIES RELATED TO GROWTH AND PRODUCTIVITY
Anbumani (1985) made an attempt to study Growth and Structure of Small Scale Industries in Coimbatore District during the period 1970-1980 with reference to DIC data. He has concluded that the growth performance of six product groups viz., textiles, chemicals, non-metallic, basic metals, metal products and machine tools were highly impressive. The metal products industry has registered the overall growth rate of 16.67 per cent in the eight economic indicators considered in this study.

Arrighetti (1994) examined the interactions between entry size, growth rate, and probability of survival of firm. Standard microeconomics states that firm growth stems from relative efficiency differentials and that growth positively affects the likelihood of survival. Therefore, the selection hypothesis is unable to explain how a wide number of small newly born firms can survive at length even without growth and how an even larger set of firms with a higher than average growth rate exits the market in the first few years after the foundation. It is shown that one way out of these apparent paradoxes is to relax the hypothesis of a one-to-one link between initial relative efficiency and survival, and then develop a model based on different entry modes and growth patterns of the newly born firms.

Chinnanachimuthu (1996) studied the growth potential, productivity trends and manufacturing efficiency in small-scale coir products industry in Coimbatore District. He found that the overall growth rate of coir industry is higher than the rate of growth recorded by the small-scale sector and factory sector. The result presents a mixed scenario of declining capital productivity and increasing labour productivity. (Arifa)

Gopinath Pradhan and Kaustuva Barik (1997) made an attempt to study the contribution of factors – capital, labour, energy and raw materials along with technical change in the output growth by Indian industries during the period 1963-64 to 1994-95. Data derived from Annual Survey of Industries (ASI). The study estimated the contribution of factors of production with translog production function.
They concluded that output growth on the Indian industrial sector was driven by capital and raw material inputs, while the contribution of TFP remained either minimal or negative. TFP in aggregate manufacturing sector had contributed only 8.5% of the output growth. Individual industries broadly conform to the observation made on the aggregate sector. While the contribution of raw material in the output growth remained highest in 4 out of 8 industries, capital contributed the most in the remaining four. (Madhavan)

Burange (1999) has made an attempt to analyse industrial structure and growth of the manufacturing sector in Maharashtra over the period 1979-80 to 1994-95. The main data source is the Annual Surveys of Industries – Summary Results for factory sector (ASI), Economic Survey of Maharashtra and monthly Bulletin of Index numbers of wholesale prices in India. Using Kinked Exponential Model (Boyce, 1986) the growth rate had been estimated for pre and post liberalization periods. His study revealed that the state was experiencing significant changes in industrial composition, where in capital and intermediate goods were becoming dominant. Over the period 1979-80 to 1994-95, the state realized 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 did not indicate a satisfactory performance of the state economy. He concluded that there was a revival in the manufacturing sector in the post reform period. (M)

Thirthankar Ray (1999) studied the growth and recession in small scale industry with special reference to Tamil Nadu power looms, using the examples of an export oriented weaving region. This study described the origin and conditions of the power loom units, its major handicaps, how it tried to address its handicaps and what kind of policy initiative may be needed to deal with them. An export recession in 1996-98 showed that the growth had happened without basic changes in technological and organizational capability of the industry. The paper
suggested that some change in organization and technology in the industry can be attempted to
deal with the weakness of the industry. (Madhavan)

**Almas Heshmati (2001)** studied the growth of small and micro firms in Sweden. The
relationship between the size, age and growth rate of firms is examined for a large sample of
micro and small firms in Sweden. These firms have between 1–100 employees and operate in
a geographically concentrated area. Micro and small firms are dominant in the industrial
structure and thus their growth patterns are crucial to the economic growth of the region. The
period of study is of particular interest because it allows us to evaluate the effects of various regional
development policy programs on the growth and formation of firms. The data is an unbalanced
panel covering the period 1993–1998. The growth rate is defined in terms of the number of
employees, sales and assets. In the estimation of the growth rate we control for various factors
characterizing the sample firms, their capital structure, performance, human capital, and local labor
market conditions. The results showed that the relationship between the growth, size and age of
firms is very sensitive with respect to the method of estimation, functional form and definition of
growth and size.

**Jeemol Unni, Lalitha, Uma Rani (2001)** analysed the trends in growth and efficiency
in the utilization 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 advanced states of the country. The study shows that both the organized and unorganized 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 industrialization, had been the main reason for the growth of the state's manufacturing sector.
(Madhavan)
**Becchetti and Trovato (2002)** presented an empirical analysis of the determinants of growth for a sample of Italian small and medium sized firms. They showed that, when investigating a sample which includes firms between 10 and 50 employees and a set of variables larger than those usually considered in the literature, growth – net of industry characteristics and ex ante market power – turns out to be significantly affected not only by size and age, but also by state subsidies, export capacity and credit rationing. By adopting a multivariate approach we also show that these findings are confirmed after controlling for heteroskedasticity, survivorship bias and serial correlation. Their results suggested that the hypothesis of independence of firm growth from the initial size and other factors (usually referred to as Gibrat's law in the literature) is not rejected for large firms, while it does not hold for small and medium sized firms under financial constraints in a "bank-oriented" financial system in which access to external finance is difficult.

**Narayanan (2003)** examined the determinants of the growth of firms in automobiles. It underwent rapid technological change and saw the entry of new firm in the liberalized era. His sample covered the period 1980-86. The study identified two policy changes during the period, namely, partial deregulations introduced in 1985 and liberalization measures launched since 1991. Consequently, three sets of regressions were presented for three periods – licensing 1980-81 to 1984-85 Deregulations 1985-86 to 1990-91 and liberalization 1991-92 to 1995-96. Firms in the automobile industry witnessed a change in basic technology configuration of the production process during the sample period. The study used two-way fixed effect estimation of the growth function. The results of estimated model support the hypothesis that inter-firm differences in growth were determined mainly by variables capturing technology paradigm and trajectory shifts. Thus he concluded that the growth was mainly technology driven.
Padmavathy (2003) made an attempt to study the sources of inter-state variations in Industrial Growth of India during 1980-1998. The study is based on the ASI data published by the Central Statistical Organization for the factory sector in India. The study concluded that among 16 states of Indian Union, the states that have recorded high rates of growth in number of factory establishments, fixed capital, employment, emoluments paid and net value added were Andhra Pradesh, Gujarat, Tamil Nadu and Maharashtra. The study predicted that the Industrial sector to registered better growth and development in industrially advanced states.

Balakrishnan and Suresh Babu (2003) in their study of the evolution of the Indian manufacturing sector over close to three decades found that the annual average rate of growth in the nineties to have risen almost across the board at the two-digit level of industry. Nevertheless, the acceleration is not particularly impressive for what is often hailed as the most significant policy-regime shift since 1950. There was a hefty rise in investment, however, though without a corresponding increase in its efficiency.

Littunen and Tohmo (2003) examined the effects of the factors involved in the start-up situation and the first seven years' development on the subsequent high growth of firms. The criterion of success used in this study was high growth in business during the first seven years. The subjects were Finnish metal products manufacturing firms and business service firms established in 1990. The results indicated, firstly, that it is the internal networks of firms that bring about competitive advantage, innovations and efficiency. In these entrepreneurial team-driven firms a group of people participate in the strategic management of the firm. It was also found that co-operation between firms and changes in external personal networks contributed to a high rate of growth. The empirical results showed that new firms had equal chances for growth irrespective of their locality. On the other hand, growth was affected by changes in a new firm’s competitive situation and by changes in strategic factors. The results also clearly
indicated that high growth firms were characterised by rising productivity of labour at the same time as they were generating new jobs.

Nagaraj (2005) compared the performance of the manufacturing sectors in China and India over the past half century at a disaggregated level. He found that China’s industrial growth rate is close to one and half times that of India’s over the entire period, with the gap widening gradually. But Indian growth has been more stable. China’s superior performance seems understandable in terms of its faster agricultural and exports growth. China’s impressive industrial edifice seems to be built on somewhat shaky microeconomic and institutional foundations. In comparison, India’s relatively strong foundations and domestic entrepreneurial capital seem to have the potential to improve performance, with a sounder macroeconomic environment: a step up in fixed investment to augment infrastructure supply and agricultural productivity, revival of long-term finance to boost industrialisation, and easier credit delivery to small and medium enterprises.

Shujie Yao (2006) has analysed the economic growth, FDI and exports in China and stated that China has achieved high economic growth for a prolonged period of time. Academic researchers have tried alternative explanations for this miraculous growth. This study focussed on the effect of exports and foreign direct investments (FDI) on economic performance, using a large panel data set encompassing 28 Chinese provinces over the period 1978–2000. Adopting Pedroni’s panel unit root test and Arellano and Bond's dynamic panel data estimating technique, it is found that both exports and FDI have a strong and positive effect on economic growth. The results suggested that two development policies adopted in China are useful for other developing and transitional economies: export promotion and adoption of world technology and business practices.

Dhar. P.N (1958) attempted a systematic analysis of small scale industries in Delhi in the year 1955. There were 1531 units comprising of 13 product groups viz: flour mills, printing
press, trunk manufactures, leather, light engineering, electrical goods, general engineering, hosiery, soap, foundries, oil mills, drugs and electro plating. For the purpose of analysis he has selected a sample of 326 units. Sample units were grouped according to size (based on employment). The study concentrated on gestation period, organization structure, capital structure, sources of finance, value and disposal of output, elements of costs, employment, wages, capital output ratios, capital labour ratios and output labour ratios. The unique feature of the study is a separate analysis for each product group highlighting its characteristics and problems.

Ramakrishna. K.T (1960) analysed in detail the capital structure of small scale industries with reference to components of fixed and working capital. He identified the sources of finance and studied in depth, the contribution of financial institutions (both public and private) for the development of small scale industries in India.

Lakshmanan. T.K (1960) attempted to study the cottage and small scale industries in Mysore. He focused mainly on the economic characteristic viz: capital structure, employment, output, value added and structural ratios. Similar analysis was carried out by Omen (1968)4 in Kerala.

Michel Cartillier (1975) attempted to investigate the role of small scale industries in economic development with reference to irrigation pump sets industry in Coimbatore. The study was carried out in the following sequential order. Firstly, he analysed the growth of small scale pump industry in Coimbatore, its present importance and economic structure with reference to number of units, electrical service connections, employment, capital and output; secondly, he focused on marketing of pumps. Finally he attempted to measure its role and impact on agricultural development of Tamil Nadu. His conclusions were: pump sets helped the farmers to reduce the cost with increased intensity of irrigation, facilitated to change cropping pattern and helped to increase the yield and income.
Govindarajan. N.V (1978) attempted to analyse the extent of unutilized capacity in the small scale electric motors and pumps manufacturing units in Coimbatore city and the reasons for the existence of unutilized capacity. A sample of 25 units was selected for the purpose of investigation. The average idle capacity was analysed with reference to age, size and organization. The empirical study showed that the extent of unutilized capacity was 36.5 percent in 1972 rose to 44.6 percent in 1977 and concluded that market restrictions are responsible for 88 percent of the unutilized capacity.

Jeyachandra. C (1978) studied the growth and diversification patterns in Coimbatore engineering firms. The effective sample was 60 units and the study was based on primary data collected from the firms. The objectives of the study were: 
(i) to assess the extent of growth and diversification patterns of firms over a period of time. (ii) To determine the nature of relationship between growth performance and diversification patterns. (iii) To determine the extent to which intra-firm characteristics such as age, size, entrepreneurial background and technical personnel resources influence the growth and diversification patterns.

To measure the extent of diversification he used three methods. Firstly, the product profile of each firm was classified at 2,3 and 4 digit level by using the NIC1 code (1970) and then by simply counting the number of products manufactured, the extent of diversification was measured. Secondly, the ratio of primary industry sales to total sales yields a measure of diversification. Thirdly, a diversification index was worked out by using the formula based on herfindhal index of industrial concentration and concluded that, only by diversification the firms grow. With the change of market structure and consumption patterns, the firms have changed their product profile. Among the various factors considered, only the age of the firm

1 NIC – National Industrial Classification
has deterministic and positive influence on the extent of diversification. Technical personnel resource did not explain the extent of diversification satisfactorily.

**Balraj. K (1978)** studied the capital utilization of the steel furniture industry in Coimbatore city. There were 113 units as per the data available at central excise office at Coimbatore in which a sample of 35 units was selected for analysis. With the basic assumption that there was under-utilization of capital, productivity indices were constructed with reference to man, machine and material. Conventional statistical tools were employed to assess the relationship between capital and other factors of production.

The findings are: i) the absence of worthy relationship between K/L and O/L, ii) decreasing labour productivity, iii) reduction in value added by manufacture and iv) under-utilization of capital investment in terms of plant and machinery.

He is of the opinion that the under-utilization of capital equipment was due to increase in cost of production, labour migration and exemption of central excise levies.

**Dhananjayan. R.S (1978)** made an attempt to analyse the growth of employment in the engineering industries of Coimbatore. The major objectives of the study were: i) to assess the growth and structure of employment, ii) to determine the gross and net value added by manufacture, iii) to relate the share of wages to value added and iv) to analyse the K/L ratios. The basic hypothesis was that the growth of employment depends on the growth of output and found no systematic results. Five units which employ more than 500 workers were selected for Investigation. One unit did not comply with the information. Hence the effective sample size was 4 units and the study was based on primary data collected from the units. Growth rates, ratios and regression estimates were used for the data analysis and concluded that growth of employment among the sample units were not uniform and two units indicate negative growth rates between 1968 and 1978. Workers possessing practical experience without any formal
technical education were found to be large. There was no significant relationship between output, K/L ratio and employment. The share of wages in value added has declined over the years.

Ramathilagam (1979) studied the economic aspects of small engineering units in Coimbatore city with the objectives of assessing their contribution to the promotion of other industries and the economic development of the region. As per the records of the Coimbatore district small scale industries association (CODISSIA) there were 1200 small engineering units, out of which 120 units, comprises of four product groups viz: electrical motors, textile spares, steel furniture and equipments were selected for the study. The study was based on primary data collected from the units. Age, Location, Organization, Entrepreneurial Characteristics, Investment Pattern, Capital structure, Employment, Average Earnings, Method of Raw material Procurement, Cost structure, Capacity utilization, Sales procedure, Sub contracting, Trade union and labour relations, Stoppage of work, Loss of man days, Settlement of disputes, Manufacturing efficiency, Structural ratios, Rates of return and estimation of production function, government assistance and economic viability of the firms formed the core of analysis. Perhaps this could be the only study so far, which has focused extensively on the economic characteristics of small engineering firms in Coimbatore.

Mary Rathna (1980) analysed the small engineering firms in Coimbatore city with particular reference to their characteristics and problems. From the population of 500 units, 50 units comprising of Basic Metals, Machine Tools, and Electrical Machinery and Transport Equipments were selected for investigation. However only 42 units have responded. The study was based on primary data collected from the sample units. Age, gestation period, Organization, Size, Capital structure, Employment, Capacity utilization, Capital-labour, Capital output and output labour ratios formed the subject matter of analysis.
**Mahajan. V.S (1980)** focused his attention on the critical evaluation of government assistance and policy measures adopted to protect the small industries. He conducted a survey at Moga to assess the impact of government assistance on the growth of small industries. The units which produce agricultural implements were taken up for investigation and concluded that small units are not exclusively dependent on government assistance. They flourish mainly because of sudden spurt in demand and initial investment comes from their own funds or borrowed funds. Banks, government institutions and financial corporations are reluctant to advance money and small industries are not in a position to offer guarantee needed for raising loans. Most of small entrepreneurs are illiterates and hesitate to approach banks. Finally the study on the SSI in Moga shows that there has not been any impact of government assistance in the growth of small scale industries.

**Neela Mukherjee and Amitava Mukherjee (1980)** attempted to analyse the efficiency of small scale industries vis-à-vis large scale industries with reference to the place of SSI\(^2\) in the Indian economy and the inter industry comparisons in the small scale sector. For measuring and comparing efficiency, output/fixed capital, value added/fixed capital, value added/worker and output worker ratios were worked out both for SSI and LSI\(^3\) and concluded that SSI indicates more capital productivity and labour intensity. However the disquieting feature is that output/worker ratio is nearly 50 percent less in SSI than LSI.

**Prabhakar. K (1971)** analysed the ancillary industries in Mysore. He concentrated on the pattern of ancillary units and their inter-relationship with the medium and large industrial enterprises. He studied in detail the role of ancillary units in a developing economy. A similar study was undertaken by K. V Prabhakar (1972) in Karnataka.

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\(^2\) Small Scale Industries.

\(^3\) Large Scale Industries
Angadi (1976) studied the economics of handloom industry focusing mainly on the entrepreneurial background, source of finance, capital structure, output, cost elements, employment, raw material and marketing and concluded by emphasizing the need for state protection to the small scale handloom sector.

Pareek. H.S (1978) analysed the financing of small scale industries in an developing economy with particular reference to Rajasthan. The study is largely based on primary data collected from state government financial institutions (direct and indirect assistance) and small scale units. The sample consists of 181 units comprising of 10 product groups viz: food, Textiles, wood, printing, Chemicals, non metallic, Basic metals, Metal products, machine tools and Electrical machinery. Analyzing the capital structure and the various scheme of financial assistance in detail, he concluded that non-institutional borrowing constitute about ranks last in the sources of finance and the share of small scale industry in the total bank credit was 10.9 per cent in 1972.

Banumathi. K (1979) made an attempt to study the hosiery industry in Tiruppur, an industrial town near Coimbatore. Out of 900 units a sample of 9 units were selected for investigation. The sample units were classified as small, medium and large with reference to fixed capital investment. Capital Structure, Organization, Investment pattern, Output, Raw Material, Employment, Cost Structure, Productivity, pricing policy and advertising formed the subject matter of analysis. Moosa Baker (1980) analysed the role of small scale industries in Kerala, with particular reference to its share in the state domestic product, industrial Output, Exports, Investment and Employment.

Moorthy. G.K (1980) focused his attention on the financing of small scale industries in the Rayalaseema region of Andhra Pradesh. His emphasis was on the role of government Agencies, Financial institutions and Commercial Banks in augmenting the finances of the small scale sector.
Cauvery. R (1980) studied the economics of power loom industries in Komarapalayam town of Salem District. Her analysis also mainly concentrated on the capital structure, Employment, output and cost of production and concluded that power loom industries play a predominant role in the regional development.

Nag. A (1980) analysed the mortality level and patterns of small scale industries based on first exploratory survey of mortality undertaken in the three southern states of Andhra Pradesh, Kerala and Karnataka. He attributes government policies for the sudden growth of SSI. The sharp increase in the number of births during 1968-71 is interpreted as a direct consequence of intensive campaign launched by NSIC* with package of incentives.

However incidence of mortality became high after 1969-70 and was the highest during 1972-73 and 73-74 and concluded that the survival rate is higher in the units born before 1965 than the units born during the subsequent period. In response to sudden incentives many entrepreneurs rush to the project without giving any serious consideration to its viability and it resulted in increased deaths. The relationship between size and mortality was found to be inverse.

Karpagam. U (1981) attempted to study the export garment industry and its work force in madras city with the primary objective of examining the structure and composition of the labour force, wages and unionization of workers. The study focused on the structure of export garment industry, production processes, conditions of employment, current daily income in factory and non-factory sector, wage rates, non-wages benefits, employment status, nature of labour force, social origins of work force, economic status, labour mobility and membership in different trade unions. Case studies of different units were also undertaken to assess the unionization of the labour force and concluded that most of the struggles were conducted merely to secure the statutory rights denied to workers, job security and for some marginal improvements.
Neelameganm. R (1982) studied industrial finance to small scale industries in Tamil Nadu. John Harris (1982) attempted to investigate small scale production and labour markets in Coimbatore. He distinguished the small capitalist units of production and petty commodity producer units. Patterns of ownership and financing were analysed. The character of linkages between different forms of production is examined. The extent of subcontracting was found to be considerable. The interests of big industry in the splitting up of production processes, in order to tighten the control of labour are demonstrated. The backgrounds and social characteristics of workers in different industries were analysed and the degree of segmentation was found to be high.

Appa Rao. B (1982) analysed the role of Andhra Pradesh state finance corporation in promoting the small enterprises in Andra Pradesh and R. Natarajan (1984) studied the institutional financing of small scale industries in Andra Pradesh, B. Sadasiva Reddy (1982) attempted to study the development of small industries in Andra Pradesh with particular reference to Cuddappa District and L. Venugopal Reddy (1984) focused his attention on the problem of small scale industries in Rayalaseema region of Andra Pradesh. Anthony Bottomley (1982) extensively analysed the place of small industries in final outputs, intermediate activities and primary inputs. The study covered India, Brazil, Panama, Tanzania, Kenya, Iran, Korea and Mexico. Citing numerous statistics on the position of small scale industries in final output, intermediates outputs, inputs and exports, he concluded that small scale industry are playing a very vital role in the economic progress of the developing countries.

Hein Streef Kerk (1981) tried to understand working conditions, place of workers and labour relations in small scale industry. The study was based on 140 light industries operating in the sub district of Bulsar in south Gujarat. There was systematic under estimation of number of workers. Labour officer and factory inspector favoured only the management. Wages are not enough “to live on and too much to starve on” and concluded that workers in light industry
were lowest paid, there is an almost complete lack of legal protection, they occupy a subordinate tend to increase this divisiveness rather than promote solidarity.

**Avadhani. V.A (1981)** studied the small scale industries in the east and north east region with an objective to present a theoretical frame work for the labour market in Assam, Bihar, Orissa, West Bangal, Manipur, Meghalaya, Nagaland, Tripura, Arunachala Pradesh and Mizorem. He cites three types of labour market viz: organized, Semiorganised and Unorganized. Identifying SSI with semi-organized labour markets, he argues that there is a great potential to develop the SSI in this region with linkages to organized and unorganized sector. However at present SSI are working under semi-optimal conditions with poor technological advancement, the return on capital is low and output per worker is poor. Some attribute inadequate finance is responsible for the above weakness which he refutes stoutly and contends that the above problems are non-financial in nature such as non-availability of raw materials, power, diesel, insufficient transport facilities and under developed market net work and concludes that development of these infrastructures will usher in dynamism in the functioning of small scale industries.

**Advani. A.H (1981)** analysed the growth of small scale industries during the period 1972 to 1979 with reference to number of units, fixed capital, employment, output and value added. The study covered all states as well as union territories. Based on the macro analysis, he concludes that for the economy as a whole the figures are highly impressive. But according to RBI, the total number of sick units in 1979 was 20,700. In Kerala 66 percent of the units were reported as sick, Bihar (55%), west Bengal (50%), Andhra Pradesh (30%) and Uttar Pradesh (27%) also exhibited high incidence of sickness.

**Jone Harris (1982)** discussed several theories, based on field research in Coimbatore in 1980 concerning the character and role of ‘small – scale’ production in relation to the industrial economy as a whole.
He distinguished the small capitalist units of production and petty commodity producer units. The patterns of ownership and financing were analysed. The character of linkages between different forms of production was examined. The extent of subcontracting was found to be considerable. The interests of big industry in the splitting up of production process, in order to tighten the control of labour were demonstrated. The background and social characteristics of workers in different levels of industry in casual work and in self-employment were also analysed and the degree of segmentation was found to be high.

Deepak Gupta (1985) studied the productivity trends and factor substitutability in the manufacturing sector of Maharashtra. The study covered the period from 1968-69 to 1977-78. The study is based on ASI data published by the Central Statistical Organization (CSO). Partial factor productivity and total productivity were measured by using Kendrick’s arithmetic Index as well as Cobb-Douglas production function. He concluded that labour productivity has been falling while capital productivity has increased and capital intensity has decreased.

Gunasekaran. K (1990) examined the growth of small-scale food industries in Coimbatore district during the period 1970-1988 at four-digit level classification of NIC. The main objectives of the study were to analyze the growth trends in select economic indicators, to analyse labour and capital productivities and their incremental ratios, and to examine the production structure.

The estimation of Cobb-Douglas production function and the co-efficient of determination ($R^2$) reveal that, the parameter estimates of 29 out of 30 product groups were found to be significant. He concluded that the small-scale food industry in Coimbatore is already suffering from excess labour intensity and the only way out to increase the labour productivity was to increase capital accumulation.
Ahluwalia (1991) attempted to explain the inter-industry differences in TFPG in industry groups for the period 1960 to 1986. She regressed TFPG on output growth along with other factors like the degree of import substitution and capital intensity growth. She also tried to capture the impact of competitive pressure on productivity growth by using the variable, rate of growth of factories is found to have a significant negative sign through a positive sign was expected a priori. She also found a negative relationship between Chenery measure of import substitution and TFPG.

George (1992) examined the current problems and growth potentials of small-scale sector viss-a-vis the new policy initiatives addressed to problems of fixed and working capital funding, raw material distribution, marketing, excessive bureaucracy, absence of equity participation by non-SSIs, expansion of single window system, introduction of factoring services and R and D support to the needy units are laudable. However, the new policy had no solutions to offer sickness, stagnation and non-competitiveness of SSIs.

These vital policy gaps suggested that the new policy initiative was only a piecemeal attempt on structural change. The wide gap between stark reality and expectation eventually provide a clue to what is in store for this sector. In the absence of a strategic vision and an integrated intrusive policy initiative on the part of the government, it is even doubtful that the small industrial sector will grow to reach the threshold it is capable of, let alone cross it.

Sandesara (1993) examined growth, size, structural change, closers and impact of policy reservation on SSIs. The massive data available in the report of the second census of SSI units was used for the study. The major findings of the study were. (i) Productivities of both labour and capital have increased over the period. (ii) There was substantial increase in capital-intensity. (iii) Performance of reserved products producing units was poor. (iv) Poor performance was possibly because of reservation which attracts more units,
both old and new, than other areas of small industry and continuation of production activity by inefficient producers.

Ramaswamy. K.V (1994) studied the Indian small-scale sector for the period 1961 to 1991. The major objectives of the study were, (i) to estimate the size of the small-scale sector and its contribution to manufacturing employment in the 80s, and (ii) to assess the size of SSI sector relative to total manufacturing. The analysis was based on the data published in the report of the All- India Census of Small-Scale Units.

He concluded that the small scale industry was a significant source of manufacturing employment, particularly during 1981 to 1991. Most of the additions to the manufacturing employment has come from non-household, non-factory segment. Number of registered small-scale units was found to be small but growing segment of manufacturing. It was also observed that wages in small-scale units are lower relative to the large-scale sector, but labour productivity was not proportionately lower. The production of the reserved items was not found to be dominant in SSI units. Shift to non-factory was due to labour cost advantages of small-scale production.

Balasubrahmanya (1999) made an attempt to probe the implicitly redefined India’s small industry policy in the 90s to review the evolving strategy for small industry development and proposes a few policy measures. The consistent and impressive growth of the sector in terms of employment, output and export led to the impression that the path pursued so far for small industry growth was successful. But small industry performance in terms of dynamic efficiency was rather dismal. Despite its wide ranging promotional and protective net works, Indian small industry’s efficiency suffered in due course which necessitated and altogether different approach for small industry development. The sustained growth of small industry in the 90s gave ample scope for the government to further shift the policy emphasis from protected growth to competitive growth. Though the steps taken so far to improve the technology of small
industry were heartening, special attention must be paid to take into account of the global changes occur in small industry and enable domestic small industry to enhance competitiveness on a continuous basis. The government support machinery has to be revitalized, effective R & D network needs to be developed and small industry associations have to be involved intensively.

**Vasundhara Raje (2000)** in her article titled, “The role of small scale industry in promoting Economic development” reported that in 1991 when the process of liberalisation of the economy began, apprehensions were expressed that the small-scale sector would be unable to withstand the opening up of the economy. During the seven year period from 1991 when liberalisation began till 1998, the small-scale sector created almost 42 lakh new jobs whereas the entire organized industry including government was able to create only 14.3 lakh new jobs. There is a vision of a strong and vibrant small-scale industry sector contributing its might to economic progress and job creation while at the same time, working with large industry to ensure that the comparative advantages of both complement each other.

**Bhavani (2002)** has studied the problems and prospects of small scale units in the Era of Globalization. The study focused on the ongoing changes in the business environment and analyse their implications for small-scale units. Specifically, it looked at possible ways of improving competitive strength and commercial viability of small-scale units in the changing context. Apart from the general purpose analysis meant for the small-scale sector at large, he examined the implications of the changing context with reference to the small-scale units of three industries, namely, garments, elections and auto components.

The author found that the liberalisation has exposed all industrial units including small units to market competition to a greater extent. Indian industrial units especially the smaller ones need to improve their productivity and quality, to reduce costs and go for higher
performance of products and better services. This means substantial improvement of various dimensions of technology, namely, transformation (mechanization), organization and information. The author concluded that small units not only need to upgrade their technologies immediately but should also keep track of the changes in technologies.

Shetty, S.L (1982) analysed the growth and structural changes in the factory sector in India during 1970’s based on the summary results of annual survey of industries for 1978-79. It is brought out that growth in the number of factories decelerated during 1970’s. The preponderant part of the increase in recent years has taken place in small size units, individual proprietorships and partnerships. While the share of the organized sector in fixed capital was broadly sustained, its relative share in employment as well as in emoluments fell conspicuously. In the disposition of value added, the share of wages fell, while that of profits and interest payments rose sharply. Despite many limitations of the data, the analysis does not show any tendency for the capital output ratio to rise. However capital intensity has increased both in large as well as small scale units. Also two thirds of the productive capital in the ASI sector is borrowed capital. Over the years, the size distribution (in terms of capital) of factories has become more skewed. Interestingly, small sized factories in terms of employment possess relatively large fixed and productive capital. The capital output ratio for the unorganized sector was 0.90 while it was 1.07 for the private corporate sector. Age wise, the feature of high capital output basis is true of factories started during the second plan period. Industry wise, electricity accounted for 44 percent of fixed capital but less than 9 percent of employment and 12.7 percent of value added. Its capital output ratio in 1978-79 was as high as 8.25 against the average of 2.4. Perhaps this could be the only very exhaustive study which has covered almost all structural aspects of industries along with structural ratios organization wise and ownership wise.
Sandesara. J.C (1982) analysed the incentives and their impact on small industries. Government of India, state governments and the agencies sponsored by them have had a number of special aid programmes for long. The objective was to evaluate one of the assistance programmes viz: long term finance by the state financial corporations in Bombay, Thane, Jaipur, Hydrabad and Secandrabad areas. Evaluation was conducted in terms of its impact on the assisted units, that is, as judged by their financial and economic performance juxtaposed against the same other which has not received the assistance. Recipients of assistance for at least three years formed the sample units and non-recipients in the same locality control units. Number of sample units were 206 covering 10 product groups viz: metal products, machine tools, paper, industrial fasteners, printing press, chemicals, agricultural implements, casting, electronics and plastic. The major hypothesis of the study was that, the sample units may be expected to show better performance than control units at a point of time. Seven ratios were worked out to examine the hypothesis. It was found that in profitability, productivity; value added to fixed assets and surplus to total assets, control units showed better results in majority of the product groups. In case of surplus per worker, wages per worker and total assets per worker, sample units indicated better performance. As regards overall position in one industry was the performance of sample units indicated better performance. As regards overall position in one industry was the performance of sample units superior to that of control units. Studied the small scale industries in the east and north east region with an objective to present a theoretical frame work for the labour market in Assam, Bihar, Orissa, West Bangal, Manipur, Meghalaya, Nagaland, Tripura, Arunachala Pradesh and Mizorem. He cites three types of labour market viz: organized, Semiorganised and Unorganized. Identifying SSI with semi-organized labour markets, he argues that there is a great potential to develop the SSI in this region with linkages to organized and unorganized sector. However at present SSI are working under semi-optimal conditions with poor technological advancement, the return on capital is low and output per worker
is poor. Some attribute inadequate finance is responsible for the above weakness which he refutes stoutly and contends that the above problems are non-financial in nature such as non-availability of raw materials, power, diesel, insufficient transport facilities and under developed market net work and concludes that development of these infrastructures will usher in dynamism in the functioning of small scale industries.

2.3 STUDIES RELATED TO TECHNICAL EFFICIENCY

Chen (1977) found that the Hong Kong manufacturing sector as a whole suffers from decreasing returns to scale, though the magnitude is quite small. The lack of scale economies in the Hong Kong manufacturing industries is however hardly a surprise considering the nature of the dominant industries such as toys, garments, radio, and footwear. The minimum size for efficiency in these industries tends to be relatively small. It is most likely that in the process of industrialization in Hong Kong, the major source of growth in the manufacturing sector has been technical progress and not economies of scale.

Kopp and Diewart (1982) have analyzed the decomposition of frontier cost function deviations into measures of technical and allocative efficiency. In this study they analyzed a method for decomposing the deviations from a full frontier cost function into Farrell (1957) measures of technical and allocative efficiency. The method draws heavily on duality theory and requires no direct knowledge of the primal production frontier specification or its parameters. Thus the method is applicable to a broad class of cost functions, including flexible functions such as the translog, which do not posses analytically deviable under lying production functions. The method easily generalizes to joint output production technologies where the decomposition or deviation from frontier profit functions would provide measures of technical, allocative, output mix and scale efficiency.

Keith et al (1984) studied the estimates of an aggregate Cobb-Douglas production Function for Nepalese industry. This paper examined an initial analysis of the issue related
to modern and cottage industries, by estimating the production characteristics inherent in a simple specification for an aggregate technology for Nepalese manufacturing industry for the year 1965, 1972-73 and 1976-77.

He concluded that, as industrialization increases, the various factor industries may change in more appropriate directions. Public policy might well be redesigned to promote such adjustments rather than hide them.

Rajalakshmi (1985) studied the Production function analysis of public sector transport equipment – industry in India. The study analysed the public sector transport equipment industry at aggregate level comprises of nine individual industries which include, Road transport, rail transport, ocean transport and air transport equipments. The study concluded that, the performance records of the public sector transport equipment industry seemed to be unsatisfactory and unimpressive during the recent years.

Agarwal (1986) studied on estimation of Cobb-Douglas production function in selected Indian industries. The objective of the study, was to estimate the coefficients of inputs, their marginal productivities and share in total output at degree of returns to scale. The data were collected from the Annual Survey of Industries (ASI) compiled by Central Statistical Organization (CSO). The study concluded the value of the degree of returns to scale parameters as obtained by the sum of the coefficients of labour, capital and raw materials, turns out to be very close to unity in both periods. Thus for policy makers, it would be useful to appreciate that application of C-D function in original form may after create problems but the modified method of estimation of the production function.

Grosskopf (1986) measured efficiency with a focus of the theory developed by Farrell. In the Farrell framework, overall efficiency (OE) can be decomposed into two multiplicative components, allocative efficiency (AE) and technical efficiency (TE); OE=AE.TE. The results from the paper showed that relatively restrictive reference technologies will, in general, yield
relatively low values of overall technical efficiency. Those values would, in general, be higher (more efficient) if calculated relative to a less restrictive reference technology by choice of functional form will, in general, affect the magnitude of the resulting efficiency measures.

Chandrasekar (1987) made an empirical study to establish the linkage, if any, between controls in trade and inefficiency in Indian of capital goods and synthetic fibers industry. He also examined the view that the free play of market forces can do away with the deficiencies of the earlier regime. The author concluded that the experience both in India and elsewhere suggests that the emergence of a more efficient industrial structure is not a retreat from state intervention but a modification of that intervention.

Tain-Jy Chen and De-Piao Tang (1987) investigated the relative technical efficiency between import substitution oriented and export oriented foreign firms in Taiwan’s electronics industry in 1980. Data for 184 electronic firms were obtained from the annual survey of foreign firms conducted by Taiwanese government. The study used two models viz, the deterministic frontier model developed by Farrell (1957), Aigner and Chu (1968), Richmond and others (1974) and a stochastic frontier model developed by Aigner et al (1977) and Meeusen and Van Den Broeck (1977) for estimating frontiers and measuring technical efficiency.

The study found that firms that are constrained to export all their products and thus to compete in the world markets (export-oriented) tend to be more efficient than those allowed to sell their products in the protected local markets (import-substitution-oriented). Depending on the model specified, the export – oriented firms were found to be 6 per cent to 11 per cent closer to the production frontier than the import substitution oriented firms. Results obtained from both the models indicate that the export-oriented group was more efficient than the import substitution group. In case of deterministic frontier model, the export oriented group implied
61.09 per cent efficiency and the import substitution group shared 54.91 per cent efficiency. Similarly incase of stochastic frontier model, the export-oriented group indicate 71.95 per cent efficiency than the import substitution group, which shares 60.40 per cent efficiency. The study found no evidence to support the view that superior performance results from larger firm size or local participation. However, the study found that older firms tend to be more efficient.

**Erkin Bairam (1990)** studied the Aggregate and Disaggregate Production function estimates for the Indian Economy using Annual time – series and Cross – Regional data. In this study appropriate production function for forty-six major industries branches of India and for the total Indian Economy were estimated. These data are the most comprehensive disaggregate statistics available on Indian Industry. He concluded that the Cobb-Douglas production function can be accepted as underlying production model of the Indian Economy. The estimation of the rate of technical progress from constrained Cobb-Douglas production function suggested that the future growth potential of the economy as a whole is less than 4.0% per annum.

**Bhavani (1991)** examined technical efficiency in Indian modern small scale sector. The study attempts to investigate the efficiency at four digit level industries of metal product groups belonging to the modern small-scale sector. He made an attempt to measure the technical efficiency of the selected industries using translog production frontier with three inputs, viz., capital, labour and material. The results shows high efficiency levels for the selected industries.

**Ozlem Onder et al (2000)** in their study, “Technical Efficiency and Technical Change in the selected Provinces of Turkey: A stochastic frontier Analysis,” measured the level of technical efficiency and the change of technical efficiency by estimating a translog stochastic frontier function in Turkish manufacturing industry of selected provinces. This method incorporates technical change and has time varying technical efficiency effects. This stochastic
frontier is estimated by using panel data based on the 18 selected provinces in Turkey for period 1990-1998. According to estimation results, the co-efficient of average firm size variable has found negative and significant, which indicates that the large-scale industries are more efficient than the small-scale industries. According to the results, the public manufacturing industries have high average technical efficiency scores than the private industries. But, the technical efficiency rate is decreasing over the period of 1990-1998 in all manufacturing industries.

**Linga murugeshwari (2003)** estimated production function parameters and technical efficiency indices and determinants in small scale Machinery and Machine tools manufacturing industry, at four-digit classification of the NIC code 1987. To estimate technical efficiency parameters the study used a three input frontier model in terms of Cobb-Douglas production function and estimated by COLS, following Greene’s (1980) procedure. The results indicate that all the three inputs are statistically significant in most of the product groups explaining production behaviours. Average technical efficiency of the industry was found above 95 per cent during the period of study. Comparison of inter product group efficiency indicates utmost uniformity in the efficiency level of the various product groups. The study found, that size is positively related to efficiency of a firm. Better management, economies of scale, investments in gross block and net sales were found to be the determinants of technical efficiency in this industry.

**Bao – Guang Chang and Yahn – Shir Chen (2005)** made an attempt to study production function forms under technology gap, evidence from Public Accounting firms in Taiwan. The study examined the technology pattern of the production function of public accounting firms in Taiwan under different technology level. Due to potential structure shift in economy, the functional form of production for large firms with high tech level resembles the VES pattern during the formal sub-period and is exactly VES during the latter sub-period. For small firms with remain low tech level their functional firms of production remain to be the
CES pattern during the two sub-periods, they concluded that during both sub periods, the growth rate of revenue from non audit services are higher for larger firms than for small firms.

2.4 CONCLUSION

In this chapter, we find several studies made an attempt to analyse growth, growth acceleration, technical efficiency and productivity, improvement of different manufacturing industries. The reviews related to economic reforms and productivity growth used various measures like, determinants, productivity growth and exports in medium and large scale industries in regional and national levels. The reviews related to economic reforms and productivity growth used various measures like total factor productivity, technical efficiency, export promotion etc. to analyse the link between economic reforms and productivity. Similarly the issue has been investigated at different levels: plants, firms and industry, national and international with different models specifications and data set.

The results derived from the above review indicate that the impact of trade liberalisation on productivity growth has however been missed. In some studies, the impact is found to be positive, in others it is not so. In other words, it is evident that the available empirical evidence on this issue is inconclusive. Studies for developing countries that use firm/industry level data do not find an unequivocal positive relationship between economic reforms and productivity growth. Further studies undertaken at the national and regional level did derive contradictory results and the emerging scenario was not categorical to formulate future development strategies. Most of the studies reviewed had analysed the concept of technical progress and technical efficiency with reference to firm’s characteristics such as firm size, age and ownership. Research work pertaining to the impact of economic reforms on growth, factor productivities and technical efficiency exclusively for small scale industries were very few and scanty. In order to fill these gaps this study has been undertaken.
References


CHAPTER III

GROWTH IN SMALL SCALE INDUSTRY DURING

PRE AND POST – REFORM PERIOD

3.1 INTRODUCTION

The phenomenal growth of industries in the Small Scale sector has been a striking feature in the economic development of the country since independence. It has contributed to the overall growth of the Gross Domestic Product as well as in terms of employment generation and export. The small scale sector has acquired a prominent place in the socio-economic development of the country during the past four and a half decades. Performance of the small scale sector, which forms a part of total industrial sector, therefore, has direct impact on the growth of the national economy.

Since 1960’s, much research as to whether “the law of proportionate effect” is valid or not has been carried out in Western countries. Since 1980’s the research in those fields has made it clear that firm age,